

UNITED STATES-JAPAN NUCLEAR COOPERATION AGREEMENT

HEARINGS BEFORE THE COMMITTEE ON FOREIGN AFFAIRS HOUSE OF REPRESENTATIVES ONE HUNDREDTH CONGRESS FIRST AND SECOND SESSIONS

DECEMBER 16, 1987 AND MARCH 2, 1988

Printed for the use of the Committee on Foreign Affairs



U.S. GOVERNMENT PRINTING OFFICE

84-594

WASHINGTON : 1988

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

4381-62

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UNITED STATES-JAPAN NUCLEAR COOPERATION AGREEMENT

WEDNESDAY, DECEMBER 16, 1987

**HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
WASHINGTON, DC.**

The committee met at 1:56 p.m., room 2167, Rayburn House Office Building, Washington, D.C., Hon. Don Bonker presiding.

OPENING STATEMENT OF CONGRESSMAN BONKER

Mr. BONKER. The House Foreign Affairs Committee will come to order.

The committee meets this afternoon to examine and consult with the Executive Branch on the Proposed Agreement negotiated between the United States and Japan with respect to nuclear cooperation which supersedes the 1968 Nuclear Cooperation Agreement with our country.

The President submitted the Proposed Agreement to Congress on November 9th, 1987. Section 123 of the Atomic Energy Act provides for thirty days of continuous session for the Congress and the Executive Branch to consult on whether the agreement meets all of the statutory criteria. So, we are, in effect, in this thirty day period.

If the President, as he has done, determines that the Agreement meets all the statutory criteria, then the Agreement will take effect after an additional sixty days of continuous session. If the Congress determines that during this process, that the Agreement does not meet all the statutory requirements, then the President must submit the Agreement with a waiver.

Under that scenario, the Agreement would not enter into force unless the Congress were to enact a joint resolution of approval under fast-track procedures.

Now, as Chairman of the Subcommittee on International Economic Policy and Trade, which has worked on a number of contentious nuclear non-proliferation issues in the past, I can attest to the fact that this Agreement is difficult to understand. We have before us not just a simple Agreement, artfully drafted by the attorneys, but 400 additional pages of documents, including the implementing agreement and dozens of letters and notes verbales, that are considered an integral part of the text. And I assume that this is a document that the committee has before it.¹

¹ Proposed agreement between the United States and Japan concerning peaceful uses of nuclear energy, 100th Congress, 1st Session, House Document 100-128.

Even the volume cannot hide the fact that the Agreement contains several controversial items which are of concern to the committee. The Nuclear Regulatory Commission highlighted some of these in its July 27, 1987, letter to the President, recommending that he not approve the Agreement.

The committee is particularly concerned about the provisions granting Japan advance programmatic approval for plutonium use in future Japanese facilities, approving concepts relating to the national safeguard measures, allowing for suspension of cooperation under the Agreement, emphasizing economic rather than non-proliferation measures, and, finally, requiring the return of separated plutonium from Europe to Japan via air without specific prior United States approval.

While we recognize the benefits of air versus sea transport from an anti-terrorist perspective, air transport poses some serious threats.

Now, in addition to my concerns over the non-proliferation controls under the Agreement, I also note some reservations about the possibility of air transportation of plutonium across our nation. Basically, there are two ways to transport reprocessed plutonium from Europe back to Japan. You can do it either by sea or by air.

Sea-faring transportation reduces the safety and environmental risks, but could make the shipments more vulnerable to terrorist attack. On the other hand, airborne transportation may reduce the risk of terrorism, but could increase the safety and environmental hazards.

In 1984, when Japan shipped a 189 kilograms of reprocessed fuel from Europe by sea, the voyage took seventy-five days.

I am sure there are many in Congress who are troubled by the prospect of air transportation of plutonium without the most rigorous safeguards. Recently, a prototype for the plutonium transportation containers failed a simulated air crash test.

While the NRC is responsible for the safe operation of nuclear plants and the safe transportation of nuclear material within the United States, I understand and perhaps the witnesses can confirm that the NRC was excluded from the negotiations which produced this Agreement.

Now, as I examine the Agreement, I find that there is not even a requirement for prior approval by the U.S. Government before these flights commence.

As I am sure everybody who has followed this issue knows by now, the State of Alaska has filed suit to block these flights, and the Government of Canada, the Minister of Transportation, has raised serious objections.

Now, if both Canada and Alaska succeed in blocking these flights over their air corridors, it is entirely possible that we could have three planes per month refueling in Washington State, each carrying approximately 300 pounds of deadly plutonium.

The air shipment of plutonium raises obvious safety and environmental questions. Yet the Department of Energy has refused to conduct a full environmental impact statement as required.

Now let us be clear about what we are talking about here. Plutonium oxide is one of the most toxic substances known to man. As a

powder, it is easily airborne, and even a minute amount can cause lung cancer if inhaled.

The Agreement calls for two flights in 1990, each carrying roughly 110 pounds of plutonium. By 1992, the flights will increase to three per month, each carrying roughly 330 pounds. Over the thirty-year life of this Agreement, over twenty-five tons of plutonium could be transported through the State of Washington.

Now, Congress has ninety working days in which to review the issues, then approve or disapprove the Agreement. It is obvious that many of us here have concerns about the Agreement and there may be strong sentiment to send our negotiators back to Japan to hammer out an agreement with stronger non-proliferation and transportation provisions.

At the very least, I believe Congress should impose strict safety and environmental conditions before giving the Agreement our final conditional approval.

At this time, I would like to call upon the ranking member of the Subcommittee on International Economic Policy and Trade, if he has any opening comments.¹

OPENING STATEMENT OF CONGRESSMAN LEACH

Mr. LEACH. I have no opening statement, but I would just simply like to underscore two things. One, the administration has pursued these agreements, whether they are imperfect or not, with a great deal of assiduousness and professionalism. I think this committee ought to comment on that.

Secondly, from the perspective of the United States cooperating with a major ally of ours, it is quite clear that Japan has had as forthcoming a record on non-proliferation safeguards as any country in the world, the history of the world, granted the history is brief.

I think all of us in Congress ought to note that fact and, in noting that fact, also recognize that based upon that record, there are certain benefits of the doubt that I think should be accorded to Japan in these considerations.

Finally, let me say there are certain aspects that are coming up, as the gentleman from Washington has noted, that are new and different based upon not only new technologies, but quantum degrees of difference in terms of hugeness of use.

I would simply like to conclude by saying I am very appreciative of the solid work of the administration, and I can understand why there are differences of opinion within it as there are, I am sure, going to be reflected in Congress as well.

Mr. BONKER. Thank you.

I now call upon the distinguished Chairman of the Subcommittee on Asian and Pacific Affairs, Congressman Steve Solarz, for an opening statement.

OPENING STATEMENT OF CONGRESSMAN SOLARZ

Mr. SOLARZ. Thank you, Mr. Chairman, very much.

¹ Congressman Bonker's prepared statement appears in app. 1.

I am pleased to participate in today's hearing on the Proposed Agreement between the United States and Japan concerning the peaceful uses of nuclear energy.

I look forward to working with my colleagues on the committee, particularly my good friend from the State of Washington, whom I have sat next to for thirteen years now, in considering whether the United States should take what we all recognize is an historic step into an unchartered future.

The issue at the heart of the Proposed Agreement is whether the international nuclear non-proliferation regime, which has helped prevent nuclear terrorism and nuclear war for four decades, can continue to function effectively in the context of an emerging plutonium economy.

The questions which we must address include the following: will it be possible to develop arrangements appropriate for the handling of relatively large amounts of plutonium; will it be possible to develop procedures for the transport of plutonium which will assure that this dangerous substance neither falls into the wrong hands nor threatens the natural environment; will it be possible to balance these concerns with the presumptive necessity of developing peaceful nuclear energy on a predictable basis.

I intend to look at these issues with an open mind. I hope that my colleagues will examine them on their substantive merits without emotional bias, and I hope that we all remember that the Japanese are, after all, the only people who have been the targets of atomic weapons and who experienced the consequent ravages of radiation. They are the last ones to want to place other people at serious risk.

Nevertheless, we do have a responsibility under the law to determine whether this Agreement is not only compatible with the law but is in the best interests of the United States. I am hopeful that after fully considering this matter, listening to witnesses on both sides of the question, that we will make a responsible determination.

Thank you.

Mr. BONKER. Thank you, Mr. Solarz.

Mr. Wolpe, do you have an opening statement?

OPENING STATEMENT OF CONGRESSMAN WOLPE

Mr. WOLPE. Thank you, Mr. Chairman. I do. I will be very brief, though.

Mr. Chairman, I come to this hearing with very deep concerns over the administration's proposal for the specific Nuclear Cooperation Agreement that was crafted with Japan.

I understand that the Senate had its first hearing on this subject yesterday. The administration must have been somewhat stunned by the vehemence of the critique that was registered by a number of our colleagues in the Senate. But I must say to those critics that this is, indeed, one of the most ill-conceived agreements I have yet seen proposed in this area.

It treats American security concerns in an extraordinarily cavalier fashion and elevates commercial consideration as the almost exclusive determinant of American policy in this area.

The effect of the Proposed Agreement is twofold. It seeks to promote virtually unregulated trade in one of the most dangerous substances known to man, both from the standpoint of its toxicity and suitability for nuclear weapons, and, in my judgment, violates the requirements of American law.

I understand the administration is defending this Agreement by arguing, among other things, that it has economic benefits, notwithstanding any rights or privileges that we would lose. I think it is helpful to go back to 1978 when the Nuclear Non-Proliferation Act was passed by this Congress. In it, we stated our conviction that the last thing we wanted to do was to relinquish control over plutonium. It simply makes no sense to relinquish those controls.

Plutonium is deadly. Scientists tell us that a speck of it can cause cancer if inhaled. It is used for nuclear weapons. It is not, however, necessary for creating nuclear power. Uranium, of which there is currently a glut, is very adequate for that purpose.

Because of this, and because of growing concerns that the United States was promoting a substance that could be used against us either by a hostile nation or, more likely, by a terrorist group, Congress passed the Nuclear Non-Proliferation Act. The NNPA is designed to protect the national security from the dangers inherent in a full-blown plutonium economy.

The American/Japan Nuclear Cooperation Agreement openly violates that law and sets a dangerous precedent not only for our relationship with Japan but all of the other nations who are next in line for the renegotiation of a nuclear cooperation agreement.

By providing a thirty-year blanket approval for Japan to reprocess spent nuclear fuel and to use the plutonium, this Agreement gives Japan a nuclear carte blanche to use plutonium in facilities that have not even been built yet.

Let there be no question about the magnitude of this Agreement. The United States now has approximately a hundred tons of plutonium in its entire weapons arsenal. If this Agreement was fully implemented, Japan could have in the neighborhood of 400 tons of separated plutonium accumulated by the year 2017.

Further, the Agreement forces Congress and the Administration, who are required by Section 131 of the Atomic Energy Act to determine if this Agreement is not inimicable to the common defense and security of the United States, to be no less than clairvoyant.

How are we to know what will or will not pose a nuclear non-proliferation risk in the year 2017? The issue is not Japan today or Japan at all. The issue is whether American security is to be served by relinquishing our rights to case-by-case approval of plutonium transfers.

I understand that the Nuclear Regulatory Commission and the Department of Defense have expressed concern about this Agreement and its impact on the national security directly in communications to the President. It is time for Congress, in my judgment, to echo those concerns, and to reject this Agreement in its current form.

I thank the Chairman for providing an opportunity for me to make this brief statement.

Mr. BONKER. Mr. Levine of California.

OPENING STATEMENT OF CONGRESSMAN LEVINE

Mr. LEVINE. Thank you, Mr. Chairman.

Mr. Chairman, I, unfortunately, have to be absent from this hearing for a period of time, and I felt that in light of the extraordinary importance of the subject matter under consideration, I wanted to make a brief opening statement and raise some concerns that I have.

Mr. Chairman, this is a very complicated Agreement, and I imagine that we are going to spend in the committee some time today wading through the legal technicalities of the Agreement. I believe that will be a worthy effort because I think the Agreement has serious defects that conflict with current non-proliferation statutes.

But I think it is important at the outset to emphasize the big picture rather than the details. I think that we need to get out just exactly what we are talking about in reviewing the content and the essence of this Agreement.

We are talking, Mr. Chairman, about giving an unprecedented blanket long-term authorization for a non-nuclear weapons state to transport and use weapons-grade nuclear material. We are talking about moving tons of weapons-grade plutonium across the globe and back on a regular basis, greatly expanding the opportunity for terrorists to acquire the nuclear material needed for a bomb.

We are talking about moving tons of plutonium all over the United States and Canada every year for the next thirty years in casks that have not even been invented yet.

By all means, Mr. Chairman, let us discuss the legal questions involved in congressional review of this Agreement, but let us be clear from the start about some of the frankly, outrageous aspects of this Agreement and its own implications for any semblance of a remaining nuclear non-proliferation policy, and for the true specter of nuclear terrorism.

Mr. Chairman, we must not pretend that we are going to approve this dangerous Agreement and then go on our merry way. Frankly, from what I have read thus far and reviewed thus far with regard to this Agreement, it appears to me, Mr. Chairman, that the administration is doing its darn best to sneak a very bad agreement by Congress.

This is a very seriously-flawed agreement. In fact, I think that this committee should tell the administration to go back and start over again from the very beginning renegotiating this Agreement with Japan.

Thank you, Mr. Chairman.

Mr. BONKER. Thank you, Mr. Levine.

Are there any other opening comments?

Mr. Weiss.

OPENING STATEMENT OF CONGRESSMAN WEISS

Mr. WEISS. Just a word. I associate myself with the comments made by Mr. Wolpe and Mr. Levine as to the serious flaws in this agreement with regard to proliferation. In addition, the failure to have an environmental assessment under the NNPA of the potential consequences of transporting plutonium across U.S. airspace is of extreme concern. I am not reassured by the Department of Ener-

gy's contention that, in fact, it is not necessary to require one. The casks to be used have not even been invented, let alone tested. Finally, the whole process has been shrouded in secrecy, so that the people in the jurisdictions that will be affected have no way of knowing what they have to contend with.

For all of those reasons, these hearings are more than timely, and this Agreement really has to be looked at very carefully.

Mr. BONKER. Thank you, Mr. Weiss.

I also have Chairman Fascell's opening statement that, without objection, I would like to include in the record.

[Chairman Fascell's prepared statement follows:]

PREPARED STATEMENT OF HON. DANTE B. FASCELL

This afternoon the Committee on Foreign Affairs begins its consideration of the proposed nuclear cooperation agreement between the United States and Japan. The proposed agreement is as complicated and important an arrangement as any I have seen submitted to the Committee. As an example of its complexity, I need only note that the President's submission contains over 450 pages of legal language and supporting documents. Its importance is underscored by the intimacy of the U.S. and Japan in nuclear affairs generally: Japan builds its own American-style reactors under license from U.S. manufacturers, and in some cases has greatly improved the original U.S. designs; it receives 85% of its nuclear fuel from the United States; it employs numerous American architect-engineering and service companies to support its nuclear program, which provides 25% of its electricity; and it has chosen to continue this relationship for another thirty years if Congress and the Japanese Diet approve the agreement. From Japanese national security standpoint, this agreement is a necessary component of its energy policy for many years to come. From an American national security standpoint, the proposed agreement will facilitate further cooperation with the Japanese on nuclear nonproliferation matters generally, but will result in American approval for use in Japan of tens of tons of plutonium in the civilian nuclear fuel cycle for many years.

Questions on which the Committee will focus include the consistency of the proposed agreement with the requirements of law, the degree to which it promotes the long-standing American and Japanese goal

of limiting the spread of nuclear weapons, and the environmental and security issues surrounding international plutonium traffic. The agreement lays before the Congress for 90 days of continuous session, a relatively short period of time to review a complex agreement, so we need to get under way to identify the principal questions posed by the proposed agreement. The witnesses to help us begin our deliberations are:

*The Honorable William Martin, Deputy Secretary of Energy

*The Honorable Richard Kennedy, Ambassador-at-Large and Special Adviser to the Secretary of State on Non-Proliferation and Nuclear Energy Affairs

*Mr. Norman Wulf, Acting Assistant Director of the Bureau of Nuclear Weapons and Control at the Arms Control and Disarmament Agency, and

*The Honorable Lando Zech, Chairman of the Nuclear Regulatory Commission

INTRODUCTION OF WITNESSES

Mr. BONKER. We shall now turn to our witnesses and I would like to welcome the Honorable William Martin, who is the Deputy Secretary of the Department of Energy and the Honorable Richard Kennedy, Ambassador-At-Large, Department of State, who is no stranger before this committee. Indeed, the last bi-lateral you worked on, Ambassador, took, if I recall, three or four years. Let us hope that this present Agreement will not consume a similar amount of time.

And we also have Norman Wulf, who is the Acting Assistant Director for Nuclear Weapons Control. He is with the U.S. Arms Control and Disarmament Agency; and then, finally, the Honorable Lando W. Zech, who is Chairman of the U.S. Nuclear Regulatory Commission.

Gentlemen, obviously you have heard the opening statements and questions that have been raised by panel members, and I note that you had similar reception over on the Senate side. So, you certainly have your work cut out for you this afternoon.

I do not know in what order you want to present your testimony, but the agenda here calls for Mr. Martin to provide the opening statement and to be followed then by Mr. Kennedy, Mr. Wulf and Mr. Zech.

Mr. Martin, I also understand that you have to depart shortly. Can you give the committee a sense of when you have to depart?

Mr. MARTIN. I would like to make a short opening statement and provide any answers to questions.

Mr. BONKER. Okay. I think then we will begin with you and we will provide a few moments for some questions for Mr. Martin as long as they relate to areas over which you have jurisdiction on this negotiated bi-lateral.

And with that, you may proceed.

**STATEMENT OF HON. WILLIAM MARTIN, DEPUTY SECRETARY,
DEPARTMENT OF ENERGY**

Mr. MARTIN. Well, thank you, Mr. Chairman.

It is a long agreement and we welcome the opportunity to come and explain it to you.

I think we share many of the overall objectives with the committee, and we think we have fulfilled many of the concerns of the Congress and it gives us great pleasure to discuss these.

We know that with the Nuclear Non-Proliferation Act of 1978, we are required to update all existing cooperation agreements with the more stringent standards in the Act. Since 1981, we have placed high priority on doing this. We have had over a dozen negotiating sessions with the Japanese and an agreement was signed on November 4th of this year.

We think this is a landmark agreement. We think it is fully consistent with U.S. law, and we think that it also maintains the high standards for the objectives which we believe deeply in, such as nuclear non-proliferation, energy security, and maintaining a reliable trading partnership with Japan.

What does the Agreement mean? First it means that Japan has agreed to adopt all non-proliferation requirements, including the

more stringent ones, which have, up until now, not governed our relationship.

Secondly, it will allow us to work with Japan and with the International Atomic Energy Agency [IAEA] to apply even more stringent and effective safeguards to Japanese nuclear energy. Finally, it provides the Japanese with advance long-term consent for their program, but only under close monitoring by the United States and the IAEA, and with a provision that the United States can suspend that consent if our security is endangered.

First of all, it is going to strengthen the international non-proliferation regime, support of which, as many members have noted, is fundamental to our national security and foreign policy. It is going to do so because it sets a new set of standards for rigorous non-proliferation conditions, controls and agreements for peaceful nuclear cooperation.

It contains all the consent rights and guarantees required by U.S. law, thus substantially upgrading U.S. controls. It establishes a detailed tracking system for U.S. origin nuclear fuel, particularly plutonium. It provides a basis for the United States to work closely with Japan in ensuring application of state-of-the-art safeguard concepts and physical protection measures. It affirms the U.S. intention to be a reliable trading partner, thus helping to ensure the continuation and growth of U.S. nuclear exports, including maintaining our share of the Japanese enrichment market.

We also think it enhances international energy security. Japan, as you know, does not have abundant indigenous resources. They are counting on nuclear power and this agreement is going to ensure that that program is a safe and environmentally sound one.

And, lastly, as Congressman Solarz noted, Japan is a very important friend of the United States. This Agreement is viewed as an important part of our relationship. It has been worked out in detail with the Japanese, and they place high priority on it. It has been raised at the head-of-state level, and we think it is going to solidify the U.S.-Japan relationship in the future.

Ambassador Kennedy has toiled many months, indeed, many years on this agreement. He is the expert on the details, on the principles, and on the means by which we are going to guarantee those principles are maintained.

Let me just emphasize a couple of final points.

Number 1. After a very extensive review, we have concluded that this Agreement is consistent with U.S. law. In regard to plutonium, this Agreement provides the first comprehensive basis for guaranteeing that the most advanced safeguards and techniques are applied. It also carries out the President's policy to allow civil reprocessing and plutonium use but only in those countries like Japan and the European Atomic Energy Community [EURATOM] countries with advanced nuclear programs who do not pose a proliferation risk and who maintain strict conditions and controls.

In conclusion, Mr. Chairman, this Agreement is going to provide more predictability and more certainty in the nuclear trading environment. It is going to help our industry. It is going to strengthen relations with a very key ally. It ultimately is going to provide for a safer world, one in which we believe our foreign policy and national security objectives are carried out in the same spirit which

this committee wants them to be, and, finally, the Agreement represents an important step in enhancing international energy security.

Thank you very much.

[Prepared statement of Mr. Martin follows:]

PREPARED STATEMENT OF HON. WILLIAM F. MARTIN,
DEPUTY SECRETARY, DEPARTMENT OF ENERGY

Mr. Chairman,

Thank you for the opportunity to appear before the Committee on Foreign Affairs. The topic today, the proposed U.S.-Japan Nuclear Cooperation Agreement, is of paramount importance to the achievement of U.S. nonproliferation objectives. It also is critically important for U.S. programs of international cooperation in the civil uses of nuclear energy, and can have significant positive benefits for U.S. trade interests.

The Department of Energy has a strong interest in each of these important areas. Our role involves both the responsibility for participation in the negotiations with Japan, as well as the approval of transactions contemplated under the 30-year term of this agreement. With this in mind, my comments today will focus on nuclear energy cooperation with Japan, and on why we believe this agreement serves U.S. interests in energy security and nonproliferation.

Let me begin by emphasizing that international cooperation in the peaceful uses of nuclear energy serves several major goals. Since the earliest days of nuclear power, it has been designed, in part, to increase U.S. influence over the evolution of nuclear programs overseas, and in particular to encourage others to join with us in a strong nonproliferation regime. This is certainly the case in our nuclear relations with Japan, where over the years we believe we have crafted an excellent

relationship. In this new agreement, Japan has accepted all of the nonproliferation commitments required by U.S. law and policy. In addition, the agreement calls for continuing joint efforts to strengthen these policies through the development of new safeguards techniques. In short, the agreement establishes a forward-looking framework of bilateral cooperation in the nuclear energy and nonproliferation sectors.

Plutonium Policy and Controls

First, I will address the issue of plutonium use, and the safeguards and controls applicable to plutonium and related facilities under the proposed agreement.

The Department of Energy has testified on many occasions concerning its role in approving the transfer or use of plutonium as fuel in overseas nuclear activities. On each of these occasions we have emphasized that we consider plutonium to be a very dangerous substance. Our approach to the issue of plutonium use is with this thought foremost in our minds.

In this connection, I would like to remind the Committee that the basic policy of this Administration is to "inhibit the transfer of sensitive nuclear material, equipment and technology". Each of the transactions considered by the Department of Energy is considered with this Presidential policy in mind.

At the same time, however, this policy recognizes that our close friends and allies in Europe and Japan, who pose no risk of proliferation, are engaged in advanced nuclear power programs. In particular, Japan has advanced programs for plutonium-bearing (so called mixed-oxide) reactor fuel, and has committed very substantial resources to developing facilities and programs with mixed-oxide and breeder reactor fuel in mind.

In recognition of this program, the new agreement incorporates major new approaches to safeguards which will apply to plutonium use in Japan under this agreement. These safeguards and controls are an important element of the Department's consideration of the "timely warning" criterion in the law, and form part of the basis of our statutory determination and the advance consent framework contained in the agreement.

Fundamental to the agreement is the strong system of international safeguards applied by the International Atomic Energy Agency (IAEA) to all nuclear facilities in Japan. In implementing its safeguards agreement with the agency, subsidiary arrangements, including detailed facility attachments, are in place for operating facilities. A team of IAEA resident inspectors is maintained in Japan to conduct safeguards inspections.

Safeguards procedures at the TOKAI-MURA reprocessing plant are illustrative of procedures at advanced fuel cycle facilities.

These procedures provide for continuous inspection during reprocessing campaigns, and at product storage and waste treatment areas. To supplement nuclear material accountability, the IAEA inspectors also use safeguards instrumentation and techniques developed under a joint IAEA/US/JAPANESE/FRENCH program with the specific aim of developing advanced safeguards technologies for fuel cycle facilities like reprocessing plants. These safeguards also involve containment and surveillance measures, including closed circuit television, seals, film cameras, radiation monitors and monitoring of the electromanometers connected to storage tanks. When the TOKAI-MURA plant is in shutdown the IAEA conducts weekly checks of contained material. This includes taking samples for destructive analysis and conducting plant control instrumentation readings, as well as visual observation.

For facilities yet to be constructed, detailed safeguards concepts have been agreed to as part of the agreement. These incorporate all features required by the IAEA for the effective application of safeguards. Moreover, they have the potential for permitting more effective application of safeguards on new facilities since they call for notification of safeguards-relevant features early in the design of a new facility, cooperation with the IAEA during design, construction and operation, and agency checks of these features during construction.

Other timely warning factors relevant to the agreement include Japan's non-proliferation posture and its cooperation with the IAEA in the application of safeguards, political tendencies and stability, technical capabilities in the nuclear field, and the lack of incentive to divert nuclear material controlled by the United States.

Japan is a party to and a strong supporter of the Non-Proliferation Treaty (NPT) and therefore all of its nuclear facilities are subject to IAEA safeguards. In the Japanese non-proliferation policy statement accompanying the agreement, the Government of Japan has committed to continue to afford the IAEA full opportunity to apply safeguards effectively and efficiently and to cooperate to improve safeguards implementation by incorporating advanced safeguards techniques.

Japan's nuclear power program encompasses all elements of the nuclear fuel cycle, from enrichment to reprocessing. In fact, Japan is now one of the world leaders in development of nuclear technology. As a result, Japan has personnel well-trained in the fields necessary to initiate a government-directed nuclear weapons program. Significantly, however, Japan also has a well-developed and increasing nuclear trade with others. Japan has encouraged a wide range of nuclear exchanges, and many U.S. scientists and engineers work closely with their Japanese counterparts and are well-versed in the nuances of the Japanese nuclear program. This fact, together with Japan's open

form of government, would provide the necessary visibility of the substantial technical and governmental activity required to initiate and support a nuclear weapons development program.

With regard to the lack of incentive to divert nuclear material subject to U.S. control, it should be noted that Japan already possesses significant amounts of weapons-usable nuclear material not subject to U.S. controls. Also, Japan has the indigenous capability to produce additional quantities substantially in excess of the amount required for a nuclear explosive device.

As an NPT signatory Japan has foresworn development of nuclear weapons. This anti-weapons posture has been consistent, and is a strongly held position in Japanese society. Japan is a stable democracy with active interest groups and an open and effective debate among political factions. Such an open form of government reduces the likelihood of arbitrary decisions and diversion of resources to a nuclear weapons program.

Consideration of the above factors in the context of "timely warning" makes us confident that we have looked at all of the factors envisioned in Section 131b(2) of the Atomic Energy Act. Thus, the Secretary of Energy has been able to make the finding, required by that section, that the agreement "will not lead to a significant increase of the risk of proliferation". In this

context, the Department will utilize the detailed reporting requirements of the agreement to closely monitor activities to be conducted by Japan.

Before leaving the question of plutonium use, I wish to address one other matter on which there has been some confusion. It has been observed that the United States has been applying a discriminatory policy with respect to use of reactor fuel containing plutonium. This observation is correct. It is our policy not to inhibit major nuclear partners with advanced programs from making reasonable choices about the fuel they use in their safeguarded reactors, provided there is no risk of proliferation. Thus, we have not sought to inhibit the use of advanced reactor fuels in the nuclear programs of our major European partners and Japan. This policy is limited to those countries meeting our criteria, and we do not view the agreement with Japan as being a model for all of the other countries of the world.

Other Benefits to the United States

The new agreement with Japan provides other major benefits for the United States. These include U.S. nuclear energy development, the Department's uranium enrichment enterprise, and bilateral energy trade with Japan.

Nuclear Energy Development

With the current hiatus in the U.S. nuclear power program, there is active cooperation between U.S. and Japanese industry in the area of advanced nuclear power reactor technology. In fact, much of the newer technology has been supported by or first demonstrated in Japan. In this context both the Japanese Government and industry view the new agreement as an indicator of U.S. intentions toward continued long-term nuclear cooperation. Thus, the agreement could be a major boost to the U.S. program of energy cooperation, and will increase the probability that Japanese nuclear industry and utilities continue to look to the United States as a major nuclear partner.

Currently, the United States and Japan are cooperating on advanced boiling water and advanced pressurized water power reactors. We are informed that a Japanese utility has contracted for the construction of two of the U.S.-technology boiling water reactors, and that an advanced pressurized water reactor also likely will be constructed in Japan. It is significant that not only will these new, advanced power reactor designs first be constructed in Japan, but also that much of their development cost has been borne by Japanese industry and utilities.

The Japanese nuclear industry also uses the services of U.S. architect-engineers, and its utilities obtain replacement parts, maintenance services and upgrades from U.S. nuclear suppliers.

Japanese procurements in each of these areas would be expected to increase under the umbrella of the new agreement, as would Japanese cooperation in related areas such as nuclear waste disposal. Industry officials have informed us that the revenues from such cooperation could exceed \$3 billion before the turn of the century.

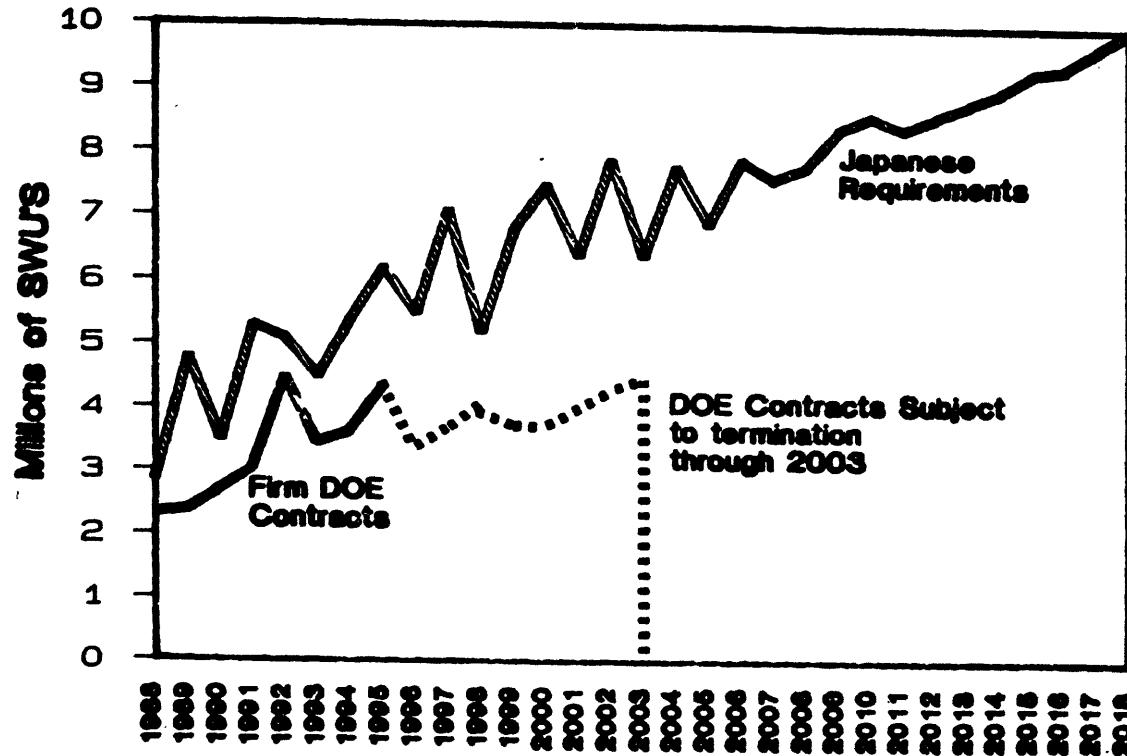
Thus, we believe that implementing the agreement as negotiated will bolster U.S. technological leadership, ensure continuation of a major funding source for U.S. nuclear research and development and, concurrently, prevent the dismantling of highly skilled U.S. nuclear expertise.

Uranium Enrichment Services and Trade Benefits

As you are aware, the Energy Department serves clients in the enrichment market worldwide, and Japan is our best overseas customer for enrichment services. Our current contracts with Japanese utilities call for firm commitments for enrichment services through 1995. In 1988, enrichment services provided to Japan will represent approximately 30% of total DOE sales, and will yield revenues of about \$270 million.

As seen in the attached chart, demand by Japanese utilities for enrichment services will increase over the 30-year term of the new agreement to a level of about \$1 billion per year. While we do not expect to obtain all of this business, we strongly

Japanese Separative Work Requirements and DOE Contracted Sales



believe that the new agreement will put the United States in a very beneficial position to compete for this major market.

In summary, industry officials have informed us that between now and the end of the century, Japan is expected to obtain from the United States a total of approximately \$3 billion in nuclear fuel-cycle goods and services. When potential revenue from enrichment services is added to that figure, the total from nuclear-related trade becomes quite a bit higher. Therefore, from the perspective of nuclear technology and enrichment services alone, we can see that implementing the agreement will yield substantial trade benefits.

Plutonium Transportation

As you know, concern has been expressed about the transport of recovered plutonium, subject to the agreement, from Europe to Japan. Ambassador Kennedy addressed this concern in his statement.

The Department of Energy has taken a close look at this issue and has prepared an Environmental Assessment covering these plutonium shipments, resulting in a finding of "no significant impact" by the Department's Office of Environment, Safety and Health. As called for in the agreement, the use of a NRC-certified cask for routes involving U.S. territory was

assumed in this Assessment. Copies of the Environmental Assessment have been made available to the Committee.

Conclusion

In summary, I would like to reiterate three basic points. First, creating energy in today's industrial world involves complex, interdependent political processes. It is important for the United States to understand and accept reasonable energy choices -- whether they be nuclear or nonnuclear -- by major allies and trading partners. This agreement will cement a strong U.S.-Japan nuclear energy cooperation program for the three decades to come.

Second, Japan is an advanced industrial state with very few indigenous energy resources. The Japanese consider a reliable and predictable nuclear fuel cycle to be a necessity. We must continue to develop our working relationships with Japan in energy areas and to involve ourselves, when appropriate, in Japanese energy programs. Stated simply, this will contribute to the prospect of maintaining U.S. influence and leadership in international energy matters.

Finally, approval of this agreement will substantially strengthen our bilateral nonproliferation relationship and ensure continued Japanese cooperation. In particular, it will contribute to the application of international safeguards. The

framework of the agreement offers an unprecedented opportunity to firmly establish a substantive, long-term U.S. role in the application of safeguards and physical security to Japanese advanced nuclear facilities and programs, like those involving plutonium. This has significant implications for potential U.S. influence over safeguards and physical security in other countries, with commensurate positive results for the international nonproliferation regime.

Mr. Chairman, this concludes my statement. I would be pleased to answer any questions you have.

Mr. BONKER. Thank you, Mr. Martin.

Let me ask whether the other panel members are prepared to answer most of the questions we could otherwise direct to you. I am afraid if we begin with the questioning, you might be here a long time. Can you give us a certain time when you have to leave?

Mr. MARTIN. Sure. Maybe in the next half hour.

Mr. BONKER. Okay. May I ask between you and Ambassador Kennedy what were your roles in negotiating so we know how we should be directing questions to you?

Mr. MARTIN. I would like to ask our chief negotiator to answer that question.

Mr. BONKER. I think what we ought to do, if it is all right with the panel members, is to have Ambassador Kennedy proceed with his opening comments and then we will have questions of the two of you and we will proceed with the remaining two witnesses.

Ambassador Kennedy.

COMPOSITION OF NEGOTIATING TEAM

Ambassador KENNEDY. Thank you, Mr. Chairman.

To answer your question as to—

Mr. BONKER. Ambassador, would you bring that mike up close because everybody in the back is hanging on every single word of your testimony?

Ambassador KENNEDY. It is the wrong season for that, Mr. Chairman.

Thank you, Mr. Chairman.

Let me answer the question you just raised about who negotiated what.

Mr. BONKER. Excuse me, Ambassador. Is your mike on?

Ambassador KENNEDY. It is not working.

Is that better?

Mr. BONKER. Much better.

Ambassador KENNEDY. Sir, as to who negotiated what, I came into the negotiation after a year or so of the discussions which began back in early 1982, and in a sense headed the negotiating effort with a very substantial team for the years to follow.

The Secretary of State and the Secretary of Energy, under law, are required to participate in such negotiations for the purpose of submitting their recommendations to the President.

In addition, all other relevant agencies of government were involved in various aspects. At all times, the Arms Control and Disarmament Agency was a participant in the team. In various elements of the activity, the Department of Defense and the Nuclear Regulatory Commission were consulted. In some cases, I gather that they felt that they had not been consulted enough. The fact is they were, indeed, consulted.

The negotiating team was a substantial one involving a number of people with considerable expertise. Obviously, there were a number of attorneys concerned with treaty matters and specific aspects of our law. Moreover, there were safeguards experts, some of whom are here with us today and available to deal with specific safeguards questions, and physical security experts, since that is a very important consideration in the Agreement. Physical security

experts who all together formed a small team worked directly on the physical security aspects which are included in detail in the Agreement.

So, that is the way it was managed. The Deputy Secretary of Energy was a strong supporter of the effort throughout and, indeed, on his right, Mr. Brush, was a very important member of the negotiating team.

Mr. Wulf, on the other end of the table, from the Arms Control and Disarmament Agency, was equally a very strong and important member of the negotiating team. So, that is how it was put together, Mr. Chairman, if that helps clarify the relationship.

May I then turn to a few prepared remarks which I will try to keep brief? I have a lengthy statement which I would appreciate including in the record, which addresses, we hope, many of the questions already raised, but in sufficient detail so that they can actually be reflected in the record.

Mr. BONKER. Thank you, Ambassador. Your full statement will be placed in the record.

STATEMENT OF HON. RICHARD T. KENNEDY, AMBASSADOR AT LARGE, DEPARTMENT OF STATE

Ambassador KENNEDY. Thank you, sir.

What a special pleasure it is for us to be here to discuss this Agreement because we believe it to be a major step forward toward the achievement of United States non-proliferation goals.

It is at the same time, a major step forward in United States co-operation with Japan and in our ability to influence the Japanese nuclear program in ways which serve our non-proliferation goals.

The Non-Proliferation Act of 1978 established more stringent non-proliferation conditions for inclusion in new agreements for co-operation and required the President to initiate a program to seek and update all existing agreements to include those new standards.

Efforts to renegotiate the existing U.S./Japan Agreement, which had been in existence for some time, began during the latter part of the Carter Administration. Prospects for engaging Japan in a process leading to a new or amended agreement, however, became promising only in early 1981, when Japan, which was seeking a more predictable basis on which to plan for its long-term energy needs, raised the issue of long-term U.S. consent to reprocessing.

In May 1981, President Reagan and then Prime Minister Suzuki of Japan issued a joint communique during a visit of the Prime Minister here to Washington in which it was agreed to work out a permanent solution to reprocessing and related issues in Japan. These issues had been plaguing our relationship for some years.

In June of 1982, the President, acting on the recommendation of the Department of State, the Department of Energy, the Arms Control and Disarmament Agency and the Department of Defense, authorized the offer of an advance consent arrangement to Japan concerning reprocessing and plutonium use, subject to statutory and non-proliferation conditions, including adequate safeguards and physical security, and a continued strong commitment by Japan to non-proliferation objectives.

In the context of seeking a new or amended agreement for peaceful nuclear cooperation, this offer was to be pursued.

In the fall of 1985, the Government of Japan, after these years of discussion, signaled its willingness to undertake presentation of a new agreement to its Diet, its parliament, and to begin final negotiations that might lead to such an agreement.

I do not mean to imply that this was a sudden decision on the Japanese part. It came only after a very, very long internal debate as to whether they would be willing to undertake the commitments to the United States which such an agreement would require.

January 1987, the United States and Japan reached an agreement on a text which included an implementing agreement containing advance long-term consent provisions. The President, after review, approved and authorized signature of this agreement in October, and it was signed in Tokyo by Ambassador Mansfield on November 4, 1987.

That is the Agreement, Mr. Chairman, that is before the Congress today.

The United States policy on reprocessing and plutonium use played a key role in the negotiations, since it was the basis on which we constructed our offer of an advance long-term consent arrangement. The administration recognizes full well, as has been stated here, that plutonium is a dangerous substance and its use must be carefully controlled and safeguarded.

In his July 1981 statement, President Reagan reaffirmed categorically the United States commitment to inhibit transfer of sensitive nuclear material, particularly where the danger of proliferation required constraint. But at the same time, the United States is simply not in a position to dictate or prescribe a policy of denial in reprocessing and plutonium use to stable, developed countries, such as Japan, with advanced nuclear programs and countries that regard the use of plutonium, as Japan does, as essential to meeting their future energy needs.

There is a mis-conception that the United States controls the world's plutonium in some way. By the year 2000, Japan alone will have accumulated up to ten metric tons of fissile plutonium not subject to U.S. control. The need, therefore, as we see it, is to try to create a basis for working closely with Japan to ensure the application of state-of-the-art safeguards concepts and physical protection measures to the plutonium which, in fact, they are going to use.

Japan's general commitments on safeguards and physical protection made in connection with the Agreement should lead to the application of improved safeguards and physical protection measures throughout its program and that means over non-U.S. origin plutonium as well as that of U.S. origin.

The proposed new agreement establishes a comprehensive framework for peaceful nuclear cooperation in all its aspects between the United States and Japan. It is not just a plutonium agreement.

The Agreement is based upon a common commitment to the future of peaceful nuclear energy and shared non-proliferation objectives. It provides for cooperation in all areas of peaceful nuclear cooperation, including research and civil nuclear power production.

Cooperation is subject to the provisions of the Agreement itself and subject to all applicable treaties, laws, regulations and license

requirements of the two parties. The transfer of restricted data and sensitive nuclear technology is specifically excluded from this Agreement.

The new Agreement satisfies all U.S. statutory requirements, and we would like to emphasize that it includes all requirements of the Non-Proliferation Act. Specifically, it includes all relevant conditions and consent rights required by Section 123 of the Non-Proliferation Act for new agreements of cooperation. These requirements include perpetual safeguards, full-scope safeguards, a peaceful use guarantee, the return of nuclear materials and equipment in certain circumstances, consent rights over retransfers of material, adequate physical security, consent rights over reprocessing, enrichment and alteration of nuclear material, and the right to approve storage arrangements.

Either the United States or Japan may terminate the Agreement unilaterally at any time in the event of certain specified breaches of the Agreement, including termination or material violation of a safeguards agreement with the IAEA or other stated conditions.

There are provisions for consultation prior to termination, but these in no way detract from the unilateral right of the United States to terminate. Likewise, there is a requirement that the terminating party consider the economic effects of its action, but, this, too, in no way detracts from the unequivocally unilateral right to terminate the Agreement for the causes specified.

In the event of termination or suspension, the non-proliferation conditions and controls in the Agreement would continue in effect as specified in Article 16 of the Agreement itself.

The implementing agreement provides to Japan advance long-term consent for specified reprocessing, transfers, alteration and storage of nuclear materials subject to the Agreement, so long as and only so long as U.S. legal criteria are met and continue to be met, including criteria relating to adequate safeguards and physical protection.

These consents apply to activities in a specified Japanese program, encompassing both the existing facilities and future facilities about which we have sufficient information to make the necessary statutory determinations.

The safeguards concepts, used as a basis for including future facilities in the agreed program, must be acceptable to the United States as well as to Japan. This fact, coupled with the United States right to suspend the advance consent arrangement, if need be, to prevent an increase in the risk of proliferation or in the threat to U.S. national security, enables us to make the requisite statutory determinations now in the case of certain future facilities.

In addition, Mr. Chairman, the implementing agreement provides advance long-term consent to the transfer of spent nuclear fuels subject to the Agreement from Japan to specified facilities in France and the United Kingdom for reprocessing. It requires the United States to give EURATOM consent for the return of the recovered materials from EURATOM to Japan.

The advance long-term consent arrangement is not unconditional, and I would emphasize that fact. It is not an abdication of U.S. consent rights, not a blanket approval. The United States has the

right—the unequivocal, unilateral right—to suspend the arrangement in whole or in part to prevent a significant increase in the risk of nuclear proliferation or in the threat to U.S. national security concerns.

Exceptional cases, of course, are what we are talking about, and they would include, but not be limited to, a material breach of the Non-Proliferation Treaty or withdrawal from it, a material breach of a safeguards agreement with the International Atomic Energy Agency, or a material breach of the Agreement itself or the implementing agreement.

Because of the important commitments which are entailed in the implementing agreement and because the advance consent provisions are similar in effect to an ordinary subsequent arrangement under Section 131 of the Atomic Energy Act, we have complied with all substantive and procedural criteria for the processing of subsequent arrangements.

As I have already mentioned, Mr. Chairman, the implementing agreement includes, among other things, a commitment by the United States to enter into a long-term advance consent arrangement with EURATOM, permitting the return from France and the United Kingdom of plutonium recovered from reprocessing of Japanese nuclear material which is of U.S. origin.

The guidelines for international transport of recovered plutonium, which are contained in Annex 5 of the implementing agreement, specify, among other things, that such shipments must be by dedicated cargo aircraft, using a polar route or another route selected to avoid areas of natural disaster or civil disorder.

Concern has been expressed that such flights might pose a potential risk to populations and natural environments of the areas that might be transitted or over-flown. We fully understand those concerns. We believe, however, that they are unwarranted and we would be pleased to discuss that issue.

First, I should like to note that the Agreement does not, and I want to emphasize again, it does not constitute a decision to ship plutonium over or through any country, including the United States. It neither obliges Japan nor authorizes Japan to over-fly the United States or land for refueling or any other purpose at any airport in the territory of the United States.

Any such decision would come much later at a time when the transportation plan, which is required by Annex 5, is prepared. This plan, which is required before each shipment, must be prepared with the cooperation and assistance of Japan and the United States and with the transferring government, either France or the United Kingdom, and all countries in route. No country obviously is obliged to render its cooperation and assistance and that applies to the United States as well. Moreover, no plan that would involve a particular country would be possible without the approval and involvement of that country.

The casks for transport of the plutonium must be designed and certified to maintain their integrity even in the case of the crash of the aircraft. This is the case for two reasons. First, the terms of the Agreement categorically require it. Second, the United States law and regulations require it. The Congress has already established strict criteria for cask safety.

The responsibilities of the United States Nuclear Regulatory Commission and the United States Department of Transportation to certify the safety of the transport package in accordance with United States standards are in no way affected by this proposed Agreement.

The NRC has already certified two transport casks, one for gram quantities and one for up to two kilograms of plutonium. These casks are currently available for use in the United States. They satisfy the rigorous standards that are set forth in the Scheuer Amendment. Efforts are underway to develop and certify a larger cask, obviously for reasons of economy.

As I said, the Agreement does not provide specifically for over-flight air transit of U.S. territory. Nevertheless, the Japanese are, in fact, considering such a route and they propose it, if the Agreement enters into force. Given this possibility, the Department of Energy prepared an extensive, comprehensive environmental assessment taking into account the National Environmental Policy Act, NEPA, concerning the potential for environmental impact.

The Department of State was consulted in the preparation of this document and reached its own conclusion independently, that the Agreement will not have a significant impact on the human environment.

Finally, Mr. Chairman, I would like to turn to consideration of benefits that we might expect that the Agreement could bring the United States.

First and foremost, the Agreement will strengthen the international non-proliferation regime, support of which is a fundamental United States national security and foreign policy objective. This is done by setting a new standard for rigorous non-proliferation conditions and controls in agreements for peaceful nuclear cooperation.

In addition, as I have stressed throughout my testimony, the Agreement contains all the consent rights and guarantees required by U.S. law. Therefore, it substantially upgrades the United States controls over peaceful nuclear cooperation with Japan. It includes a number of additional controls which were not and are not in the existing agreement which it would supplant.

It also provides a basis for the United States to work closely with the Japanese in ensuring application of the most advanced safeguards and physical protection measures. The Agreement helps to ensure a continuation of strong support from the Japanese on non-proliferation issues generally, including the Non-Proliferation Treaty, and controls on nuclear-related exports to countries of proliferation concern. The Government of Japan has clearly stated its commitment to non-proliferation in detail in a side letter accompanying the Agreement.

Finally, Mr. Chairman, by affirming the United States intention to be a reliable nuclear trading partner, the Agreement will help to ensure the continuation and growth of U.S. nuclear exports to Japan, including enrichment services with an average annual value of over a quarter of a billion dollars, and component exports, whose value is also very substantial, and whose export under the terms of this Agreement will further extend our direct relationship with the Japanese program and thereby our influence over it.

Mr. Chairman, I noted a number of points made in the opening statements. I think I have addressed a number of them. A couple, I have not. I would note specifically that it was suggested that air shipment could occur without U.S. approval. I think I have made it clear that that is not the case.

Secondly, I think I have noted the question and addressed the question of the environmental impact statement. I am sure that we can address that further if it is desired.

I hope that I have made it clear that while there are economic considerations, in no way and at no time were those economic considerations ahead of the fundamental non-proliferation concerns which this Agreement addresses.

And, lastly, Mr. Chairman, we do not relinquish control, we do not give nuclear carte blanche, we are not engaging as a result of this Agreement in any unregulated trade. Precisely the opposite is the case, and I hope my testimony has described this.

Mr. Chairman, the administration believes very strongly that this is an excellent agreement, protecting the vital interests of the United States, meeting the peaceful nuclear cooperation needs and requirements of both the United States and Japan, and the administration strongly urges that the Congress give it favorable consideration.

Thank you very much, Mr. Chairman, for bearing with me.
[Prepared statement of Ambassador Kennedy follows:]

**PREPARED STATEMENT OF HON. RICHARD T. KENNEDY,
AMBASSADOR-AT-LARGE, DEPARTMENT OF STATE**

Mr. Chairman:

I am very pleased to have this opportunity today to testify on the proposed new agreement between the United States and Japan concerning peaceful uses of nuclear energy. It is a special pleasure because this agreement is a major step forward toward the achievement of United States non-proliferation goals. It is also a major step forward in support of United States cooperation with Japan in major nuclear energy, uranium enrichment and trade programs.

I would like to begin by describing the policy decisions that underlay our negotiating strategy and about the course of the negotiations themselves. I will then describe the agreement itself, its key provisions and the manner in which it meets all requirements of U.S. law. Following that, I will address a concern that has arisen with respect to plutonium transport under the agreement. I will conclude by outlining the benefits that the new agreement will bring to the United States.

As the members of this Committee know, the Nuclear Non-Proliferation Act (NNPA) of 1978 established new, more stringent non-proliferation conditions for inclusion in new agreements for cooperation and required the President (in

section 404a) to initiate a program to seek to update all existing agreements to include the new standards. The existing U.S.-Japan agreement for cooperation, which entered into force in 1968, does not contain all the required provisions.

As a consequence, efforts to renegotiate the existing U.S.-Japan agreement were begun during the latter part of the Carter Administration. The initial reaction of Japan, quite frankly, was to question the need to accept new conditions in its peaceful nuclear cooperation with the United States when the existing agreement had many years to run, and particularly when the new conditions stemmed entirely from the requirements of U.S. domestic law.

The prospects for engaging Japan in a process leading to a new or amended agreement became brighter early in 1981, however, when Japan, seeking a more predictable basis on which to plan for its long-term energy needs, raised the issue of long-term U.S. consent to reprocessing. In May, 1981 President Reagan and then - Prime Minister Suzuki of Japan issued a joint communique in which it was agreed to work out a permanent solution to reprocessing and related issues in Japan.

On July 16, 1981 the President issued a general policy statement on non-proliferation and peaceful nuclear cooperation in which he declared, "The Administration will ... not inhibit

or set back civil reprocessing and breeder reactor development abroad in nations with advanced nuclear power programs where it does not constitute a proliferation risk." I will return to this policy decision in a moment, because it is essential to an understanding of one of the key provisions of the proposed new agreement.

In June, 1982 the President, acting on the recommendation of all relevant Executive Branch agencies, including the Department of State, the Department of Energy, the Arms Control and Disarmament Agency, and the Department of Defense, authorized the offer of an advance consent arrangement to Japan concerning reprocessing and plutonium use subject to necessary non-proliferation and statutory conditions (including adequate safeguards and physical security and a continued strong commitment by Japan to non-proliferation), in the context of seeking a new or amended agreement for peaceful nuclear cooperation.

Preliminary discussion began in 1982. Notwithstanding its keen interest in obtaining advance long-term consent to reprocessing, the Government of Japan was initially reluctant to go to the Diet with a new or amended agreement imposing more stringent non-proliferation conditions. Then, in the fall of 1985, the Government of Japan signalled its willingness to

undertake presentation of a new agreement to the Diet and final negotiations were begun. On January 17, 1987 the United States and Japan reached agreement on a text, including an implementing agreement containing advance, long-term consent provisions. The President approved and authorized signature of the agreement in October, and it was signed in Tokyo on November 4, 1987.

As provided in section 123 of the Atomic Energy Act the negotiations on the U.S. side were conducted by the Department of State, with the technical assistance and concurrence of the Department of Energy and in consultation with the Arms Control and Disarmament Agency. When appropriate, other agencies were also consulted.

I mentioned a moment ago that U.S. policy on reprocessing and plutonium use played a key role in the negotiations, since it was the basis on which we constructed our offer of an advance, long-term consent arrangement. With your permission, Mr. Chairman, I would like, before turning to the actual provisions of the agreement, to describe this policy, since it continues to be misunderstood in some quarters, and unfairly criticized in others.

This Administration recognizes full well that plutonium is a dangerous substance, and that its use must be carefully

controlled and safeguarded. In his July, 1981 statement President Reagan reaffirmed categorically the U.S. commitment to inhibit the transfer of sensitive nuclear material, particularly where the danger of proliferation requires restraint. It is our firm conviction that sensitive nuclear facilities and activities should be limited to those countries, and only those countries, where there will be no significant risk of proliferation. We are alert to the potential risks of reprocessing and plutonium use, and we have been at the very forefront of international efforts to minimize them.

But at the same time the United States is simply not in a position to dictate or prescribe a policy of denial in reprocessing and plutonium use to stable, developed countries -- such as Japan -- with advanced nuclear programs that regard the use of plutonium as essential to meeting their future energy needs.

The economic justification for these programs may well be debatable. But economics is not the principal motivation. More important by far is the determination of Japan and a number of other industrialized countries to achieve the highest possible degree of self-sufficiency in energy production capability. The oil shocks of the 1970's, and the sweeping changes in the late 1970's in U.S. law and policy on U.S.

nuclear exports, were cause for considerable anxiety on the part of these countries. They are now determined to develop an energy infrastructure less vulnerable to changing demands and limitations from outside.

There is, moreover, a misconception -- stubbornly resistant to every effort at correction -- that the United States controls the world's plutonium. The United States does not control the world's plutonium. There is a very large quantity of plutonium in countries with advanced civil nuclear programs that is not subject to U.S. consent rights. According to one conservative estimate, by the year 2000 Japan alone will have accumulated about 11.3 metric tons of plutonium not subject to U.S. control. Japan has repeatedly made clear that it considers the use of plutonium essential, even crucial, to its civil energy plans. Already it has a large investment in an active program of research, development and demonstration for advanced nuclear fuel cycles using plutonium, and substantial quantities of separated plutonium are already available for use. Japan is familiar with the arguments against civil plutonium use. It does not find them persuasive.

The increasing use of plutonium in civil nuclear power programs does indeed pose new challenges for providing adequate safeguards and physical protection. Plutonium is not just

another commodity, and cannot be treated as such. The United States has taken the lead in developing improved safeguards and physical protection techniques, and the proposed new agreement with Japan establishes the first comprehensive basis for cooperation with another industrialized country to work together to ensure that the most advanced safeguards and physical protection measures are applied throughout the sensitive portions of the other country's nuclear program, and not just where material subject to the U.S. agreement is present.

The United States has no general right, nor can we hope to acquire such a right, to prevent Japan from using large quantities of plutonium in its thermal recycle and fast breeder reactor programs. Our only realistic option has been to try to create a basis for working closely with Japan to ensure application of state-of-the-art safeguards concepts and physical protection measures. We have done this, and the result is a draft agreement for cooperation that will make an important contribution to the national security of the United States.

At this point Mr. Chairman I would like to turn to the provisions of the agreement itself.

Let me stress first of all that, contrary to many media reports, it is not merely an agreement on reprocessing and plutonium use, nor is it merely an agreement permitting the transport by air of U.S.-origin plutonium from Europe to Japan. Rather, the proposed new agreement establishes a comprehensive framework for peaceful nuclear cooperation in all its aspects between the United States and Japan, based on a common commitment to the future of peaceful nuclear energy and shared non-proliferation objectives. The agreement provides for cooperation in the supply and receipt of material, nuclear material, equipment and components; the supply and receipt of services, including enrichment services; exchanges of information on such subjects as health, safety, and the environment; exchanges of experts; and other types of cooperation that may be deemed appropriate by the parties. Cooperation is subject to the provisions of the agreement itself and all applicable treaties, laws, regulations and license requirements of the parties. The transfer of restricted data and sensitive nuclear technology under the agreement is specifically excluded.

The new agreement satisfies all U.S. statutory requirements, including all requirements of the NNPA. Specifically, it includes all conditions and consent rights required by section 123 of the NNPA for new agreements for

cooperation. (Transfers of sensitive nuclear technology and facilities may not be made under the agreement, and thus the provisions of section 123 regarding such transfers are not required.) Lest there be any question about meeting the Section 123 requirements, I would beg your indulgence at this point to list the conditions and consent rights and point out where in the agreement they may be found:

- a. perpetual safeguards (Article 9 (1) a)
- b. full-scope safeguards (Article 2 (2) a)
- c. peaceful uses guarantee (Article 8 (2))
- d. return of nuclear materials and equipment in certain circumstances (Article 12 (1))
- e. consent rights over retransfers (Article 4)
- f. adequate physical security (Article 7)
- g. consent rights over reprocessing, enrichment and alteration of nuclear material (Article 5 (1); Article 6; and Article 5 (2))
- h. the right to approve storage arrangements (Article 3)

The agreement has an initial term of 30 years, and will continue in force indefinitely thereafter until terminated in accordance with stated provisions. Either the United States or Japan may terminate the agreement unilaterally at any time in the event of specified breaches of the agreement, termination or material violation of a safeguards agreement with the IAEA, or other stated conditions. There are provisions for consultation prior to termination, but these in no way detract from the unilateral right to terminate. Likewise, there is a requirement that the terminating party consider the economic effects of its action, but this too in no way detracts from the unequivocally unilateral right to terminate the agreement for the causes specified. In the event of termination or suspension, the non-proliferation conditions and controls would continue in effect as specified in Article 16.

Article 11 of the agreement states, and I quote: "In order to facilitate activities subject to Article 3, 4 and 5 of this Agreement [i.e., storage, retransfers, and reprocessing and alteration in form or content of nuclear material by means other than irradiation], the parties shall make, consistent with the objective of preventing nuclear proliferation and with their respective national security interests, and perform in good faith separate arrangements that will satisfy the requirements for mutual agreement set forth in those Articles on a long-term, predictable and reliable basis, and in a manner

that will further facilitate peaceful uses of nuclear energy in their respective countries."

An implementing agreement, which constitutes an integral part of the agreement for purposes of the Atomic Energy Act, sets forth the separate arrangements called for in Article 11. I would like to stress in this connection that Article 11 and the agreement that implements it do not give up or dispense with the consent rights contained in Articles 3, 4 and 5. Rather, they provide for the exercise of these rights on an advance, long-term basis. And they are subject to very stringent conditions and controls, including a U.S. right of suspension.

The implementing agreement provides to Japan advance, long-term consent for specified reprocessing, transfers, alteration and storage of nuclear material subject to the agreement so long as U.S. legal criteria are met and continue to be met, including criteria relating to adequate safeguards and physical protection. The consents apply to activities in a specified Japanese program encompassing both existing facilities and future facilities about which we have sufficient information to make the necessary statutory determinations. The safeguards concepts used as a basis for including future facilities in the agreed program must be acceptable to the U.S.

as well as Japan. This fact, coupled with the U.S. right to suspend the advance consent arrangement if need be to prevent an increase in the risk of proliferation or in the threat to U.S. national security, enables us to make the requisite statutory determinations now in the case of certain future facilities. The agreement includes four exchanges of notes signifying agreement on safeguards concepts for a number of such facilities.

In addition, the implementing agreement provides advance long-term consent to the transfer of spent nuclear fuel subject to the agreement from Japan to specified facilities in France and the UK for reprocessing, and it requires the United States to give EURATOM consent for the return of the recovered materials from EURATOM to Japan. (I might note, parenthetically, that the President, in submitting this agreement to the Congress, enclosed for the information of the Congress a draft exchange of notes between the United States and EURATOM that would provide the requisite U.S. consent. EURATOM has informed us that it is prepared in principle to effect an exchange of these notes, with some minor modifications.)

As I have indicated, the implementing agreement imposes stringent conditions respecting the activities for which advance, long-term consent is given:

- The nuclear material involved must be subject to international safeguards satisfactory to the United States at all times.
- If a facility is to be added to the program to which the advance, long-term consent applies, the safeguards arrangement for the facility must accord with safeguards acceptable to the United States; where necessary, this means that the United States and Japan will need to develop new safeguards concepts beyond those already contained in the agreement.
- Physical protection measures as required by Article 7 of the agreement for cooperation must be maintained.
- In the event of international transfers, the United States must be notified prior to shipment or as soon as possible thereafter and the material must be subject to another U.S. agreement for cooperation upon transfer.
- In the case of the return of the plutonium from EURATOM to Japan, the Guidelines for the International Transportation of Recovered Plutonium set forth in Annex 5 of the implementing agreement must be satisfied.. These include transfer exclusively by air (to minimize time spent in

international transit), use of a polar route or another route avoiding civil disorder and natural disaster, and preparation of a transportation plan prior to each shipment. The transportation plan must provide for armed escorts; a determination of trustworthiness of persons responsible for the shipments; isolation of the aircraft on the ground; redundant communications; detailed contingency plans; and the use for shipments transiting or overflying U.S. territory of shipment casks designed and certified by both U.S. and Japanese authorities to maintain their integrity even in a crash of the aircraft.

- The cooperation and appropriate assistance of the United States and all countries enroute must be secured prior to each shipment in order to fulfill the Guidelines. This means that the United States, and, if appropriate, other governments, will be fully involved in the preparation of any transportation plan and must be willing participants for shipments to take place.
- And finally - a point that should not be overlooked - the nuclear material will be subject to all the conditions and controls in the U.S.-Japan agreement for cooperation itself, or, upon transfer, to the conditions and controls in another U.S. agreement for cooperation.

I think it should be clear that the advance, long-term consent arrangement is not unconditional and not a "blanket approval."

And quite apart from the conditions that carefully circumscribe implementation of the advance, long-term consent arrangement, the United States has the right -- an unequivocal, unilateral right -- to suspend the arrangement in whole or in part to prevent a significant increase in the risk of nuclear proliferation or in the threat to U.S. national security caused by exceptional cases. Exceptional cases would include, but not be limited to, a material breach of the NPT or withdrawal from it; a material breach of a safeguards agreement with the IAEA; and a material breach of the agreement or the implementing agreement. It is difficult today to imagine that circumstances would ever arise that would require suspension. But nevertheless the unilateral U.S. right of suspension exists as an ultimate means of protecting the U.S. national security and to prevent significant increases in the risk of proliferation.

Because of the important commitments entailed in the implementing agreement and because the advance consent provisions are similar in effect to an ordinary subsequent arrangement under section 131 of the Atomic Energy Act, we have

complied with all substantive and procedural criteria for subsequent arrangements, or more stringent criteria, in our processing of the agreement. Specifically, we have considered whether the reprocessing and retransfers to which consent has been given on an advance, long-term basis will result in a significant increase of the risk of proliferation beyond that which exists at the time the approval is requested. We have concluded that these approvals will not result in a significant increase of such risk. In making this judgment we have, in accordance with the standards embodied in section 131 (b) of the Atomic Energy Act, given "foremost consideration to whether or not the reprocessing and retransfers will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which [a] non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." (It should also be noted that the implementing agreement is an integral part of the agreement for cooperation, which the President, pursuant to section 123 of the Act, has determined will promote, and will not constitute an unreasonable risk to, the common defense and security -- an even more stringent standard.)

We have followed the same section 131 procedure and reached the same conclusion of no significant increase in the risk of

proliferation in the case of the proposed subsequent arrangement under the U.S.-EURATOM agreement that will permit certain provisions of the implementing agreement to be fully carried out.

The Analysis of Approvals and Consents submitted by the President to the Congress with the agreement explains in detail the basis on which we reached our conclusion that the implementing agreement and the associated subsequent arrangements will not result in a significant increase in the risk of proliferation. I would like to take a moment here, however, to describe the factors we considered with respect to "timely warning". We took into account a broad range of technical, political and economic factors. We considered the nature of the effort that would be required if Japan were to decide to develop a nuclear explosive device, together with the technical, industrial, material and human resources available to Japan were it to implement a diversion decision. We considered the indicators that might be expected to provide timely warning, including the application of IAEA safeguards, and the probability of changes in such indicators as Japan's adherence to the NPT, its status as a U.S. ally, its stable and democratic government, and the transparency of its nuclear program. These factors all provide evidence that the United States would have timely warning as envisioned in section

131(b) (2) in the case of Japan, and giving foremost consideration to this fact we concluded that the proposed reprocessing and retransfers would not result in a significant increase in the risk of proliferation.

As I have already mentioned, Mr. Chairman, the implementing agreement includes, among other things, a commitment by the United States to enter into a long-term, advance consent arrangement with the European Atomic Energy Community permitting the return from France and the UK of plutonium recovered from the reprocessing of Japanese nuclear material of U.S. origin. The Guidelines for the International Transportation of Recovered Plutonium, contained in Annex 5 of the implementing agreement, specify, among other things, that such shipments must be by dedicated cargo aircraft, using a polar route or another route selected to avoid areas of natural disaster or civil disorder. A great deal of attention has been focused on these particular provisions of the agreement, and a great deal of concern has been voiced, most notably in Alaska and in Canada, that such flights might pose a potential risk to the populations and natural environments of the areas that might be transited or overflown. Such concerns are quite understandable, but they are also, the Administration is convinced, unwarranted.

The first point I would like to make is that the agreement does not constitute a decision to ship plutonium over or through any country, including the United States. It neither obliges Japan nor authorizes Japan to overfly the United States or land for refueling or any other purpose at an airport in the United States. Any such decision would come much later, at the time when a transportation plan required by Annex 5 is prepared. This plan, required prior to each shipment, must be prepared with the cooperation and assistance of Japan and the United States, the transferring government (France or the UK), and all countries enroute. Such cooperation and assistance must be secured in advance through appropriate liaison and consultation with relevant authorities. No country, obviously, is obliged to render its cooperation and assistance, and without them, no plan that would involve that country would be possible.

I have already mentioned the numerous stringent physical protection requirements called for by Annex 5, many of which will have the effect of enhancing the safety of the shipments as well. I would like to return for a moment, however, to the question of the shipment casks. These casks must be designed and certified to maintain their integrity even in a crash of the aircraft. This is the case for two reasons. First, the terms of the agreement require it. Second, U.S. law and

regulations require it, and the proposed agreement will not displace the laws and regulations of any nation, including the United States, governing the transportation of nuclear materials. The Congress, notably in the Scheuer Amendment, has already established strict statutory criteria for cask safety. Thus, the responsibilities of the U.S. Nuclear Regulatory Commission and the U.S. Department of Transportation to certify the safety of the transport package in accordance with U.S. standards are in no way affected by the proposed agreement. To make this absolutely explicit, the Government of Japan has provided a side letter to the agreement stating, in relevant part, that any shipments transiting or even merely overflying U.S. territorial jurisdiction must utilize shipment casks certified by the U.S. Nuclear Regulatory Commission as meeting the safety and environmental standards codified in U.S. law and regulations. In addition, the side letter further affirms that the casks must also be certified by Japanese authorities as meeting standards expected to provide a level of safety and environmental protection comparable to that provided in current U.S. Nuclear Regulatory Commission regulations. Thus, it is the standards that Congress has already mandated that will govern shipments under the agreement.

The NRC has already certified two casks, one for the transport of gram quantities and the other for the transport of

up to 2.0 kg of plutonium. These casks are currently available for use in the United States. They satisfy the rigorous standards set forth in the Scheuer Amendment, which requires casks "which will not rupture under crash and blast-testing equivalent to the crash and explosion of a high flying aircraft." Efforts are underway to develop and certify a larger cask for reasons of economy, but no shipments with such a new cask by Japan or any country will be permitted unless it meets U.S. requirements.

As I have said, the agreement does not specifically provide for overflight or transit of U.S. territory. Nevertheless, the Japanese are in fact considering such a route, and may propose it if the agreement enters into force. Given this possibility, the Department of Energy prepared an Environmental Assessment taking into account the National Environmental Policy Act (NEPA) concerning the potential for environmental impacts. The Department of State, as well as other relevant agencies, was consulted in the preparation of this document and has reached its own judgment that the agreement will not have a significant impact on the human environment.

The Environmental Assessment describes how all flights transiting or overflying U.S. territory would have to comply with applicable U.S. regulatory requirements, including Nuclear

Regulatory Commission cask design criteria satisfying the Scheuer amendment. The assessment further describes how for all flights, even those not over U.S. territory, Japanese regulations are expected to provide a level of safety and environmental protection comparable to that provided in current NRC regulations. Finally, the assessment reviews the radiological dose and non-radiological impacts expected from normal shipments. It indicates with respect to all of these elements that the air shipments are not expected to have any significant adverse environmental impacts.

The alternatives to the proposed course of action are also addressed. The assessment indicates that none of the alternatives are likely to have a substantially different impact on the environment than the proposed action, but that they could be less effective in meeting U.S. non-proliferation objectives, more costly, or both.

Accordingly, responsible officials of the Department of Energy and the Department of State have made findings of no significant environmental impact with regard to the entry into the proposed agreement with Japan and implementing arrangements with EURATOM to permit the return of plutonium by air from EURATOM to Japan.

In accordance with established procedures, the Environmental Assessment was prepared precisely to determine whether an Environmental Impact Statement would be warranted. And our conclusion, based on the results of the Environmental Assessment, was that preparation of an Environmental Impact Statement is not warranted. The Administration has taken all prudent steps to ensure that the agreement will be implemented with the utmost regard for safety as well as physical security. We are absolutely committed to ensuring that the agreement poses no hazards to the health, safety and environment of Americans or residents of any other country.

I would like to turn finally, Mr. Chairman, to a consideration of the benefits that we expect the agreement to bring to the United States. At the very beginning of my testimony I mentioned two of them.

First and foremost, the agreement will strengthen the international non-proliferation regime, support of which is a fundamental U.S. national security and foreign policy objective, by setting a new standard for rigorous non-proliferation conditions and controls in agreements for peaceful nuclear cooperation.

In addition, the agreement contains all the consent rights and guarantees required by U.S. law. It thus substantially

upgrades U.S. controls over peaceful nuclear cooperation with Japan. The agreement establishes a detailed tracking system for U.S.-origin nuclear material, particularly plutonium. It provides a basis for the United States to work closely with Japan in ensuring application of the most advanced safeguards and physical protection measures.

The agreement also helps to ensure a continuation of strong support from Japan on non-proliferation issues generally, including the NPT and controls on nuclear-related exports to countries of proliferation concern. The Government of Japan has clearly stated its commitment to non-proliferation in a side letter accompanying the agreement.

Finally, by affirming the U.S. intention to be a reliable nuclear trading partner, it will help ensure the continuation and growth of U.S. nuclear exports to Japan, including enrichment services with an average annual value of more than \$250 million, and component exports whose value is also very substantial.

Mr. Chairman, the Administration believes very strongly that this is an excellent agreement, protecting the vital interests of the United States while fully meeting the peaceful nuclear cooperation needs and requirements of both the United States and Japan. The Administration strongly urges that the Congress give it favorable consideration.

This completes my prepared testimony, Mr. Chairman. I would be pleased to answer any questions.

IMPLICATIONS OF ADVANCE CONSENT ARRANGEMENT

Mr. BONKER. Well, thank you, Ambassador Kennedy, and as always, you are very comprehensive and direct in your testimony, and it certainly helps the committee better to understand the details in the pending agreement, and I think we are going to have to narrow our focus so that we can determine whether or not there is blanket authorization, carte blanche, and what other ways have been altered in the new agreement from the policies and the practices and the criteria of the previous agreements.

As I understand, this is the third bi-lateral that we have with Japan over nuclear cooperation, is that true?

Ambassador KENNEDY. I believe there was one, very narrow in scope, which preceded the one in existence now.

The one of relevance is the one that exists now, which incorporates in some respects some of the conditions which the Non-Proliferation Act sought. But in most cases, is much less desirable than this Agreement.

Mr. BONKER. Well, since the Department of Energy, through commercial contracts, provides about eighty-five percent of the uranium enrichment services that go to Japan, it is plainly understood why our country has a stake in how that nuclear material is disposed of or altered or reprocessed, and that is why the Agreement is so terribly important to ensure that we have the safeguards necessary to protect both countries.

But let me ask you about this question of prior consent that is implied or explicit in the previous agreements and the advance consent arrangement in the pending agreement.

As I understand it, under the new Agreement, the case-by-case review, which has been the practice in the past, would be replaced by an advance consent arrangement for certain specified activities and in certain specified facilities for that thirty-year duration of the Agreement.

And I guess that raises a question of whether this is a blanket authorization or a carte blanche, as you made reference to, whether by approving this agreement, we are, in effect, abandoning our review and consent authority for the duration of the Agreement.

Now, you have stated that that is not the case, that the United States will continue to maintain some leverage, if not all outright authority, to suspend or to terminate shipments.

I guess what I would like to ask is where in, if you can be specific, that Agreement has the United States maintained its prior consent. If we are not going to have case-by-case review, then what assurances do we have in the Agreement that we can exercise that authority in the future?

LONG-TERM CONSENT CONTINGENT ON SAFEGUARD ARRANGEMENTS

Ambassador KENNEDY. May I take a couple of minutes to describe how the Agreement is structured in this respect and thus what the results are?

Mr. Chairman, as I have said, these are not blanket consents, not carte blanche. Rather, they are a way of implementing the consent rights that exist in the law. They are advance long-term consents.

Mr. BONKER. Now, when you say advance long-term, I just want to make sure I understand this, are we talking about the duration of the Agreement thirty years?

Ambassador KENNEDY. The duration of the Agreement provided that all conditions are met. Let me explain to what I am referring.

The consent rights that are provided in the three principal articles of the Agreement, 3, 4, and 5, are not given up. They are simply being exercised in an advance long-term basis, subject to very stringent conditions and controls.

The nuclear material must be subject to international safeguards satisfactory to the United States at all times. No agreement or no long-term consent can obtain unless the safeguards arrangements are satisfactory to us.

To the extent they are not satisfactory, the agreement stops. If something is to be added to the program to which the advance long-term consent already applies, the safeguards arrangements for the facility must accord with the safeguards acceptable to the United States.

Now, where necessary, this means that the United States and Japan will need to develop new safeguards concepts beyond those already contained in the Agreement.

Mr. BONKER. Excuse me. You mean pursuant to the Agreement? Are those safeguards going to be in place in the Agreement?

Ambassador KENNEDY. They will—for anything that is now covered, they must be in existence. For anything that would be added, there must be an agreed safeguards concept which the International Atomic Energy Agency considers would be satisfactory to establish a safeguards system which would meet its safeguards goals and objectives.

MONITORING COMPLIANCE WITH SAFEGUARDS

Mr. BONKER. Yes, but if we do not have a continuing review, how are we going to determine whether or not all those safeguards are in place and the criteria are met?

Ambassador KENNEDY. In two ways, Mr. Chairman.

First of all, they have to be satisfactory to us before the consent is in place. If they do not exist at the time in full, we have to be satisfied that they are developed in a way satisfactory to us and in place.

When they are actually in place and the long-term consent then, in effect, is being exercised, should there be any change, (a) the International Atomic Energy Agency is administering those safeguards and would inform us. We would be aware of it.

Moreover, we would be in a position through reporting from the Japanese on a regular basis to know precisely what is occurring.

Mr. BONKER. It seems to me in all due respect, Ambassador, that we have abandoned a fundamental involvement in the on-going shipment of separated plutonium by air across the United States.

At least on a case-by-case, you can review and see whether safeguards are in place, but if you are talking about safeguards that supposedly are in place now, eight or nine or ten years from now, you are not going to be around and probably a lot of others who were involved in this Agreement are not going to be around, what

assurances on a continuing basis on each of those flights will we have that the safeguards and criteria are based?

It seems to me that we are abandoning that all together and, hopefully, somebody else will detect something and report it to us so that we can negotiate with the Japanese, but we are talking about a disaster that could happen and then we are in a position of going back and trying to construct the circumstances that brought about the disaster.

U.S. CONSENT REQUIRED FOR TRANSPORTATION ARRANGEMENTS

Ambassador KENNEDY. Mr. Chairman, I understand the differentiation you are making. Let me clarify it.

What I was talking about are the safeguards. Those are the controls to be sure that there is no diversion of nuclear materials, etc., from facilities and activities where those materials are being used in Japan.

Now, the concerns that you are expressing about transportation. As I indicated, every single shipment, every single movement of that plutonium has to be subject to the agreement of the United States. There has to be a particular specific plan developed for that movement and that plan has to be acceptable, agreeable to the United States.

That is how that part of the problem is taken care of.

ASSESSMENT OF ENVIRONMENTAL IMPACT

Mr. BONKER. Well, I will have some more questions, Ambassador, but I would like to ask Mr. Martin and then I have to depart myself for a few minutes and I will return.

Mr. Martin, there is a lot of concern that we do not have an environmental impact statement in place so that we can anticipate what the fallout might be if there is some kind of disaster or air crash later on.

I note that there is some attention in the Agreement to EIS, but is it sufficiently comprehensive to address all the questions that will be raised here in the Congress?

Mr. MARTIN. Mr. Chairman, we have submitted for the record a sixty-page report that we believe is comprehensive. Certainly, I understand the concerns of many in the House. I understand the concerns of Senator Murkowski as well on the Senate side.

We would just ask that you study this carefully. We think that it demonstrates that there is no need for further environmental review, and we welcome your comments on that.

Let me also say that all the shipment casks, which have been described, must be authorized and certified by the NRC and, indeed, perhaps Admiral Zech can address that particular responsibility of his.

I might also add that we do have the responsibility to review any Japanese transport plans, which Ambassador Kennedy was discussing, to ensure that all safety and verifiable measures comply with this Agreement. So, there is certainly a very important check there.

So, I commend the report to the committee—I would be glad to talk about this in detail today. Perhaps you would like to study it further, and we could come back and work with you bilaterally.

Mr. BONKER. Let me just state that we have here, I think, for the record, an environmental impact assessment where an EIS provides the Congress and the public more comprehensive information.

But I am a little disturbed by some of the conclusions. One, the environmental consequences of the proposed action are limited to those associated with air transport of plutonium oxide from Europe to Japan and are predicted to be minor. Radiological dose under normal conditions will be to the transport crew.

The radiological risk from a major transport accident involving a crash of the plane followed by a fire is also very small.

Is this the kind of evidence on which we should place trust and the assessment here that if there is a transport accident, that it is going to be minor, the risk very small to other surrounding populations? Are you saying that there is no serious risk beyond this associated with an air transport crash that is carrying several hundred pounds of separated plutonium?

Mr. MARTIN. I will just repeat what the report says, Mr. Chairman, and I prefer not to excerpt, three or four sentences out of it like you have.

CRITICISM OF ENVIRONMENTAL ASSESSMENT BY DOE

Mr. BONKER. Is this a report prepared by the DOE?

Mr. MARTIN. It is. It is prepared by our Assistant Secretary for Environment, Safety and Health.

Mr. Chairman, as you know, we have responsibility for monitoring nuclear facilities of the Department of Energy. We have a great deal of expertise in this particular area, and this study concludes that there will be no significant impact on the environment.

But, again, I welcome your critique. We welcome your comments.

Mr. BONKER. Well, Mr. Martin, let me just say that we in Washington State are well aware of DOE's track record in this area, and your reputation is not of good standing in our state.

I really personally cannot accept any EIS or environmental assessment from DOE. I think we are going to have to involve the EPA or an outside agency because Hanford is living testimony to the fact that in the past, you have largely ignored environmental and safety-related problems associated with nuclear production.

But this is a subject we can carry forth, but I really feel that before I can put my approval on this Agreement, I am going to need a report on environmental impact from someone other than DOE.

At this time, I would like to turn the chair over to Congressman Solarz, who will chair for the remaining time.

Mr. SOLARZ. Mr. Wulf, I believe you are next.

STATEMENT OF NORMAN WULF, ACTING ASSISTANT DIRECTOR FOR NUCLEAR AND WEAPONS CONTROL, U.S. ARMS CONTROL AND DISARMAMENT AGENCY

Mr. WULF. Thank you, Mr. Chairman.

I do have a statement, the full text of which I would like to submit for the record, and just make some summary remarks.

I am pleased to appear before this distinguished committee today to discuss the Proposed Nuclear Cooperation Agreement Between the United States and Japan. This committee has already received ACDA's Nuclear Proliferation Assessment Statement on the Agreement.

In the statement, we concluded that the Agreement will significantly strengthen our non-proliferation interests. The Agreement is in our non-proliferation interests for a number of reasons.

First, the Agreement contains new or extended consent rights and guarantees as compared with existing agreements. As elaborated in ACDA's Nuclear Proliferation Assessment Statement, this Agreement contains all of the requirements mandated by the Atomic Energy Act and the NNPA. It does provide for a significant strengthening of U.S. non-proliferation control.

Second, the Agreement provides for strengthened physical security measures, particularly in the international transport of separated plutonium. Our willingness to offer long-term approval for reprocessing of plutonium presented an excellent opportunity to work with Japan to define tight and effective guidelines and procedures for the secure international transport of this plutonium.

Third, the Agreement will result in implementation in Japan of safeguards concepts containing elements that will maximize safeguards effectiveness, particularly for future reprocessing plants and other facilities that will use plutonium.

The concepts call for advanced technical measures, procedures and administrative arrangements requiring a high degree of cooperation between Japan and the IAEA.

As stated in ACDA's Nuclear Proliferation Assessment Statement, the safeguards and other control mechanisms and the peaceful use assurances contained in the Proposed Agreement are adequate to ensure that any assistance furnished thereunder will not be used for any military or nuclear explosive purpose.

Moreover, we believe that these safeguards requirements as well as Japan's commitment to the non-proliferation policy statement will enable the IAEA to apply safeguards effectively and efficiently at future as well as existing Japanese facilities.

In addition to these benefits, the Agreement establishes requirements for detailed reporting requirements and improved tracking systems for the U.S. origin nuclear material, particularly plutonium. This will provide additional assurance of the proper use and disposition of U.S. materials in accordance with U.S. consent rights and non-proliferation controls.

Past friction with the United States concerning Japan's nuclear program made it wary of granting further controls to the United States. Thus, U.S. willingness to exercise the most important of these controls, over reprocessing, in a stable, predictable way, was a major incentive for Japan to conclude the new Agreement.

The new Agreement, therefore, contains provisions which provide advance long-term consent to Japan for specified activities. This advance consent has led some to argue that the U.S. is fostering a plutonium economy. This mis-states the issue.

The issue that the U.S. must decide is not whether Japan should use plutonium. That is a decision for the Japanese Government. It is one that Japan has already made. It is using plutonium and will continue to use plutonium in its civil nuclear program.

The issue the U.S. must decide is whether to allow the reprocessing of spent fuel that is subject to U.S. control so that the plutonium it contains can be used in Japanese programs.

If we say no, Japanese use of plutonium not subject to U.S. control will continue and expand. Our opposition would slow the pace, but it would not halt Japanese use of plutonium. On the other hand, if we do say no, I do not think I need to elaborate on how responsive Japan will be to our suggestions on such issues as safeguards and physical security for plutonium.

Since plutonium use will occur regardless of U.S. action, the issue, I believe, is how best the U.S. can influence how that use occurs.

If we say yes, then we must decide whether to do it on a case-by-case or on advance programmatic basis. Some may assert that case-by-case is preferable to programmatic approval, but the argument in favor of a programmatic approach is compelling. The argument for case-by-case is that we use each individual case to incrementally obtain that which we desire. However, such bargaining is difficult and not always successful. Further, the Japanese bitterly resent their needs being held hostage to our incremental demands.

What is needed now are agreed rules before future plants are built. There is a fundamental difference between a forward-looking U.S./Japan cooperative endeavor that will anticipate problems and solve them in advance in order to ensure the best safeguards and physical protection measures for the fuel source that Japan has chosen to use, as opposed to an incremental case-by-case attempt to impose new solutions on old problems.

For example, one cannot through incremental changes backfit all safeguards and physical security measures that may be desired into a facility which has already been constructed, but you can design such features into a plant that has yet to be built.

ACDA is confident that this Agreement will foster just this sort of cooperation.

Some may even concede that while we are likely to have greater influence under a cooperative programmatic approach than under attempts to extract changes from case-by-case bargaining, there would still be trouble because this Agreement provides such programmatic consent for thirty years and a lot is going to change during such a long period.

U.S. interests, however, are protected because programmatic consent can be suspended. Of course, no one should expect that this suspension right will be exercised capriciously either under a case-by-case or a programmatic approach.

The Agreement specifies that if there is an increased risk of proliferation or an increase in the risk to our national security, we can suspend the Agreement in whole or in part. Surely, that is the appropriate standard for suspension.

Finally, I would note that we are not prepared to consider programmatic consent to plutonium for a large number of countries,

only those that have advanced fuel cycles and the best non-proliferation credentials.

In conclusion, Mr. Chairman, it is ACDA's judgment that the new Agreement will strengthen the nonproliferation regime, support of which is fundamental to our national security policy objectives.

Thus, ACDA believes the Agreement is fully in U.S. national interests.

Thank you, Mr. Chairman.

[Prepared statement of Mr. Wulf follows:]

**PREPARED STATEMENT OF NORMAN A. WULF, ACTING ASSISTANT DIRECTOR FOR
NUCLEAR WEAPONS CONTROL, U.S. ARMS CONTROL AND DISARMAMENT AGENCY**

Mr. Chairman:

I am pleased to appear before this distinguished Committee today to discuss the proposed peaceful nuclear cooperation agreement between the United States and Japan. This agreement is the result of almost five years of discussions and negotiations between the two countries and will replace the existing 1968 agreement.

This Committee has already received ACDA's Nuclear Proliferation Assessment Statement on the agreement, which we provided to the President prior to his approval of the agreement. In the assessment statement, we concluded that the agreement, which has an initial term of thirty years and which establishes a comprehensive framework for peaceful nuclear cooperation between the two countries, will significantly strengthen our non-proliferation interests. Moreover, it will place US-Japan nuclear relations on a solid and stable footing.

The new agreement is in our non-proliferation interests for a number of reasons. First, the agreement contains new or expanded consent rights and guarantees as compared with the existing agreement. This satisfies the requirement set forth in the 1978 Nuclear Non-Proliferation Act (NNPA) that calls for existing agreements for cooperation to be renegotiated so as to include additional requirements established by the NNPA for new

agreements. These include having a consent right over the storage of plutonium in a given country and over the reprocessing of non-US origin fuel irradiated in US reactors.

As elaborated in ACDA's Nuclear Proliferation Assessment Statement, this agreement contains all of the requirements mandated by the Atomic Energy Act and the NNPA. It thus provides for significantly strengthened US non-proliferation controls.

Second, the agreement provides for strengthened physical security measures, particularly in the international transport of separated plutonium. Our willingness to offer long-term approvals for reprocessing and plutonium use presented an excellent opportunity to work with Japan to define tight and effective guidelines and procedures for the secure international transport of plutonium. Moreover, continued adherence to these guidelines for international transport is a condition for continuation of long-term consent. The agreement also calls for continued consultations on physical protection measures and will permit updating of these guidelines as necessary. It is anticipated that the guidelines in the US-Japan agreement will help establish broader international norms in this area, in particular for shipments and protection of Japanese plutonium not covered by US consent rights.

Third, the agreement will result in implementation in Japan of safeguards concepts containing elements that will maximize safeguards effectiveness, particularly for future reprocessing plants and other facilities that use plutonium. The concepts call for advanced technical measures, procedures, and administrative arrangements requiring a high degree of cooperation between Japan and the IAEA. For example, the concepts call for facilities to be designed to facilitate the application of safeguards, an outcome that requires consultations with the IAEA early in the design process.

Japan has already developed and installed an advanced safeguards system for IAEA use at its new plutonium fuel fabrication facility and is cooperating with the Department of Energy in the development of additional safeguards measures at this plant. In addition, Japan has established a special support project to the IAEA to promote development of a safeguards approach that will satisfy the requirements of the safeguards concept for reprocessing plants. As with physical security we anticipate that these enhancements in safeguards on plutonium will influence the IAEA and other countries to adopt similar measures.

The United States has held regular bilateral meetings with Japan for a number of years on the full range of IAEA safeguards technical matters. In fact, such meetings are taking

place this week and include discussions on safeguards at the future reprocessing plant and a visit to the plutonium fuel fabrication facility. This close relationship on safeguards matters provides us with additional influence on the implementation of safeguards in Japan.

As stated in ACDA's Nuclear Proliferation Assessment Statement, the safeguards and other control mechanisms and the peaceful use assurances contained in the proposed agreement are adequate to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose. - Moreover, we believe that these safeguards requirements as well as Japan's commitment in the non-proliferation policy statement will enable the IAEA to apply safeguards effectively and efficiently at future as well as existing Japanese facilities.

In addition to these benefits, the agreement establishes the requirements for detailed reporting requirements and an improved tracking system for US-origin nuclear material, particularly plutonium. This will provide additional assurance of the proper use and disposition of US materials in accordance with US consent rights and non-proliferation controls.

Past frictions with the United States concerning Japan's nuclear program made it wary of granting further controls to

the United States. Thus, US willingness to exercise the most important of these controls -- over reprocessing -- in a stable, predictable way was a major incentive for Japan to conclude a new agreement.

The new agreement, therefore, includes provisions which provide advance, long-term consent to Japan for specified reprocessing, transfers, alteration, and storage of nuclear material so long as US statutory criteria are met, particularly criteria relating to adequate safeguards and physical protection. It also provides advance consent to the transfer of spent nuclear fuel from Japan to France and the United Kingdom for reprocessing, and requires the United States to provide the European Atomic Energy Community (EURATOM) with our consent for the return of the recovered plutonium from EURATOM to Japan under specified conditions, including special physical protection arrangements for international transportation.

Some may argue that this advance consent is equivalent to waiving US rights. In fact, the agreement sets forth in great detail the precise conditions that the Japanese must meet for the advance consent to operate. If one of the conditions is not met for a particular activity, advance consent does not apply to that activity. Moreover, the agreement provides unambiguously for the United States to suspend advance consent for some or all activities requiring US consent if necessary to

prevent significant increases in the risk of nuclear proliferation or increases in the threat to our national security.

In this connection, it is useful to bear in mind that Japan is a close ally of the United States and has an advanced nuclear program and excellent non-proliferation credentials. It is both a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and a longstanding member of the International Atomic Energy Agency (IAEA). This agreement recognizes and is based upon Japan's excellent non-proliferation credentials and close relationship with the United States. It was in recognition of these facts that President Reagan authorized this special approach to nuclear cooperation with Japan in 1982.

ACDA anticipates another benefit that will result from the agreement will be even better non-proliferation cooperation between the US and Japan. Japan's cooperation on a broad range of non-proliferation issues in such areas as nuclear export cases, suppliers' coordination, and increased adherence to the NPT has been very good. By making US-Japan peaceful nuclear cooperation predictable and removing a source of past friction, the agreement goes far in creating an atmosphere conducive to maintaining and improving this cooperation. As a first indication of improved cooperation, the United States and Japan plan to commence twice yearly, bilateral, non-proliferation discussions in 1988.

The agreement also affirms the US intention to be a reliable and predictable trading partner with a close ally which has an advanced fuel cycle and excellent non-proliferation credentials. Thus, the agreement will help to ensure the continuation and growth of US nuclear exports to Japan, including enrichment services currently valued at approximately \$250 million annually and other nuclear exports of substantial value.

It is ACDA's judgment that the new agreement will strengthen the non-proliferation regime, support of which is a fundamental US national-security and foreign policy objective. Thus, ACDA believes that the agreement is fully in US national interests. After a thorough examination of this agreement, I trust that you and the whole Congress will agree.

Thank you.

Mr. SOLARZ. Mr. Zech, you are at bat.

STATEMENT OF HON. LANDO W. ZECH, CHAIRMAN, U.S. NUCLEAR REGULATORY COMMISSION

Mr. ZECH. Thank you, Mr. Chairman.

Mr. Chairman, members of the committee, I am pleased to appear before you today to discuss the originally-proposed Nuclear Cooperation Agreement Between the United States and Japan.

The Proposed Agreement was transmitted to the Commission on February 17, 1987, for its review and recommendations in accordance with Section 123 of the Atomic Energy Act. Under that section, the Executive Branch, which negotiates nuclear cooperation agreements, is required to consult with the NRC before submitting a proposed agreement to the President for approval.

The NRC's concurrence is not required. We comment as to whether a proposed agreement is in keeping with statutory requirements, the potential impact on NRC licensees, and whether the agreement is consistent with United States Government policy, as we understand it.

The Commission completed its analysis of the Japanese Agreement in July and transmitted its views to the President. I would like to discuss our thoughts with you now.

While recognizing the importance attached to the relationship between the United States and Japan, and Japan's good non-proliferation credentials, the Commission could not recommend that the President approve the Proposed Agreement due to concerns over the proposed implementation of safeguards.

Our primary concern is the provision granting long-term programmatic approval for the use of U.S.-controlled plutonium in Japanese facilities which do not now exist. Providing such approval for U.S.-supplied materials and Japanese processing facilities, which have not yet been built, and for which proposed safeguards measures have not been fully developed or routinely used by the IAEA, does not seem like a prudent action from a nuclear non-proliferation perspective.

The prospective Japanese facilities will be larger than any others of the type currently constructed or operating in a non-nuclear weapons state. According to the Department of State, the acceptable quantity of plutonium which is not accounted for will increase proportionately with the size of the facility. Material which cannot be accounted for due to technical limitations in material control and accounting could go as high as several hundred kilograms of plutonium per year, per facility.

The NRC believes this raises significant concerns. The Commission, therefore, believes that the United States Government should not commit itself, as the Proposed Agreement does to giving programmatic approval for plutonium use in future facilities when extensive effort is still required to develop acceptable safeguard measures.

For these future facilities, the Commission recommends the continuation of the advance consent; that is, case-by-case provisions that are in effect under the existing agreement with Japan.

On another matter, the Atomic Energy Act requires that the United States retain the right to require that foreign countries return plutonium produced through the use of U.S.-transferred nuclear material or complete nuclear facilities. The Proposed Agreement appears to go beyond legal requirements contained in the Atomic Energy Act in that it makes this requirement reciprocal and refers not only to nuclear material and complete nuclear facilities, but also to components.

The Commission does not support the provision in the Agreement giving Japan the right to require the U.S. to return any plutonium produced in U.S. facilities that use Japanese components. The Commission questions the non-proliferation policy rationale of a provision whereby a nuclear weapons state would return plutonium to a non-nuclear weapons state.

The Commission believes that this could be unwise, even if the particular circumstances under which this might take place are extremely unlikely.

Accordingly, this Proposed Agreement, in extending reciprocal return rights to Japan goes beyond legal requirements and might not be prudent.

We also raised the issue that under the Proposed Agreement, it appears that if the Japanese were to decide that the United States was not implementing the Agreement in good faith, the dispute might be settled by an arbitral tribunal. We appreciate the State Department's clarification that the use of an arbitral tribunal would require the United States consent. The State Department's response resolves this concern.

Finally, we are concerned that the Proposed Agreement provides for tracking and reporting of Japanese origin components and the plutonium produced from those components in the United States.

The Commission believes that the non-proliferation benefits to be gained by the United States are not sufficient to justify the significant extensive tracking and reporting requirements being placed on the United States nuclear industry and the United States Government.

Moreover, there is no statutory requirement to track components and the plutonium produced therefrom. In addition, the Nuclear Regulatory Commission may lack the authority to enact the regulations needed to effectively implement the provisions. Therefore, the provisions in some cases may be difficult to enforce.

Despite these concerns, if the Agreement is allowed to take effect, the Nuclear Regulatory Commission will do all it can to implement its responsibilities under the Agreement.

Mr. Chairman, that concludes my remarks. I am prepared to answer any questions you may have.

[Prepared statement of Mr. Zech follows.]

PREPARED STATEMENT OF HON. LANDO W. ZECH, CHAIRMAN,
U.S. NUCLEAR REGULATORY COMMISSION

Mr. Chairman, members of the Committee, I am pleased to appear before you today to discuss the recently proposed nuclear cooperation agreement between the United States and Japan.

The proposed agreement was transmitted to the Commission on February 17, 1987 for its review and recommendations in accordance with Section 123 of the Atomic Energy Act. Under that section the Executive Branch, which negotiates nuclear cooperation agreements, is required to consult with the NRC before submitting a proposed agreement to the President for approval. The NRC's concurrence is not required. We comment as to whether a proposed agreement is in keeping with statutory requirements, the potential impact on NRC licensees, and whether the agreement is consistent with U.S. Government policy as we understand it.

The Commission completed its analysis of the Japanese agreement in July and transmitted its views to the President. I would like to discuss our thoughts with you now.

While recognizing the importance attached to the relationship between the United States and Japan, and Japan's good nonproliferation credentials, the Commission could not recommend that the President approve the proposed agreement due to concerns over the proposed implementation of safeguards.

Our primary concern is the provision granting long term, programmatic approval for the use of U.S. controlled plutonium in Japanese facilities which do not now exist. Providing such approvals for use of U.S.

supplied materials in Japanese reprocessing facilities, which have not yet been built, and for which proposed safeguards measures have not been fully developed or routinely used by the IAEA, does not seem like a prudent action from a nuclear nonproliferation perspective. The prospective Japanese facilities will be larger than any others of their type currently constructed or operating in a non-nuclear weapons state. According to the Department of State, the acceptable quantity of plutonium that is not accounted for will increase proportionately with the size of the facility. Material which cannot be accounted for due to technical limitations in material control and accounting, could go as high as several hundred kilograms of plutonium per year, per facility. The NRC believes this raises significant safeguards concerns. The Commission therefore believes that the U.S. Government should not commit itself, as the proposed agreement does, to giving programmatic approval for plutonium use in future facilities when extensive effort is still required to develop acceptable safeguards measures. For these future facilities the Commission recommends the continuation of the advance consent (i.e., case-by-case) provisions that are in effect under the existing agreement with Japan.

On another matter, the Atomic Energy Act requires that the United States retain the right to require that foreign countries return plutonium produced through the use of U.S. transferred nuclear material or complete nuclear facilities. The proposed agreement appears to go beyond legal requirements contained in the Atomic Energy Act in that it makes this requirement reciprocal and refers not only to nuclear material and

complete nuclear facilities, but also to components. The Commission does not support the provision in the agreement giving Japan the right to require the U.S. to return any plutonium produced in U.S. facilities that use Japanese components. The Commission questions the non proliferation policy rationale of a provision whereby a nuclear weapons state would return plutonium to a non-nuclear weapons state. The Commission believes that this could be unwise, even if the particular circumstances under which this might take place are extremely unlikely. Accordingly, this proposed agreement, in extending reciprocal return rights to Japan, goes beyond legal requirements and might not be prudent.

We also raised the issue that under the proposed agreement it appeared that if the Japanese were to decide the U.S. was not implementing the agreement in "good faith", the dispute might be settled by an arbitral tribunal. We appreciate the State Department's clarification that use of an arbitral tribunal would require U.S. consent. The State Department's response resolves our concern.

Finally, we are concerned that the proposed agreement provides for tracking and reporting of Japanese-origin components and the plutonium produced from those components in the U.S. The Commission believes that the nonproliferation benefits to be gained by the U.S. are not sufficient to justify the significant and expensive tracking and reporting requirements being placed on the U.S. nuclear industry and the U.S. Government. Moreover, there is no statutory requirement to track components and the plutonium produced therefrom. In addition, the NRC

may lack the authority to enact the regulations needed to effectively implement the provisions. Therefore, the provisions in some cases may be difficult to enforce.

Despite these concerns, if the agreement is allowed to take effect, the NRC will do all that it can to implement its responsibilities under the agreement.

Mr. Chairman, that concludes my remarks: I am prepared to respond to any questions that the Committee may have.

CONCERN OVER SAFEGUARDING OF FUTURE TECHNOLOGIES

Mr. SOLARZ. Thank you very much, gentlemen.

This is an extraordinarily complex question here, and we hope to get a better understanding of it.

Let me begin, if I may, by asking a few questions here. I gather that much of the controversy relates to this decision to provide advance programmatic approval as opposed to a case-by-case approval, and perhaps, Mr. Zech, you would be the best one to answer this, although everybody else can join in.

My question would be, why do we need a case-by-case approval with an adequate comprehensive programmatic approval? In other words, if the programmatic approval incorporates a series of criteria and guidelines that appear to address and satisfy our concerns, then why should not that be sufficient?

Mr. ZECH. In our judgment, Mr. Chairman, the advance programmatic approval is not sufficiently defined. The reference is to concepts and measures that in our judgment are simply not in place. The technology today for safeguards simply does not give us the confidence we would need to give advance consent to those concepts.

Mr. SOLARZ. Well, I am not familiar with the precise language on this, but supposing there is a provision in there which says that these plants will have to be built in such a way, the material cannot be diverted or that other protections are built in. Presumably if a determination is made that they have not taken the necessary steps to deal with some of these problems, it would not meet the programmatic approval either.

Mr. ZECH. That is true. On the other hand, when you consider the advance consent provision, I think it is important to recognize that Japan has the proposal to build a very large reprocessing facility. Some 800 metric tons.

Now, that is much larger than the facility that they have now which has a design capacity of approximately 200 metric tons. I visited that facility in Tokai-Mura. I will say that it is a very well run facility. I personally went through the plant. I was impressed by the Japanese competence, their commitment to safety and their general attitude of doing it right.

So, there is in Japan a very serious discipline and attention to detail. It is an impressive facility.

On the other hand, that is today's technology. Today's technology will be challenged, Mr. Chairman, to accomplish the safeguards and assurances that we need. So, when you look to the future and build a much larger plant than that, that is our concern. It is not today's concern, but it is a future concern.

AGREEMENT PROVIDES FOR SUSPENSION OF PROGRAMMATIC CONSENT

Mr. SOLARZ. Mr. Kennedy, how do you respond to the argument that we do not know about these new technologies and, therefore, how can we satisfactorily or adequately view programmatic approval for a facility whose technology we do not yet know what it will be?

Ambassador KENNEDY. Mr. Chairman, I understand the position that Chairman Zech is suggesting. But, let me say that simply be-

cause a plant has not yet been built, it does not mean that a safeguards concept which fully articulates the conditions under which that plant will operate and the conditions under which it will be safeguarded with the measurement standards that are required and the techniques to be followed, cannot be spelled out.

It has to be spelled out, indeed, to our satisfaction.

Mr. SOLARZ. Is it spelled out in the Agreement?

Ambassador KENNEDY. In the Agreement?

Mr. SOLARZ. Yes.

Ambassador KENNEDY. There are a whole series of criteria and the general concepts as they apply to future plants not yet built are also spelled out.

Mr. SOLARZ. Let me ask you—

Ambassador KENNEDY. And I ask if you will look, indeed, in this document, which the Chairman, Chairman Bonker, made reference to starting at page 102, the safeguards approaches are described in some detail.

If I may, let me ask a safeguards expert who has worked both with the Japanese and with the IAEA in developing these concepts to comment further, if I might.

Mr. Kessler was a member of the team that developed the concepts in great detail.

Mr. SOLARZ. Well, before he does that, let me ask you one follow-up question.

What happens if the new facility is built or if the new facility is operated in a way that we believe violates this programmatic approval that we have given?

Ambassador KENNEDY. We would have the right to suspend the programmatic consent in respect to that facility.

Mr. SOLARZ. What would that then mean operationally?

Ambassador KENNEDY. Operationally, it means that we would inform the Japanese that they no longer have our consent for the operation of that facility in respect to any material of U.S. origin.

Mr. SOLARZ. So—

Ambassador KENNEDY. It would have to stop.

Mr. SOLARZ. Right. So, in effect, even though we do not have a case-by-case approval of the arrangements for each future facility, by virtue of the programmatic approval, which is about to be described, if we reach the judgment on a case-by-case basis that a particular future facility is being operated in ways which are incompatible with that programmatic approval, we have the right on a case-by-case or facility-by-facility basis to say that we believe in our unilateral judgment that this is not in keeping with the programmatic agreement and, therefore, unless you bring it into compliance, we will deny you the right to use any U.S. materials in that facility?

Ambassador KENNEDY. This is correct, Mr. Chairman, and, needless to say, that is a very serious step, one that we would not take lightly. We would want to consult with the Japanese to be sure that before we actually terminated, we found out whether, indeed, they were prepared to or could modify the system to agree with the standards that we have agreed to.

Mr. SOLARZ. I did not catch your name, sir.

Ambassador KENNEDY. Mr. Kessler.

CONCEPT PAPERS BUILD ON IAEA SAFEGUARD PRINCIPLES

Mr. SOLARZ. Mr. Kessler. You are about to, hopefully, succinctly explain what the conceptual provisions are for this programmatic approval dealing with the traditional concerns of safeguards, and when you are finished, perhaps Mr. Zech can tell us why he believes these programmatic assurances are inadequate and why they are not capable of dealing with any new technology.

Yes.

Mr. KESSLER. Thank you, sir.¹

I will not seek to give you a lecture on the details of safeguards principles, but the concept papers build on and incorporate by reference the safeguards principles that the IAEA has established, which are quite detailed and extensive, and which the IAEA uses in applying its safeguards to all facilities in the world.

These concept papers emphasize certain points, go beyond the IAEA principles in certain points, and establish the levels of performance and the nature of the performance which will be required of any safeguards regime in order for the Japanese to inform the United States that a facility meets the standards and we would then agree to put it under programmatic approval.

So, it establishes a very high threshold. It does not say how one does that; it says what one must do.

Mr. SOLARZ. Right. And that is compatible with existing IAEA safeguard requirements and goes beyond them in some instances?

Mr. KESSLER. Yes, sir.

Mr. SOLARZ. There are no areas where it falls below them?

Mr. KESSLER. No, sir, there are none.

Mr. SOLARZ. Okay.

Mr. KESSLER. If I may make one other point, sir.

Mr. SOLARZ. Yes. Thank you.

Mr. KESSLER. In this case, the United States will be informed in some detail of the safeguards that are being applied at a particular facility and will have an open window for the period of the agreement.

In a case-by-case approval, we have a window of an established duration following which we do not have a window until they ask us again for further consent.

CONCEPTS NOT FULLY DEVELOPED

Mr. SOLARZ. Mr. Zech, what is wrong with that seemingly reasonable presentation?

Mr. ZECH. Well, first of all, I agree with the concepts, but the thing wrong is that we are counting on concepts that are not necessarily fully developed.

From the NRC's standpoint, we are looking for facts. We are looking for scientific, engineering, technical facts—when something works we will see that in these concepts. They are not there yet. The technology of safeguards has not advanced to the point where these things are achievable.

¹ J. Christian Kessler is the Foreign Affairs Officer for the Office of Nuclear Technology and Safeguards, Nuclear Energy and Energy Technology Affairs, Bureau of Oceans and International Environmental and Scientific Affairs, Department of State.

Mr. SOLARZ. I think I understand what you are saying, but let me follow up on it because I am not sure that I necessarily agree with the conclusion you seem to have reached.

I take it that we are dealing here with technologies that have not been fully developed. Nevertheless, if the criteria has been developed which say that these procedures will have to produce certain results and that they will have to satisfy us of certain things, if it turns out these future technologies do not produce the desired results, and if they do not satisfy our concerns which are presumably enumerated in this programmatic approval, then we presumably have the right to say, sorry, fellows, but what we came up with was inadequate.

So long as the bottom line has to be satisfied, why should it be a matter of great concern to us how they satisfy it, whether they do it through mechanisms and means of what is known or through means and mechanisms which have yet to be developed, so long as we can say that if you do not meet the bottom line requirements of the programmatic approval, you do not get our specific approval for the use of our materials in this facility?

MANDATORY CRITERIA COULD ADDRESS NRC CONCERNS

Mr. ZECH. Well, I think that is a very good point. I would say, Mr. Chairman, that if you would turn concepts into criteria and make them mandatory criteria that would have to be met, we would be more satisfied at the Commission that we are really seeking something that is achievable.

We did not participate in these negotiations—we were not consulted. We did not have any real input until, in my judgment, the negotiations were completed.

I think if we were consulted, we probably could have interjected some of our own technical concerns about this Agreement. I did not say—and we wrote our letter to the President, that said that without modifications, we cannot approve this Agreement. I think it could be modified. We could be satisfied, but at the moment, all we are talking about is concepts which we think are very likely unachievable.

We are not willing to bet on something that we do not have any more confidence in than that.

ACDA ON DEVELOPMENT OF CONCEPTS

Mr. SOLARZ. Yes? Mr. Wulf.

Mr. WULF. Could I get into this very briefly? Only to state that the Arms Control and Disarmament Agency developed the concept papers and worked closely with NRC staff during the development of these concepts, and our understanding from the staff level was that they were comfortable with them. Now, granted sometimes staff does not communicate with principals and if that happened the Commissioners themselves may not have been consulted.

Our understanding is the same as yours, Congressman Solarz, that if, at the time the plant becomes—is about to become operational, the Japanese have not been able to devise safeguards approaches that meet the concepts, then our consent does not operate

and they cannot use U.S.-controlled materials in that plant until such time as they do meet those concepts.

Thank you.

REQUEST FOR MORE SPECIFIC CRITERIA FROM NRC

Mr. SOLARZ. Mr. Zech, could you submit for the record a more detailed response on this point, in which you could spell out some of your more specific concerns with what you characterize as concepts, and perhaps provide some examples of how these concepts might be acceptable if they were translated into criteria, and state precisely what it is about the concepts that you feel are too ambiguous or amorphous or unacceptable?

I want to move this from the level of a kind of abstract debate where others say the concepts have to be met, and you say you can live with the criteria but not concepts. It is not clear exactly what the difference is.

So, if you could do that for the record, that would be very helpful.

Mr. ZECH. I would be pleased to do that, but let me just briefly say, Mr. Chairman, that we are talking about a very complex chemical process that has material handling problems, too, and we are talking about the reprocessing of plutonium.

It is a very complex technical issue and we must, I think, respect the fact that there are things known about it and there are things unknown about it, what we can do with regard to safeguards.

We will be happy to submit for the record more specific criteria.

Mr. SOLARZ. All we would like to know is if you could give us for the record some examples of things that the Japanese might do or might not do which ultimately could conceivably be deemed to be compatible with the concepts but which you would deem to be unacceptable from a non-proliferation point of view.

Mr. ZECH. We would be pleased to do that.

[The following was subsequently submitted for the record:]

EXAMPLES OF HOW A FUTURE PLANT COULD BE DEEMED
COMPATIBLE WITH THE CONCEPTS BUT UNACCEPTABLE FROM
A NON-PROLIFERATION POLICY POINT OF VIEW

NRC's main concern in this regard includes the adequacy of accounting for plutonium at large reprocessing facilities as contemplated in the safeguards concepts for these facilities in the Agreement. The safeguards concepts state that the safeguards approach will enable attainment of IAEA safeguards objectives and inspection goals. However, no standards or performance criteria are specified to bound the objectives or goals. It is NRC's understanding that the inspection goal for large reprocessing facilities, calculated with current international standards, could be over a hundred kilograms of plutonium per year. NRC questions the acceptability of use of such a goal.

Also, the Safeguards Concept Paper includes reference to an unproven safeguards measure, near real time accounting (NRTA). The use of NRTA in the Safeguards Concept Paper is not bounded by performance criteria, and it is yet to be demonstrated that NRTA will provide an acceptable level of accounting. In this example, NRTA could be implemented, but the performance of this approach in detecting diversion may not be acceptable.

Mr. SOLARZ. Okay. Mr. Wolpe.

BLANKET APPROVAL AVOIDS BROADER QUESTIONS

Mr. WOLPE. Thank you very much, Mr. Chairman.

I want to focus in on some of the reservations expressed by DOD and NRC.

If I may, it should be stated that the safeguards issue is clearly one significant element of what we ought to be evaluating here, but I do not want to see that particular specific focus divert attention from the broader questions raised by blanket approval.

Under Section 131 of the Atomic Energy Act, a determination is required that consent for plutonium transfer would not be inimical to the common defense and security and will not result in significant increase in the risk of proliferation.

These are much broader questions than boiler plate safeguards language can address. They require a case-by-case consideration of the total non-proliferation situation at the time of the transfer. For instance, the level of terrorist activity throughout the world must always be reevaluated at the time of transfer.

U.S. OBLIGATIONS UNDER TERMINATION PROVISION

I would like to ask Mr. Zech about the suggestion that was made a moment ago that if we do not like what we see, we can then terminate the agreement.

What is involved in termination? My understanding is that there is a reciprocity that is built into the agreement that would require some burdens upon the United States as well as upon the Japanese in the event we should reach a determination that the agreement should be broached or terminated.

What would be required in the event of a termination?

Mr. ZECH. Let me make sure I understand the question, Mr. Wolpe.

What would be required to terminate the agreement? Is that the question?

Mr. WOLPE. Yes. That is right. What cause, what burdens from the United States' standpoint of a decision to terminate?

Mr. ZECH. Well, it is my understanding that if the United States is unsatisfied that Japan is carrying out the provisions of the agreement that have been agreed to, that we would, indeed, have the right to terminate the agreement. There is no question about that as far as I am concerned. The right to terminate is there.

Of course, it is a very serious step to take and as Ambassador Kennedy points out, I am sure there would be serious negotiations before that step would be taken.

Mr. WOLPE. Is there not also a provision within the agreement to give Japan the right to require the United States to return any plutonium produced in the United States facilities that used Japanese equipment or components?

Mr. ZECH. Yes, sir.

Mr. WOLPE. In the event of termination. I am trying to understand more fully what does termination require on our end if we should decide to terminate.

Mr. ZECH. Well, let me just say yes, that is a provision of the agreement, which gives the NRC concern.

First of all, we believe that perhaps requiring the plutonium that comes from Japanese components, requiring the United States to return that plutonium to Japan, from a weapons state to a non-nuclear weapons state, is questionable.

On the other hand, we question even the use of components. That looks to us like an extension that need not be—that is not perhaps in the law and would perhaps be beyond the legal requirements.

So, we have further questions about that particular requirement.

Mr. WOLPE. Thank you. That was what I was trying to get at.

RESERVATIONS EXPRESSED BY DOD

Mr. Kennedy, what did Secretary of Defense Weinberger have to say about the U.S./Japan Agreement for Cooperation?

Ambassador KENNEDY. He expressed a number of reservations.

Mr. WOLPE. Could you hold the microphone a bit closer? We cannot hear.

Ambassador KENNEDY. I am sorry. He expressed a number of reservations, Mr. Wolpe. These were carefully examined and considered by the President.

Mr. WOLPE. Again, I am sorry. The microphone is still not close enough.

Ambassador KENNEDY. Does that help?

Mr. WOLPE. That is better. That is good.

Ambassador KENNEDY. The age of modern electronics just is not working very well.

Mr. WOLPE. Right.

Ambassador KENNEDY. The Secretary of Defense expressed a number of concerns and reservations in a letter. These were in accordance with the existing provisions of law, carefully examined by all of the relevant agencies and recommendations pertaining to them, including his views, referred to the President. The President—and many of these questions, indeed, were factored into the whole presentation made to the President.

The President referred the Agreement, as you know, to the Congress and those—many of those considerations were actually referred to and considered in the documents that you have here, where a number of the various considerations pertaining to the Agreement are discussed.

Mr. WOLPE. Did Secretary Weinberger approve of signing the Agreement as written?

Ambassador KENNEDY. Mr. Wolpe, I can only say here that the Secretary wrote a letter. He expressed some views. Those views were all considered, taken into account.

Mr. WOLPE. What were those views?

Ambassador KENNEDY. I cannot get into that here.

Mr. WOLPE. Why is that?

Ambassador KENNEDY. These matters have been suggested of the Secretary of Defense, as I understand it. The Department is looking at that question.

Mr. WOLPE. Mr. Chairman, I would like us as a committee to make a formal request of the Department of Defense for Secretary Weinberger's letters to be conveyed to this committee. I know that such a request was made on the Senate side. I think we ought to make the same request.

Mr. SOLARZ. Without objection, and with consultation with the Chairman of the Full Committee, I think he ought to be brought into this. Such a letter will be sent.

Let me say to the gentleman that I think we can perhaps go one step beyond that and I would like to see an invitation extended to Citizen Weinberger to testify before the committee in order to give us the benefit of his feelings.

Mr. WOLPE. I think that is a very good suggestion.

Mr. SOLARZ. And I would hope that we could send a letter to him, inviting him to testify after we return from our recess.

WITHHOLDING OF SECRETARY WEINBERGER'S LETTER

Mr. WOLPE. I think that is a very good suggestion, Mr. Chairman. I do not understand, frankly, how the Congress or anyone else can make a definitive interpretation with respect to the question of law without knowing what the Department of Defense, charged with the protection of our security interests, thinks about this Agreement.

And my understanding is that the administration is using the "executive privilege" right now for that document. Is that a correct understanding, Mr. Kennedy?

Ambassador KENNEDY. Mr. Wolpe, I want to assert that I certainly am not making any reference to executive privilege and have no authority to do so and would not do so. So far as I know, the executive branch is not taking that position.

Mr. WOLPE. Then, what is the basis for the withholding of the letter as you understand it as of this point?

Ambassador KENNEDY. I cannot answer that question, Mr. Wolpe. I am not the author of the letter. The matter is before the Secretary of Defense, as I understand it.

Mr. WOLPE. Okay.

Ambassador KENNEDY. If I may, I want to add with all respect that I am simply not in a position to provide the answer to the question and that is all I am saying.

Mr. WOLPE. I understand.

Mr. SOLARZ. Will the gentleman yield?

Mr. WOLPE. Yes.

Mr. SOLARZ. I thank the gentleman for yielding.

I would like to say to the gentleman at the witness table from the administration that if the administration should refuse to provide this information without the most persuasive justification, I think it would constitute for many members of this committee, ipso facto, a compelling reason for voting against the Agreement.

If we are not in a position to have all of the information deemed relevant to a determination about whether this very complex arrangement is in our national interest I think many of us would feel, as a matter of sheer prudence, obligated to vote against an

agreement that we otherwise thought appeared to make sense. Once it goes forward, it goes forward.

But we need all of the relevant information to make a judgment about whether it does serve our interests. So, I want to encourage you, recognizing it is not your decision to make. It would really be unfortunate if this thing were determined on the basis of an institutional conflict over access to information rather than on the merits.

Ambassador KENNEDY. Gentlemen, may I just say that I fully understand the point that you are making and that is why I simply said that I am not in a position to comment further on the subject. I am certain my colleagues will do the same.

Mr. WOLPE. My understanding is that the Secretary of Defense Weinberger's letter was also made available to the NRC. Does the NRC feel similarly constrained not to reveal the contents of Secretary Weinberger's letter?

Mr. ZECH. Yes, we do, Mr. Wolpe.

Mr. WOLPE. On what basis?

Mr. ZECH. On the same basis, that it is third party-type communications. I believe that that should be directed to the Department of Defense.

Mr. WOLPE. Okay. I would also just note that, in closing, on this portion of the questioning, Mr. Chairman, that under Section 602 of the Omnibus Anti-Terrorism Act, I had inserted a provision requiring a separate obligation by the Department of Defense to keep the Foreign Affairs apprised of the non-proliferation concerns.

So, aside from the operation of the provisions of law that we are evaluating here, there is a separate provision requiring, it seems to me at least, judgment directly expressed to this committee by the Department of Defense.

Mr. SOLARZ. The gentleman will not object, I am sure, and I will note for the record that there have been a number of members of this committee who have not always agreed with Secretary Weinberger's judgments in past, and, so, I do not know what he had to say about this, but the mere fact that he may have been against it does not necessarily mean that the rest of us agree with his conclusion.

Mr. WOLPE. I thought that Secretary Weinberger might be correct on occasion, and—

Mr. SOLARZ. He may be.

LONG-TERM AGREEMENT AND SUBSEQUENT ARRANGEMENTS

Mr. WOLPE. That is right.

Let me turn to another question, if I may. I do not want to do a disservice to my colleague, Mr. Gilman. This is another one in a series of short questions here.

Under Section 131, Mr. Kennedy, U.S. consent to arrangements for the storage or disposition and approvals for the transfer of special nuclear material are defined as subsequent arrangements.

Why do you maintain the pretense that granting these same approvals on a long-term basis in the Agreement are not subsequent arrangements?

Ambassador KENNEDY. Well, as I indicated, Mr. Wolpe, we are treating the current Agreement and its long-term agreement proposals precisely as though they were subsequent arrangements, and, indeed, subjecting them to a more stringent set of procedures than individual case-by-case considerations would require as subsequent arrangements.

Mr. WOLPE. Well, is not the bottom line that the Section 131 requires essentially case-by-case approval with congressional review, and it is the precisely the case-by-case approval with congressional review that you are seeking to sidestep by this approach?

Ambassador KENNEDY. No, sir. It is our view that Section 131 can, in fact, be fully satisfied by putting before the Committee, the Congress, all of the conditions which are being set down as criteria and required conditions for the meeting of any individual case under the long-term approval.

CONGRESSIONAL PARTICIPATION IN APPROVAL PROCESS

Mr. WOLPE. Is it not the bottom line that the Congress is essentially being written out of the process of any subsequent approval? I understand under the Proposed Agreement that retransfers could occur unhindered by the Congress for thirty years as long as certain preliminary conditions are established and met.

Ambassador KENNEDY. Well, that is not—

Mr. WOLPE. Are you not, in effect, asking us to buy an indefinite pig in a thirty-year poke? I plagiarized that. It was a staff suggestion. A quote is not required, I guess.

Ambassador KENNEDY. Without giving credit if you do not prefer it, I understand the point that you are making, Mr. Wolpe. Let me just say that that is not our view of what is occurring. Indeed, we are fully mindful of our requirement to keep the Congress fully and currently informed, and in respect to this Japanese agreement, Congress will be made aware of activities that are taking place.

Mr. WOLPE. My question was not awareness. The question was congressional approval, participation directly in the process.

Ambassador KENNEDY. Well, what we are trying to say is, if the Congress is satisfied that the criteria and conditions have been so specifically laid out in the Agreement so as to meet all the requirements of law, and in each case, those conditions and criteria must be met before they can go forward, we would assume that the Congress has said if that is the case, that is okay, and if all the conditions on which those were based remain as stated, that is okay.

To the extent that any of those is changed, we would feel it necessary to stop and we would inform the Congress.

Mr. WOLPE. Well, Mr. Gilman is very patient. I can only say I do not for the life of me understand how we in the Congress or you in the administration can conceivably know what the state of non-proliferation risks are in the year 2017 as of this moment in time.

I will come back to some of those questions later.

Ambassador KENNEDY. May I just add, Mr. Wolpe, that we agree with that, and it is precisely for that reason that the Agreement provides a continuous review of those issues and in the event that a changed circumstance occurs, we stop, and the Agreement provides for this.

Mr. SOLARZ. Mr. Gilman.

THIRTY-YEAR AGREEMENT PERIOD

Mr. GILMAN. Thank you, Mr. Chairman.

Ambassador Kennedy, what is the magic about a thirty-year period? Why did you select thirty? Why not ten? Why not fifty years? Why thirty years?

Ambassador KENNEDY. No magic, Mr. Gilman. It is a kind of standard which has always been applied. Agreements, as a general rule, have been written for thirty years.

Mr. GILMAN. Which agreements, Mr. Kennedy?

Ambassador KENNEDY. All kinds. All of the agreements for nuclear cooperation run for about thirty years.

Mr. GILMAN. Are there a number of other thirty-year agreements?

Ambassador KENNEDY. Many. I cannot tell you the precise number.

Mr. GILMAN. Is there some reason why we get into a thirty-year period?

Ambassador KENNEDY. Well, I think primarily because you are talking about systems that have a life of about thirty years, and that is what you are contemplating entering into, arrangements which would extend over the life of a group of systems.

Mr. GILMAN. Well, here, the major system is the supply of the material, is it not?

Ambassador KENNEDY. Right, but it is for use in facilities.

Mr. GILMAN. Not affecting the facility itself but merely the supply, and I am curious why we have to extend it for a thirty-year period. Why would we not be able to, say, take a ten-year period and renegotiate or a five-year period and renegotiate?

Ambassador KENNEDY. Well, conceivably, you could. Let me be sure we understand. It is not just the material. The fact the material is in that facility is because we have agreed to the safeguards conditions that are inherent in that facility and the way it is operated.

So, it is the facility, too, that is equally as important. It is the material being used in the facility.

Mr. GILMAN. Well, I do not know that you truly satisfied my curiosity about the thirty-year period, and I still have some question about why it has to be that lengthy a time, but let me go on to a further question.

Mr. BRUSH. Mr. Gilman?

Mr. GILMAN. Yes?

Mr. BRUSH. I am from the Energy Department. Peter Brush.¹

Mr. GILMAN. Yes.

Mr. BRUSH. Let me just try and answer your question very briefly.

The thirty-year period is one that has historically been used at the request of our cooperating partners who are investing many billions of dollars in these facilities and they want to make sure

¹ Peter Brush, Director for Nuclear Non-proliferation Policy, Office of the Deputy Assistant Secretary for International Affairs, Department of Energy.

that they can use them reliably and predictably over their life. So, beginning back in the fifties, when these agreements were first being written, thirty years was picked as a relatively stable basis for ensuring predictability and allowing these investments to be made. The thirty-year period has become something of a historical standard.

Mr. GILMAN. It is a tradition.

Mr. BRUSH. Yes, sir.

Mr. GILMAN. There is no reason why that tradition should not be—

Mr. BRUSH. No magic. Twenty or thirty-five, forty.

Mr. GILMAN [continuing]. Revised.

Mr. BRUSH. I think there is a difference between five years and thirty years in substance.

Thank you.

Mr. GILMAN. It seems to me that we would like to have a little more leverage and a little more control in the thirty-year period before you have to renegotiate something that may be—you may find to be defective up the line.

Ambassador KENNEDY. May I comment on that, Mr. Gilman?

Mr. GILMAN. Yes.

Ambassador KENNEDY. You are absolutely right, of course, and it is for that reason that there are so many specifics in the Agreement which give us that kind of leverage.

Should situations change, it gives us the ability, unilaterally, to interrupt that proceeding under the Agreement, suspending it or, indeed, terminating it if we are satisfied that that is the approach that should be taken.

AIR SHIPMENT ROUTES OVER CANADA

Mr. GILMAN. We are talking about a significant amount of shipment of material in tons and that, I would imagine, we are talking about hundreds of flights from Western Germany across the American Continent to Japan, are we not?

Ambassador KENNEDY. It would originate presumably either in France or the United Kingdom and would conceivably fly over the North American Continent.

Mr. GILMAN. And the proposal at the present time is over Canada, is that correct?

Ambassador KENNEDY. The proposed preferred route for reasons of distance and other considerations that have been suggested is over the Pole.

Mr. GILMAN. And is that the route that would be used and not over Canada?

Ambassador KENNEDY. Not necessarily, sir. There is no route prescribed in the Agreement and no decision as to what that route should be.

Mr. GILMAN. Well, I understand that Canada is opposed to any flights of this nature over its territory is that correct?

Ambassador KENNEDY. So far as I know, they have not suggested that they are opposed, only that they wish to be consulted.

Mr. GILMAN. But have they given approval?

Ambassador KENNEDY. No, sir. They have not because they have not been asked, of course.

Mr. GILMAN. I thought I saw some statements that Canada is voicing its objection over flights over its sovereign territory.

Ambassador KENNEDY. I am not aware of objection. I am aware of concern and an indication on their part, and I may be wrong here, an indication on their part that, indeed, they want to be consulted. The Agreement provides that, indeed, consultation must occur and agreement must occur not only with the United States and the two parties involved in the transaction, that is either the United Kingdom and France or Japan, on the two ends of the transaction, but as well any party over whose territory the material might pass.

ENVIRONMENTAL CONCERN OF ALASKA

Mr. GILMAN. Any flight going across Canada would eventually have to cross Alaska, would it not?

Ambassador KENNEDY. I think probably the answer is yes.

Mr. GILMAN. And I understand the Governor of Alaska is objecting to fly-overs?

Ambassador KENNEDY. Yes, sir. He is. Based on environmental concerns.¹

Mr. GILMAN. Is there some litigation pending at the present time?

Ambassador KENNEDY. Yes, sir. There is.

Mr. GILMAN. And what is the status of that litigation?

Ambassador KENNEDY. Let me ask counsel.

Mr. SCHWARTZ. I am Jonathan Schwartz from the Legal Office at the Department of State.²

The Governor of Alaska has filed a complaint against several federal agencies requesting that they prepare a full environmental impact statement. The Government has not had to respond to the complaint as yet because the Governor's lawyers have announced they are going to be amending their complaint.

So, we do not know exactly what it is going to say, and then the federal defendants will have thirty days to respond.

At the moment, the suit is in a state of suspension.

POTENTIAL ALTERNATE ROUTES

Mr. GILMAN. In the event both Alaska and Canada object to any flights over their territory, I would assume then you would have to fly over the United States.

Ambassador KENNEDY. No, sir. That is not an assumption that should be made.

Mr. GILMAN. Well, where would the route be if both Canada and Alaska object?

Ambassador KENNEDY. Well, I am not going to predict routes, but there are other ways to get around the globe. One could visual-

¹ Two letters on this subject from the Hon. Steve Cowper, Governor of Alaska, to Chairman Fascell appear on app. 11.

² Jonathan Schwartz is Attorney, Adviser for Oceans, International Environmental and Scientific Affairs, Office of the Legal Adviser, Department of State.

ize going through another hemisphere. One could visualize conceivably—

Mr. GILMAN. Across the Soviet Union?

Ambassador KENNEDY. Across the Soviet Union. Not impossible. That has not been considered up to now, so far as I know, by the Japanese.

By the same token, it is not to say that air shipment is the only way in which this material can be moved. It can be moved on the surface, theoretically.

Mr. GILMAN. Do you contemplate a flight over the United States as a possible alternate route?

Ambassador KENNEDY. We do not at this juncture consider such an alternate route. The question has not been raised.

Mr. GILMAN. I would hope not. We have enough trouble moving it by trucks through some of our states, and I would hope that we are not going to get involved in flying over the United States at this point.

INTERNAL JAPANESE CONSIDERATION OF AGREEMENT

Can you tell us, does Japan today have any nuclear facilities which are not subject to IAEA safeguards or inspections?

Ambassador KENNEDY. No, sir. Japan is an NPT Party and a full adherent thereto and all its nuclear facilities are subject to IAEA safeguards.

Mr. GILMAN. And how much support does this Proposed Nuclear Cooperation Agreement enjoy in Japan?

Ambassador KENNEDY. As far as I know, considerable support. I cannot speak for the Japanese in these matters, but I am confident that in the Japanese system, they would never have finally agreed and allowed the matter to be put forward by the government to their parliament if they did not feel to it would support the Agreement.

Mr. GILMAN. Well, let me ask you, has the Government of Japan concluded all of the domestic requirements for approval of the Agreement?

Ambassador KENNEDY. It is complete up to the point of the parliamentary consideration. The parliament is not in session, as I understand it, at the moment. When the parliament convenes in January, the matter will be before the parliament.

The Prime Minister, indeed, has written President Reagan noting with great satisfaction that the Agreement has been concluded.

Mr. GILMAN. And as far as you know, there is no objections internally in Japan with regard to this?

Ambassador KENNEDY. I have no way of knowing whether there are some objections. I would be surprised if there were no objections anywhere in Japan.

Mr. GILMAN. I would assume if you negotiated on this, you would be made aware of any significant objections internally in the Japanese Government.

Ambassador KENNEDY. I am confident that if there were significant objections within the Japanese Government, we would not

have gone as far and the Japanese Government would have made me aware of them.

Mr. GILMAN. Considering the amount of enrichment that we do for the Japanese and the amount of U.S.-manufactured equipment in use in Japan, could the Japanese realistically transfer its business to other nations?

Ambassador KENNEDY. In due time, the answer is, I am confident, yes. There are other enrichers in Europe who would be, I am certain, prepared to assume some portion of the business, and even the Soviet Union is looking for enrichment business.

SAFETY OF AIR TRANSPORT ARRANGEMENTS

Mr. GILMAN. Mr. Chairman, I have been patiently awaiting an opportunity to question. Given the concerns that have been raised regarding the potential risk to the public welfare of the air transport of large quantities, what role will we be playing in making certain that those plans are carried out with full safety assurances?

Ambassador KENNEDY. Mr. Gilman, the Agreement provides for a number of things. The law already provides for a number of others, which assure that that result is guaranteed. We could not undertake, for example, shipment anywhere without having met all of the international standards and to the extent that our standards are greater than the international standards, the Agreement provides that U.S. standards will apply.

The U.S. standards involve legislated standards in the Scheuer Amendment and the responsibilities in this connection of the Nuclear Regulatory Commission and the Department of Transportation.

Mr. GILMAN. Are we satisfied that we have a capability of safely transporting this material by air?

Ambassador KENNEDY. It will not be transported that way unless we are satisfied.

Mr. GILMAN. And who will be regulating that?

Ambassador KENNEDY. First, the Department of Transportation and, second, the Nuclear Regulatory Commission, who will have to certify the casks in which it is going to be transported.

Mr. GILMAN. And let me ask Mr. Zech—is the Nuclear Regulatory Commission satisfied that these casks are now safe for air transport?

Mr. ZECH. Yes. We have casks now that are safe and there is a proposal to build a larger cask. We have a very comprehensive testing program to make sure the casks are safe. We are satisfied they are safe or we would not license them for operation, and we will make sure that the one that is proposed also meets our criteria and fully satisfies all our requirements for safety or we will not authorize it.

Ambassador KENNEDY. Let me say that Japan accepts that.

Mr. GILMAN. What about advance consent? Even if the United States under this Agreement authorizes advance consent to various activities, will we at least be notified in advance that such activities or transfers are underway?

Mr. WOLPE. Will the gentleman yield?

Mr. GILMAN. Yes.

Mr. WOLPE. Before we answer that last question, just pursuing your previous one regarding the safety of these casks, in making the NRC determination the casks are safe, I think there have not been any tests, other than simulations, of these casks in an air crash, and I take it that that is one of the issues that has been raised with respect to the necessity of validating the safety of these casks, is it not?

Mr. ZECH. Well, let me just answer it this way, sir. The Congress looked into that some years ago and prescribed that we would have a certification program. We have one in place and have had for a number of years. We have a very rigid certification program that ensures that the cask is safe.

The program itself has been reviewed by the National Academy of Sciences and by our Advisory Committee on Reactor Safeguards and both have approved the program that we have for the casks that we are using.

We have not tested the cask in an actual crash. That was looked into at the time of the proposal some years ago, and it was concluded that crash testing would not necessarily provide any additional information and that our test requirements were rigid enough and comprehensive enough to give the National Academy of Sciences and the Advisory Committee on Reactor Safeguards, the assurance that the tests were appropriate and adequate.

TESTING PROCEDURE

Mr. WOLPE. The only reason I ask that, under Mr. Gilman's time, is my recollection that there was another instance in which some airline equipment was thought to be safe, entirely safe, having met all the specifications as determined in simulation, and then when a plane was actually crashed, much to the chagrin of those who had claimed and asserted the safety of the device, the plane erupted and was destroyed.

What is the resistance to undertaking an actual crash test?

Mr. ZECH. Well, first of all, we believe that our test requirements are very rigid and very demanding. There is an impact test for one. There is a 70,000-pound crush test put on the cask. There is a puncture test. A rip-tearing test. There also is a test in which the cask is put in a fire for sixty minutes. All the tests are done in sequence.

There are very rigid tests and they have been approved by the National Academy of Science and the Advisory Committee on Reactor Safeguards. We have used that judgment to conclude that the casks we have and the test requirements are adequate.

Mr. WOLPE. I thank the gentleman for yielding his time, and I yield back.

Mr. BRUSH. I wonder, Mr. Wolpe, if I might just take one additional second and indicate on this issue, the Department of Energy and the Commission are in complete agreement, since, in large measures, it is DOE facilities and assets that are used to do these tests.

These are not laboratory-scale tests. These are actual tests imposed on the actual casks. They are smashed into the ground. They

are dipped in burning jet fuel. I think it is not quite fair to say that they are simulations of laboratory tests. These are actual drop and crash tests involving the containers themselves.

Thank you.

Mr. ZECH. They are, indeed, actual tests and not simulated tests, and thank you for clarifying that point.

CANADIAN OBJECTIONS

Mr. GILMAN. I am claiming back my time.

Ambassador Kennedy, you mentioned that you had not heard any Canadian objection. I see in the Ontario Citizen, an article, dated November 6, 1987, that I have before me. Its headline reads, "Government Won't Allow Plutonium Flights Through Canadian Airspace." "John Crosby said, The Federal Government will not allow anyone to fly plutonium through Canadian airspace at this time."

Have you heard from Mr. Crosby?

Ambassador KENNEDY. We have heard from the Canadian Government.

Mr. GILMAN. Would you put the mike a little closer to you?

Ambassador KENNEDY. We have heard from the Canadian Government, as I said, Mr. Gilman, but my understanding is the import of their communications with us is they wish to be consulted before any agreement is made and we said of course.

Mr. GILMAN. This does not sound like an invitation to consultation. Crosby repeatedly said the Government is going to make it clear, that it will not allow such flights because of the risk of the accident and subsequent radioactivity.

Ambassador KENNEDY. I understand what you are saying. I am simply saying that their communication with us has indicated they wanted to be consulted and we assured them that, of course, that was the case.

Mr. GILMAN. You had not heard any comment from Canada of this nature before this?

Ambassador KENNEDY. Not that I am aware of, Mr. Gilman. Not in an official sense.

Mr. GILMAN. I suggest you might want to look at the report in the Ontario Citizen, dated November 6, 1987.

Ambassador KENNEDY. I will do so. Thank you.

CONSULTATION PROVISIONS

Mr. GILMAN. Mr. Kennedy, even if the U.S. under this Agreement authorizes advance consent to various activities, will we at least be notified in advance that such activities or transfers are underway or is it conceivable that Japan can engage in these activities without our knowledge precisely because the U.S. has given advance consent?

Ambassador KENNEDY. The specific language is in the note which is attached to the Agreement, may I read it?

The Government of Japan will provide the Government of the United States of America prior to shipment or as soon thereafter as possible with the following information regarding transfers pursuant to Article I. And this will include the date of shipment and

receipt, the name and address of shipping and receiving facilities, and so on, a long list.

Moreover, we will be informed in advance of plans for such shipments and as I said, before the shipment can take place at all, we will have had to be consulted because we will have had to agree to the plan for that shipment.

INSPECTION RIGHTS

Mr. GILMAN. Does this new Agreement authorize any bilateral inspection rights for the United States in Japan or Japan in the United States?

Ambassador KENNEDY. Inspection rights in either case are the responsibility of the International Atomic Energy Agency, Mr. Gilman.

Mr. GILMAN. I am sorry. I had interruptions.

Ambassador KENNEDY. Sure. The inspection rights in either case are the responsibility of the International Atomic Energy Agency, under the agreed safeguards agreements of the two parties.

Mr. GILMAN. So, are you telling me then that there are inspection rights available?

Ambassador KENNEDY. Inspection rights by the International Atomic Energy Agency. Now, again, Article 9 of the Agreement states, if we or the Japanese were to become aware that for any reason the agency is not, that is the IAEA, is not or will not be applying safeguards as required by the Agreement, then the Japanese and ourselves will consult to take measures to take care of the situation with the agency or, in the event that that does not work, we will make arrangements for bilateral safeguards until the agency can be put back in business in respect to the particular facilities.

Mr. GILMAN. Thank you.

Ambassador KENNEDY. But safeguards will be assured in any case.

Mr. GILMAN. Thank you, Mr. Chairman.

- IAEA ROLE IN DEVELOPMENT OF SAFEGUARDS CONCEPTS

Mr. SOLARZ. We are going to have a second round.

Ambassador Kennedy, have we consulted with the IAEA about the approach to safeguards in this Agreement and, if so, what was their response?

Ambassador KENNEDY. Again, let me ask the safeguards experts to elaborate, but the answer is yes, we have. Indeed, Mr. Solarz, over some time, we, the Japanese, the agency, the United Kingdom, France and the Federal Republic have been working together to develop a set of advance concepts for safeguards using and having very much in mind precisely the facilities that we are talking about in Japan.

Mr. Kessler can elaborate.

Mr. KESSLER. First, let me say, sir, that the safeguards concept papers were developed by individuals in the United States and in Japan who work regularly with the IAEA on the application of IAEA safeguards and on the further development of safeguards technology and approaches.

So, there was extensive familiarity with the IAEA system. We the United States and Japan, then formally presented these papers to the IAEA after having had informal consultations on them with the IAEA and with others. We formally presented them to the IAEA and asked for the agency's review and comment. They did review these papers. The agency came back and they commented. They thanked us for them. The agency said that they felt that they could, in fact, utilize these concepts in the application of safeguards, that these concept papers in some respects exceed what the IAEA would normally do, and that they would nonetheless feel free to do other things in addition to anything that may be in these concept papers as they may in the future feel appropriate for them to do.

IAEA JUDGMENT ON SAFEGUARDS CONCEPTS

Mr. SOLARZ. Did the IAEA render any judgments about the Agreement? Are they satisfied with it? Is it compatible with their concerns?

Mr. KESSLER. The International Atomic Energy Agency would only render a judgment with respect to the safeguards concepts and they found those satisfactory from their point of view.

Mr. SOLARZ. They did? That is the provision of the Agreement which Mr. Zech finds unsatisfactory on the grounds that it is programmatic rather than case-by-case.

Mr. ZECH. And they are not developed.

TERMINATION BASED ON SAFEGUARDS VIOLATION COULD PROVE DIFFICULT

Mr. WOLPE. Will the gentleman yield on that?

Mr. SOLARZ. Yes.

Mr. WOLPE. I would draw your attention as well to the body of the implementing agreement itself. It is stated there that if difficulties arise in applying these concepts to particular sites, and now I quote from the Agreement, "The parties shall make every effort to ensure that this does not delay the operation of the facility."

And, later on, in the event the United States was faced with suspending the Agreement due to material violation of these admittedly imperfect safeguards, the Agreement would require the United States to "carefully consider the economic effects of the suspension and seek to the maximum extent possible to avoid the disruption of international nuclear trade and fuel cycle operations."

I only make the point that there was clearly an effort here to make the termination of the Agreement or the finding of the safeguards as inappropriate or inadequate very difficult to achieve.

DIFFERENCES ON ADEQUACY OF SAFEGUARDS CONCEPTS

Mr. SOLARZ. I take the gentleman's point. All I am saying is that, for the moment, we seem to have a situation where, with respect to the safeguards provision of the Agreement, the Nuclear Regulatory Commission views them unsatisfactory, the IAEA deems them satisfactory.

Is that a fair statement?

Mr. ZECH. Well, let me just say this. We are not arguing about the concepts themselves. We think the concepts are fine, but they are not developed. They are just concepts. We need more concrete technical, engineering, scientific evidence that they can work.

Mr. SOLARZ. Right. Well, I gather the IAEA, however, felt that they were workable and from their point of view, acceptable therefore, is that correct?

Mr. KESSLER. Yes, sir.

Mr. SOLARZ. Okay. Now, I am just trying to——

Mr. ZECH. Let me just say we are a hard-nosed agency. We want to see concrete evidence.

Mr. SOLARZ. Right.

Mr. ZECH. We do not need concepts. We want concepts that will work. We are not satisfied.

Mr. SOLARZ. The Agreement anticipates that the IAEA may be unwilling or unable to implement the safeguards which are developed for a particular facility.

Ambassador KENNEDY. The Agreement took cognizance, Mr. Solarz, of the possibility that they might not be. In such a case, two things. One, the point which Mr. Wolpe just made is relevant, that, in fact, we then want to look and see what can be done. We do not want to sit there and simply say because they did not do their job, that everything is going to stand fast.

Nevertheless, we have to again be satisfied that safeguards that will be applied on an interim basis will meet all of the criteria and considerations which we consider necessary.

POSSIBILITY FOR DIVERSION OF PLUTONIUM

Mr. SOLARZ. Now, how do we verify that the safeguards techniques to be employed or developed in a particular facility, in fact, meet the performance standards set forth in the Agreement? I gather in a certain sense, this is the crux of the matter.

Mr. ZECH. It is a very real challenge. Let me just talk to it very briefly.

On these facilities that can produce plutonium, there is a rigid control to make sure that when you finish the process, you can keep track of how much plutonium you expect to produce. Now, that is a very complex process because you chop up the material, you put it through a chemical process, you put it through various material control processes, and it is not easy to keep track of.

So, there is a band of uncertainty here, and this is part of the problem. Even in the best facilities and where they have the best controls, there is always a band of uncertainties, and the best facilities that we can come up with, the best accepted goal is about a one percent uncertainty.

That one percent is an absolute number, if you can visualize in a certain plant. If you multiply that number by eight times or so, then that number becomes—that absolute number becomes much larger.

Mr. SOLARZ. Why is that a concern?

Mr. ZECH. That is a concern because of the amount of material it takes to make an explosive device. It is a finite amount. It is not very much, and if you have a large number of uncertainties—a

larger number of uncertainties, you can have much more concern about plutonium that cannot be accounted for that could be diverted and used for an explosive device.

Mr. SOLARZ. I just want to make sure I understand this. Even if you account for the plutonium, the concern is whether or not some people can get hold of it who are not supposed to get hold of it.

Mr. ZECH. That is correct.

Mr. SOLARZ. How is that related to whether we are absolutely certain how much—

LARGER FACILITY RAISES RISK OF UNDETECTED DIVERSION

Mr. ZECH. It is simply a matter of greater difficulty. When you have a larger plutonium processing facility uncertainty can be 200 to 300 kilograms, for example. That is a much greater opportunity for mischief and for diversion than it is when you only are dealing in a smaller band of 25 or 30.

Mr. SOLARZ. It strikes me that there is a greater opportunity for undetected diversion. It is not necessarily a greater opportunity for diversion.

Mr. ZECH. No. That is correct, and that is exactly right, and if you can—and what is done in order to compensate even now, even the best facilities now, you need additional measures because you cannot get it reduced as low as you would like.

Mr. SOLARZ. How confident are you of the one percent figure that cannot be accounted for? The advantage presumably is that if you could account for literally everything and you discovered something was missing and one day somebody showed up and said, "I have a bomb," you would, nevertheless, in a certain sense, determine whether that person was telling the truth.

You might say, "Well, how do we know you have a bomb?" and they would say, "Well, we got it from this Japanese facility," and then we could check and see that something was diverted. If you could not check, then you could not be sure.

Is that really what it comes down to?

ADDITIONAL SECURITY MEASURES NOT FULLY DEVELOPED

Mr. ZECH. That is what it amounts to, and what you do, Mr. Solarz, is you take additional measures of security. You have cameras watching the plant. You have all kinds of monitoring devices and measures. Those are the concepts that we are talking about, and some of those are in development stages now. Others are not. And that is what you do to make up for the fact that you do not have the ability to monitor more than a certain amount.

Mr. SOLARZ. Right. But that would presumably be done anyway.

Mr. ZECH. That would be done. If it is done perfectly, then we would have no problem. Our only concern is those techniques are not fully developed.

Mr. SOLARZ. Well, Ambassador Kennedy, you and your associates, I come back to this question. How do we know that we have verified that the safeguard techniques to be employed in a future facility meet the performance standards set forth in the Agreement? We might all agree on the performance standards, but how do we agree in a situation where, in the interests of harmonious

relations, we agree on a technique and we say, it meets the performance standards when, in reality, it does not?

Ambassador KENNEDY. Let me refer that to Mr. Kessler.

CONSULTATION WITH IAEA ON SAFEGUARDS ARRANGEMENTS

Mr. KESSLER. The design information will be provided directly to the International Atomic Energy Agency. Japan will consult with the International Atomic Energy Agency on the course of the plans and on the safeguards that the Agency intends to implement. As the facility is completed, the IAEA and Japan conclude safeguard—a document describing the safeguards arrangements which is consistent with the way it is done now under the Non-Proliferation Treaty. The Government of Japan will then confirm to the United States that they have concluded that set of safeguards arrangements and that those arrangements are consistent with all of the provisions of the safeguards concepts or criteria, so that the facility can become an element of the program under programmatic approval.

The International Atomic Energy Agency is responsible for the inspection of that facility, inspections of the kind of facilities we are talking about entail essentially full-time inspection, just as the International Atomic Energy Agency today has inspectors in the much smaller reprocessing plant in Japan on an around-the-clock basis.

The International Atomic Energy Agency is responsible for reporting to the Board not the technical matters, or simply that the concepts or that their criteria are met, but, rather, the more difficult, more fundamental, more crucial responsibility: that they can make a statement that all material has been verified and remains in peaceful nuclear programs.

Mr. SOLARZ. Is that about to happen under this Agreement?

Mr. KESSLER. They do that today, sir.

Mr. SOLARZ. You mean, it would continue to the end of the Agreement?

Mr. KESSLER. If they have any difficulty in doing that, we would then be in the situation of considering suspension of the Agreement.

CONSEQUENCES OF REJECTION OF AGREEMENT

Mr. SOLARZ. I just have a few more questions.

What would be the consequences for Japan's nuclear program and for our own non-proliferation objectives if the Congress were to reject this Agreement?

Ambassador KENNEDY. Mr. Solarz, I think the answer to the first part, that is, the effect on Japan's nuclear program, and perhaps it would be better answered by the Japanese, but I would hazard a guess from my knowledge of what has been going on and what their views have been over the past years, my guess is that there would be a temporary and considerable disruption in their plans, but that those plans would go forward.

They are committed to a substantial program. They are going to go down that road. They would simply look elsewhere for the support that it would take.

Mr. SOLARZ. Could they get it elsewhere?

Ambassador KENNEDY. Yes, they could.

On the second part of your question, they are going to build these facilities, as I said. They are in process of doing so. They are committed to that.

This Agreement provides us the right to move with them in the sense that everything they do we would have influence over and we can be sure that the most advanced safeguards and physical security arrangements that can be developed are, in fact, developed because that is what the Agreement would call for.

Mr. SOLARZ. So, you are saying, in effect, that if we disagree with this Agreement, they will go ahead anyway with these new plutonium facilities and they can obtain the materials to operate those facilities from other countries and, therefore, no other countries are likely to impose the same kind of safeguards and other proliferation concerns that are contained in this Agreement?

Ambassador KENNEDY. That is conceivable and possible. Yes, sir. In my view.

JAPANESE OPPOSITION TO CASE-BY-CASE CONSENT PROCEDURE

Mr. SOLARZ. Is there any reason why Japan would not agree on a case-by-case consent procedure for future facilities?

Ambassador KENNEDY. We had them and that was precisely what they wanted no part of.

Mr. SOLARZ. Why?

Ambassador KENNEDY. For the simple reason that as they saw it and as they have seen it now for several years, what that has done has given us, in effect, a yes or no to their internal programs, something which they consider to be a total violation of their own sovereign rights.

Mr. SOLARZ. But the way you describe it, the Agreement gives us exactly that anyway since it predetermined that these new facilities are designed in a way that are not compatible with the programmatic approval, we can tell them we will not cooperate.

Ambassador KENNEDY. All of that is correct, but there are two considerations. First, the presumption is that we are going to look with favor, provided that all of the conditions that have been agreed in the first instance in the Agreement have been met. We are going to agree. That is something they can count on. That is something they can plan on.

And, secondly, that relieves them of the concern which they have had in the past about substantial delays which they have experienced when they have asked for a case-by-case approval. Substantial delays.

PROPOSED AGREEMENT MEETS APPLICABLE STATUTORY CRITERIA

Mr. SOLARZ. Well, okay. Now, finally, I guess this question is for Mr. Zech.

There is some question as to whether or not this Agreement fully complies with all the requirements of the Atomic Energy Act. Do you have any judgment from that—from the legal point of view as opposed to a policy point of view whether this Agreement is fully compatible with the AEA?

Mr. ZECH. From a nuclear regulatory standpoint, Mr. Solarz, I have expressed my concern to you from the policy matter and our concern about the adequacy of safeguards.

On the other hand, we have no reason to disagree with the Executive Branch conclusion that the Proposed Agreement satisfies all applicable statutory criteria.

Mr. SOLARZ. Now, as I understand the procedure, Ambassador Kennedy, if it did not satisfy all statutory criteria, the President would have to use his exemption authority and that would mean this Agreement could only be approved if the Congress adopted a joint resolution of approval.

Ambassador KENNEDY. Yes, sir. If, in fact, it did not.

Mr. SOLARZ. But the Nuclear Regulatory Commission did not conclude that the Agreement failed to meet one of its statutory requirements.

Mr. ZECH. That is our judgment, sir. Our position is with the policy—

EXAMPLES OF UNACCEPTABLE PLANTS WHICH MEET PROGRAMMATIC REQUIREMENTS

Mr. SOLARZ. I understand that. Could you provide for the record some examples of ways in which these future plants might arguably comply with the programmatic requirements in the advance approval but still be unacceptable from a policy point of view.

Mr. ZECH. That could be acceptable to us. Is that what you are asking?

Mr. SOLARZ. Well, what I am getting at is some examples of how these plants could be designed in ways that were consistent with the programmatic provisions in the Agreement, but would still be unacceptable from a policy point of view because they would presumably permit diversions or whatever.

Mr. ZECH. I misunderstood the question.

Mr. SOLARZ. As I understand it, you cannot get programmatic approval for a plant that has not even been built yet and that is simply inadequate. The criteria of performance standards is built into the programmatic approval, whether they meet it or do not meet it. If they do not meet it, we do not give our consent to future cooperation and they need that consent.

Your answer is that if you do not know the actual technologies, it is possible that it may be inadequate and, so, I would like you to give us some concrete examples of situations in which even though the Administration would say that a new plant has been built in a fashion that complies with the programmatic criteria, it is still unsatisfactory and unacceptable.

Mr. ZECH. Oh, I can do that easily, but I could also—I thought you asked me earlier to give you the criteria that we think would make the Agreement satisfactory to us.

Mr. SOLARZ. That, too.

Mr. ZECH. And I could do that, too.

Mr. SOLARZ. We can do both.

Mr. ZECH. Yes.

[The following was subsequently submitted for the record:]

NRC CONCERNS WITH THE U.S./JAPAN AGREEMENT FOR NUCLEAR COOPERATION
AND THE CHANGES NECESSARY TO MAKE THE AGREEMENT ACCEPTABLE TO THE NRC

As we stated in our prepared statement, our primary concern is the provision granting long-term programmatic approval for the use of U.S.-controlled plutonium in Japanese facilities which do not now exist. Providing such approval for use of U.S.-supplied materials in Japanese reprocessing facilities which have not yet been built and for which proposed safeguards measures have not been fully developed or routinely used by the IAEA does not seem like a prudent action from a nuclear non-proliferation perspective.

The Safeguards Concepts Papers attached to the U.S./Japan Agreement describe a set of general safeguards principles and approaches for plutonium use facilities and some relatively specific requirements for each type of facility. However, the standards for judging the acceptability of individual safeguards measures or the collective system of measures for a facility are generally lacking or ambiguous.

For example, the Concepts Papers state that flexibility is maintained in the concepts to allow for choice among alternative safeguards approaches and to enable attainment of IAEA safeguards objectives and inspection goals. Although NRC agrees with the appropriateness of maintaining flexibility in defining safeguards approaches, we feel that without quantification of the IAEA inspection goals and other pertinent safeguards

measures, the risk is increased of drawing improper conclusions as to the effectiveness of the safeguards approaches.

If NRC had been consulted in the formulation of the Agreement, we would have recommended that performance objectives and standards for judging the acceptability of the individual safeguards measures be defined as quantitatively as possible. We believe this could and should have been done. Alternatively, we would have recommended that the U.S. reserve the right to review and approve the safeguards measures on a case-by-case basis.

A second NRC concern is the provision for plutonium return rights in the Agreement. The Atomic Energy Act requires that the United States retain the right to require that foreign countries return plutonium produced through the use of U.S.-transferred nuclear material or complete nuclear facilities. The Proposed Agreement appears to go beyond legal requirements contained in the Atomic Energy Act in that it makes this requirement reciprocal and refers not only to nuclear material and complete nuclear facilities, but also to components. The Commission questions the non-proliferation policy rationale of a provision whereby a nuclear weapons state would return plutonium to a non-nuclear weapons state. The Commission believes that this could be unwise, even if the particular circumstances under which this might take place are extremely unlikely. If NRC had been consulted in the formulation of the Agreement, we would have recommended that the provision in the Agreement which gives Japan the right

to require the U.S. to return any plutonium produced in U.S. facilities that use Japanese components be deleted.

Our third concern was that under the proposed agreement it appeared that if the Japanese were to decide the U.S. was not implementing the agreement in "good faith", the dispute might be settled by an arbitral tribunal. The State Department subsequently clarified that use of an arbitral tribunal would require U.S. consent. The State Department's response resolves our concern.

Finally, our fourth concern is that the Proposed Agreement provides for tracking and reporting of Japanese-origin components and the plutonium produced from those components in the United States. The Commission believes that the non-proliferation benefits to be gained by the United States are not sufficient to justify the significant extensive tracking and reporting requirements that would be placed on the United States nuclear industry and the United States Government by this provision. Moreover, there is no statutory requirement to track components and the plutonium produced therefrom. In addition, the Nuclear Regulatory Commission may lack the authority to enact the regulations needed to effectively implement the provisions. Therefore, the provisions in some cases may be difficult to enforce. If NRC had been consulted, we would have recommended that the provision for tracking and reporting Japanese-origin components and the plutonium produced from those components in the U.S. be removed.

As we indicated in our July 27, 1987 letter to the President, the Commission recognizes the importance attached to the relationship between the United States and Japan and has no reason to question Japan's non-proliferation credentials. Japan is an important ally and a country with which we have had long standing nuclear cooperation. We are also aware of the need to establish and maintain the United States as a reliable trading partner. As we previously testified, we agree with the Executive Branch view that the Agreement meets all statutory requirements. Nevertheless, the NRC reaffirms its position as expressed to the President and in testimony before the House Foreign Affairs Committee. The Commission continues to believe that the Agreement should be modified to reflect the concerns stated above.

We now understand that the President has considered the views of the NRC and Executive Branch agencies and determined that the Agreement will promote, and will not constitute an undue risk to, the common defense and security. Despite our concerns, if the U.S./Japan Agreement for Nuclear Cooperation is allowed to take effect, the NRC will do all that it can to implement its responsibilities under the Agreement.

Mr. SOLARZ. Mr. Wolpe, would you take the chair.

DIFFICULTIES IN TERMINATING PROPOSED AGREEMENT

Mr. WOLPE. Okay. I will take over the chair, but I will also be brief.

I do have just a couple more questions I would like to close the hearing with. Oh, I take that back. I will have to ask you my questions and yield to my colleague and my friend, Congressman Levine.

But let me just raise the central issue that concerns me. As I understand the thrust of your testimony, Mr. Kennedy, over the past couple of hours, it is that we cannot know or evaluate carefully a nuclear proliferation risk thirty years down the road. You are right, we cannot say with certainty whether or not a given plant will meet safeguards as required for purposes of safety.

But that is to be of no concern because we can always terminate the Agreement. But as I read this Agreement, I have two problems with that kind of analysis. One of them is that it is not that easy, if I understand the language of this Agreement, to terminate that Agreement.

CONCERN OVER RECIPROCITY PROVISION

And one of the things that I think we need to understand more clearly is the implications of termination. That is one of the points that the NRC has made in its own letter, an analysis which indicates that the United States would be obligated to return certain things under reciprocity requirements if plutonium is utilized in operations within the United States in which Japanese parts are employed.

There is also language in here that clearly, as you have affirmed in your response a moment ago, Mr. Kennedy, indicates that there is a presumption that you will make a favorable finding, that you will find some way to work your way around these particular concerns.

So that the only policy question I have is why do we want to make those kinds of favorable presumptions for continuity of shipments when, in fact, those shipments may be problematic from the standpoint of American national security interests?

The second problem I have is the nature of the reciprocity involved. There could be a finding that Japan had done something inappropriate, either by the way of inadequacy of safeguards or because of the existence of terrorist action and the high proliferation risk or by virtue of diversion for weapons use or any of the things that could create problems from the standpoint of American national security, and we, therefore, terminate the Agreement, we are then in the position of returning plutonium to a country that has been found to be in violation of the Agreement.

Now, unless I am missing something, that is just plain dumb. I mean, what is the possible rationale for allowing that kind of circumstance to develop?

Ambassador KENNEDY. May I comment?

Mr. WOLPE. Surely.

Ambassador KENNEDY. Well, with all due respect, Mr. Wolpe, I note the analysis, but I would not wish to have it attributed to me. That is not my analysis at all.

Mr. WOLPE. I was not referencing your analysis in my comment. I was referencing my understanding of the Agreement, which requires under reciprocity provisions the return of this material, if the Agreement is terminated.

Ambassador KENNEDY. May I?

Mr. WOLPE. Surely.

Ambassador KENNEDY. Two points. I was referring to the first one.

Mr. WOLPE. Okay, fine. I just wanted to clarify that.

AGREEMENT PROVIDES GUIDELINES FOR FUTURE SITUATIONS

Ambassador KENNEDY. No. I understood that.

As to the first one, Mr. Wolpe, that was not my analysis, and it would not be my analysis. I simply stated the fact that, one cannot know with certainty what situation is three years down the road. What one, therefore, does is provide a set of criteria and conditions which will, in fact, guard against whatever might arise when one looks at even worst cases and sets up safeguard systems, physical security arrangements and all the other conditions in the Agreement, which would guard against whatever circumstances may arise at some point in the future that you cannot now predict.

That is exactly what has been done. We have rights which we otherwise would not have. For example, if the safeguards are not adequate and you mentioned that, then the activity with respect to which they are not adequate is not in the program. They have to be fixed or it is not permitted. Both parties agree to that.

CLARIFICATION OF RECIPROCITY PROVISION

As to the second question, the reciprocity, I think there is a misunderstanding here, and I would like counsel to elaborate, but as a matter of fact, the right of return from the United States to Japan arises only if the United States violates the Agreement. It does not arise if the U.S. suspends the Agreement because of an action of Japan. It arises only if we violated the Agreement and, then, only if we agree that the breach has, in fact, occurred.

Even then, it should be understood—

Mr. WOLPE. I must interrupt here. Are we under no obligation to return either plutonium or other equipment to the Japanese?

Ambassador KENNEDY. Let me give you the greatest expert on the return philosophy.

Mr. SCHWARTZ. There are two separate provisions that we are talking about and I think there has been some confusion between the two. There is a provision in the basic Agreement for cooperation which is the right of return provision, and you will see that on page 16 of the Congressional Proof Document. It is Article 12.

This is a requirement in the NNPA for the United States to include in all its new or amended agreements for cooperation, and, in fact, this provision has been included in all agreements concluded since 1978 with non-nuclear weapons states, and has been concluded on a reciprocal basis because as a negotiating matter, it is

simply not possible for the United States to insist to a cooperating partner that we enjoy a right that they do not.

But that is a different provision than Article 3 of the implementing agreement, which is reprinted at page 44 of the Congressional Document. This is paragraph 2 of Article 3 of the implementing agreement which provides to the United States the unilateral right to suspend consent.

The exercise of this right is not a breach or termination of the Agreement for Cooperation and does not give rise to a reciprocal right on the part of the Government of Japan to request consultations and ultimately invoke a right of return. They are not associated.

SUSPENSION OF SELECTED ACTIVITIES

Mr. WOLPE. Frankly, you have lost me for a moment. Let us just take the first of these two agreements.

If we make a judgment that, for example, there is a new terrorism threat that does not exist now but has suddenly emerged ten years down the road, such that the implementation, continued implementation of our accord would prejudice American national security interests or create a significant non-proliferation risk, we have the right under this Agreement to terminate the Agreement, is that correct?

Mr. SCHWARTZ. Yes. It is expressed in paragraph 2 of Article 3 of the implementing agreement as a right to suspend in whole or in part any consent provided by the United States in that implementing agreement.

Mr. WOLPE. But do we have the right to terminate the Agreement?

Mr. SCHWARTZ. Well, the phrase, terminate the Agreement, I think, is ambiguous. If you are talking about terminating the underlying Agreement for Cooperation, that is the basic framework that contains the consent rights, there is no need to terminate the Agreement in order to accomplish the objective of suspending the United States consent for those activities which are giving rise to the increased risk to U.S. national security.

Mr. WOLPE. Is that the Nuclear Regulatory Commission's understanding of the termination clause?

Mr. ZECH. I think that is the way that I would understand it, but I again would have to ask my counsel if he has had a chance to look at it, and, so, I really would have to supply that for the record.

[The following was subsequently submitted for the record:]

TERMINATION/SUSPENSION CIRCUMSTANCES

The Commission agrees with the Executive Branch that, should circumstances arise where activities authorized by the Agreement for Cooperation could create a significant increase in the risk of nuclear proliferation or in the threat to United States national security, the United States could suspend its authorization for such activities rather than terminate the Agreement. This suspension authority is set forth in Article 3(2) of the Implementing Agreement entered into pursuant to Article 11 of the Agreement for Cooperation.

Mr. WOLPE. Well, under what conditions then, Mr. Zech, would the reciprocity concern that you present in your own letter of evaluation arise?

Mr. ZECH. It is my understanding that if the United States were using Japanese components or if per chance we were, in the future, using a reactor that might be built in Japan, reciprocity would mean that there could come a time when we would be obliged to return the plutonium from our country to Japan, from the facilities in our country that might be using those Japanese components or completed reactor facilities.

That is how I read the Agreement.

Mr. WOLPE. Could I ask the counsel for the agency if that is their understanding?

RIGHT OF RETURN ARISES FROM BREACH OF AGREEMENT

Mr. SCHWARTZ. Mr. Zech is referring to Article 12 of the Agreement for Cooperation, which again is at page 16 of the printed document. It does describe circumstances in which either party would have the right to request the return of items transferred under the Agreement or certain derived materials from those items.

The circumstances are described in Sub-Sections A and B of paragraph 1 of Article 12. They are breaches of the Agreement, a failure to comply with an arbitral decision to which the United States and Japan have submitted voluntarily, the termination or material violation in the safeguards agreement with the agency.

The Nuclear Regulatory Commission is correct that as is true for other U.S. Agreements for Cooperation concluded since 1978, the possibility exists under its right of return that the cooperating party would under certain circumstances request the return of items.

The point of disagreement or confusion is that where the United States, because of Japanese behavior or terrorist threat or changed circumstances, has determined in its unilateral judgment that it is necessary to suspend U.S. consent, that does not trigger Article 12 and, therefore, does not give rise to the right of return. It is not a breach of the Agreement. It is provided for in the Agreement.

Mr. WOLPE. Okay.

NEW TRACKING SYSTEM WILL PRECEDE IMPORT OF COMPONENTS

Mr. MARTIN. Mr. Wolpe, my colleague from the DOE would like to add something.

Mr. WOLPE. Okay.

Mr. BRUSH. We would like to address this question of the problem of tracking of components and the possibility of return of plutonium.

We at the Energy Department understand the Commission's point because we, with the Commission, mutually operate the system in this country which tracks these materials. The Commission is correct that we may have to develop some new systems under this arrangement for tracking materials. We understand that fully.

But we also are of the view that, until the system is in place that enables us to track that material, we simply are not going to authorize the import of components subject to this Agreement because we understand the problems. Therefore, I submit to you, sir,

that the problem is purely theoretical because we are not going to run into it in a practical way.

Thank you.

Mr. WOLPE. You heard the bell a moment ago, and I want to provide an opportunity for Mr. Levine to ask the questions he has before we recess this hearing.

Mr. Levine.

SWEEEPING NATURE OF PROPOSED AGREEMENT

Mr. LEVINE. Thank you, Mr. Chairman.

I will necessarily be brief in light of the bells, and let me apologize for having to miss as much of the hearing as I did have to miss. I have had the chance to be brought up-to-date on some of the testimony and will look forward to reviewing the record. My absence does not imply at all anything with regard to disinterest in this subject. I feel this is an extremely important subject, as I tried to indicate in my opening remarks.

I would just like to explore two areas briefly, particularly with Ambassador Kennedy.

Mr. Ambassador, in light of the centrality, if you will, of the case-by-case review component of our non-proliferation strategy historically and our non-proliferation regime, is there or would there be, in your view, any way that an agreement between the United States and Japan could be reached on this issue which would come closer to the case-by-case provisions that exist in current law at least or was the sweeping change in this progress that is envisioned in this Agreement an essential component of any agreement between ourselves and the Japanese and the Japanese side?

Ambassador KENNEDY. Mr. Levine, I think that is a very reasonable good question.

First, let me say that I would not characterize this as sweeping. I hope my testimony makes clear why it is not a sweeping change, although it may appear to be.

Mr. LEVINE. It does.

Ambassador KENNEDY. It looks that way. I understand that, but if you look behind it, as we have tried to do this afternoon—and let me just say that I appreciate the committee's giving us this opportunity and asking these questions, I hope it has been helpful to the committee, it certainly has been to us—if you look behind this, you find out that it is not as sweeping as it appears, not at all. Indeed, there are controls all along the way.

AGREEMENT INCORPORATES U.S. NON-PROLIFERATION CONCERNS

What has happened here? What is at stake? What is involved? In simple terms, I do not want to be held to this in legal terms, but in simple terms, what is involved is that we have acquired all of the requirements and consent rights and all of the other non-proliferation considerations which are required by the Non-Proliferation Act, Section 123. All of those are now incorporated within this Agreement.

Many of them in much more stringent and controllable ways than was the case and giving us much more—I hate to use the

word control—much more involvement in the Japanese program than is the case now and has been the case up till now.

We think that is a major advantage. At the same time, we have not given a blanket or carte blanche agreement to the Japanese. What we have done is said, if, in fact, all of the considerations that are laid out in this Agreement, all of the criteria have been met, given that, and we both have to agree to all of those considerations and criteria, the presumption is and should be that the particular transfer or use is approved, but only under all of those criteria and considerations.

CHANGES IN AGREEMENT NOT FEASIBLE

Now, to go to the beginning of your question, do we think that we could go back to something on a more so-called case-by-case basis. The answer is, no, sir, I do not. I am confident that we would not be able to negotiate with the Japanese all of the considerations which we have acquired from them except essentially be on the present basis.

Mr. LEVINE. Your answer is interesting to me for a couple of reasons. As I hear it, I cannot help but reflect that if, in fact, the premise of my question is over-broad and that, in fact, the changes in the Agreement between the proposal that we have on the table and current law are not nearly as extensive as they appear at least to me to be, then it should not become such an essential item to the Japanese and that perhaps we might be able to convince them, as the Administration is suggesting to the Congress, that this is as not as sweeping and perhaps they might want to reconsider their determination of abrogating Section 131.

TRANSFERS SUBJECT TO SECTION 131 CONSIDERATIONS

Ambassador KENNEDY. Well, we do not think Section 131 has been abrogated. As I testified earlier, what has been done here is, recognizing that the advance consent arrangement which is incorporated in the implementing agreement, has the effect of authorizing transfers and, therefore, would be subject to the general considerations of Section 131, we incorporated all of that in this process. We took full account of all the requirements of Section 131, as it would apply to that implementing agreement, and subjected it, indeed, because it is now in this process with a ninety-day consideration by the Congress, to what is, in fact, a much more stringent consideration than would be the case on a single case-by-case basis.

Mr. LEVINE. But your argument is that regardless of the interpretation as to the extent of the change between 131 and the proposal, the Japanese would insist upon this component part of the Agreement as a sine qua non of the Agreement?

Ambassador KENNEDY. Oh, I am confident of that, Mr. Levine. Else, why would they have been willing to negotiate and give to us all of the consent rights which we were seeking and which we did not have? There is nothing else in this for them.

What is in it for them is simply that predictability which they have sought from the beginning.

Mr. LEVINE. Unfortunately, we are well into the second bell. I would like subsequently to explore perhaps these questions in writ-

ing, some additional implications of the change from Section 131, and I also have several questions with regard to notification with regard to transportation and its implications as to the significance of the notification.

I would like to submit some of those questions to you in writing, if I might.

Ambassador KENNEDY. Be pleased to answer them, sir.

Mr. LEVINE. Thank you.

Mr. WOLPE. Thank you.

If there is no objection, we will have members of the committee submit questions for the record, and we will ask that the record be left open for additional material as well.

Let me state my appreciation to you, Mr. Ambassador, and to the others on the panel that have testified this afternoon. Your testimony has been most helpful.

Thank you very much.

[Whereupon, the committee was adjourned.]

UNITED STATES-JAPAN NUCLEAR COOPERATION AGREEMENT

WEDNESDAY, MARCH 2, 1988

**HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
*Washington, DC.***

The committee met at 1:30 p.m., in room 2172, Rayburn House Office Building, Hon. Stephen J. Solarz presiding.

Mr. SOLARZ [presiding]. The committee will come to order. Today, the committee meets for the second time to consider the agreement for peaceful nuclear cooperation with Japan, which was submitted to the Congress on November 9th. Before Christmas, the committee heard from representatives of the Executive Branch and the Nuclear Regulatory Commission. Today, we will hear from a panel of distinguished private witnesses. On Tuesday of next week, we shall receive testimony from our distinguished colleague from the other body, Senator John Glenn, and have a follow-up session with Executive Branch officials.

The United States-Japan nuclear agreement is extremely technical and immensely complex. For anyone suffering from insomnia, reading the text, the annexes, and the side letters is a certain cure. It may also be the ultimate test of the proposition that representative government is competent to render judgments on the policy ramifications of abstruse scientific and technological issues.

Yet, because the agreement opens wider the door to the commercial use of plutonium as an element of nuclear reactor fuel, it is only appropriate that this opening door swing on the hinge of public opinion. For plutonium is the stuff of nuclear weapons. No matter how daunting the challenge of understanding and judging this agreement, this committee and the Congress have a responsibility to the American people and people around the world to insure that if plutonium is to be more widely used, the highest possible standards of accountability, protection and safety be met.

As Congress conducts its thorough review, it will keep in mind the Japanese people's unique experience with nuclear weapons, Japan's excellent safeguards record, and its current dependence on foreign sources of energy. Yet, our primary purpose will be to assure ourselves that this agreement will not bring nearer the day that some other people will suffer the ravages of radiation as did the residents of Hiroshima and Nagasaki.

After today's and next Tuesday's hearings, we will determine whether any more sessions are necessary. Once all the testimony is

taken and all the questions asked, we will then move to draft and mark up a resolution concerning the agreement.

In that regard, the committee appears to have three options. First, a straight resolution of approval. Second, a straight resolution of disapproval. Third, a resolution of approval which states certain conditions concerning the implementation of the agreement. I expect that the committee will report out one of these three types of resolutions before March 31st, at which time it would otherwise be discharged from responsibility.

Thereafter, the Congress has 15 days of continuous session, that is approximately until the end of April, to pass the resolution and send it to the President. If the full process of enactment is not completed by that time, the agreement will automatically go into effect.

The witnesses which we will be hearing from today include Dr. Bertram Wolfe, Vice President for Nuclear Energy at the General Electric Company; Paul Leventhal, President of the Nuclear Control Institute; John Kearney, the Senior Vice President of the Edison Electric Institute; and Professor Gary Milhollin of the University of Wisconsin Law School.

I gather my distinguished colleagues also have some opening statements they would like to make. And let me first recognize the Chairman of the Subcommittee on Trade and International Economic Policy, Mr. Bonker.

OPENING STATEMENT OF CONGRESSMAN BONKER

MR. BONKER. Thank you, Mr. Chairman. It is with pleasure to continue our hearings with respect to the bilateral agreement with the United States and Japan concerning nuclear cooperation.

This is the second hearing we have had with respect to this pending agreement. The new 30-year pact would supersede the 1968 agreement with Japan, which expires in the year 2003. The President submitted the agreement to Congress on November 9, 1987, and Section 123 of the Atomic Energy Act, as amended, provides that the agreement will come into force after 90 days of continuous session. The clock is set to run out on or about April 15 unless the Congress acts to prevent the agreement from taking effect.

As Chairman of the International Trade Subcommittee that has considered a number of contentious nuclear non-proliferation issues in the past, I can attest to the fact that this is truly one of the most controversial agreements to have come before the Congress.

In its present form, the agreement appears to weaken rather than strengthen U.S. controls over dangerous nuclear materials, and it does not appear to serve U.S. non-proliferation, national security or environmental interests. I would remind my colleagues and others that the United States, as a possessor of nuclear materials and equipment, maintains a certain responsibility with respect to the sale and the export and the disposition of these nuclear materials. I think it is proper that we exercise our oversight responsibility to insure that we do not contribute to the spread of nuclear weapons, especially to countries that have a desire, and perhaps

the capability, to build facilities that could produce nuclear weapons.

Now, Mr. Chairman, my reservations cover several important provisions of the agreement and I will just note them very briefly. First, the requirement that tons of separated plutonium be returned from Europe to Japan by air—and I shall have a comment on that in a moment, second, an unprecedented, 30-year programmatic approval clause, which I believe contravenes even the administration's own 1982 policy that such approval be reserved exclusively for existing facilities; third, a dangerous acceptance of safeguards in concept rather than in fact; and finally, an unacceptable termination clause which relinquishes important U.S. rights over nuclear materials subject to the agreement.

I believe the committee has an obligation to address these questions and that we should reserve our right to approve the agreement until after we receive satisfactory responses from the administration and other witnesses. It is far better for the United States-Japan nuclear cooperation to continue under the existing framework rather than to subject our non-proliferation interests to a weak and uncertain regime.

I would like to take this opportunity to announce that we have learned from the administration that they have agreed that the plutonium flights will travel non-stop from Europe to Japan outside the U.S. air space in aircraft to be specially designed to make the 8,000 mile flight without refueling.

Let me add that as one representing a state along the northern tier, the residents of our state and of Alaska, and, I might submit, even of Canada have been terribly concerned that aircraft especially equipped to ship spent fuel would make flights over the northern tier of the United States and, of course, stop for refueling in Alaska or in Canada or in Washington State. That raises, of course, a number of concerns about safety. The result of which is that I have been deeply concerned about the possibility of having numerous flights carrying spent fuel over Washington State and especially those that stop for refueling.

So, I understand, now, the administration has sought an alternative route in cooperation with the Japanese that would have aircraft, again specially designed for long-distance flights, depart France and then fly over the North Pole and into Japan. They would not have any need to make those refueling stops. I think it makes abundant good sense and I would like to applaud the administration for taking this action.

Mr. Chairman, that is one contentious issue which apparently has been removed in our consideration of this agreement and I would be happy to proceed with the fine slate of witnesses that we have here. Then, in another hearing with the administration we can dispose of the pending nuclear agreement with Japan. Thank you.

Mr. SOLARZ. I understand that the gentleman, with some tough and characteristically effective negotiating, was able to extract an assurance from the administration that under no circumstances would it be flown over the State of Washington.

Mr. BONKER. Well, I appreciate the Chairman's observation. I might add that some credit, much credit should go to a Senator

from the State of Alaska who had similar concerns, Senator Murkowski. It is probably to him more than to myself that the credit goes for this alternative flight plan.

Mr. SOLARZ. I think Mr. Wolpe had a statement he wanted to make.

OPENING STATEMENT OF CONGRESSMAN WOLPE

Mr. WOLPE. Thank you very much, Mr. Chairman. It is no secret that I come to this hearing with deep concern about the administration's proposal for nuclear cooperation with Japan. I continue to believe that this is one of the most ill conceived agreements this administration has yet proposed. It treats American national security measures in an extraordinarily cavalier fashion, all in the interest of promoting commerce in one of the most deadly substances known to man: plutonium.

Along with Representatives Mel Levine and Don Bonker and several of our Republican colleagues, I have introduced the Atomic Energy Law Enforcement Act in an effort to get the administration to reassess the wisdom and the legality of its proposal.

I am very pleased to say that we have been joined in our support of this bill by Representative Peter Rodino, Chairman of the House Committee on the Judiciary who shares our view that the agreement is not only bad policy, but also illegal.

The administration has negotiated an agreement that will threaten the security and safety of our nation, Japan, and all other countries of the world. By giving the Japanese a 30-year blanket approval for reprocessing spent nuclear fuel and using the plutonium recovered from it, the administration has written a nuclear carte blanche for the processing and use of plutonium in facilities that have not yet even been built.

Let there be no question about the magnitude of the plutonium exchange that is contemplated here. The United States, now, has approximately a hundred tons of plutonium in our weapons arsenal. By the year 2017, if this agreement is fully implemented, Japan could have some 400 tons of plutonium in its civilian nuclear programs. In short, Japan could be awash in seas of deadly plutonium.

The administration claims that this revolutionary shift in plutonium policy from case-by-case approvals to a 30-year approval is nothing to worry about because the agreement spells out the exact conditions under which the material will be handled. Yet, the Nuclear Regulatory Commission disagrees. In a letter to the President, it points out that the safeguards concepts described in the agreement—which are just that, general concepts that are not even binding if found impractical—and I quote here from the NRC letter: "Could result in accounting uncertainties of hundreds of kilograms of plutonium." It took 6 kilograms of plutonium to destroy Nagasaki and the NRC says that under this agreement, we could lose track of hundreds of kilograms of plutonium.

If someone does not sneak the plutonium out of the facility, they have the opportunity under this agreement to remove it by force. In 1984, the Japanese planned to ship plutonium half-way around the world on a boat with only one guard. Under the system of case-

by-case approval, the Department of Defense was able to mount a successful last-ditch effort to improve security. Under the new agreement, the United States Government would have no right to hold up such a shipment because it meets the weak international standards referenced in the Agreement.

In the words of an esteemed Senate colleague, the agreement is "An extreme environmental hazard, a proliferation peril and a terrorist's dream come true."

Now is the time, in my view, to address its flaws directly and that, of course, is the purpose of these hearings. Thank you very much.

Mr. SOLARZ. Thank you. Mr. Gilman.

OPENING STATEMENT OF CONGRESSMAN GILMAN

Mr. GILMAN. Thank you, Mr. Chairman. I appreciate the committee having called the hearings on this very controversial agreement. The expansion of the so-called plutonium economy around the world is understandably a matter of real concern to many Americans throughout our land, both those interested in nuclear non-proliferation and those more parochially interested in preventing a plutonium accident, concerned about the possibility of plutonium falling out of the sky in a catastrophic accident in their region.

I have already expressed some grave reservations about the agreement based on what I have learned to date. My colleagues and I are most eager to hear today's private witnesses, in order to more fully consider all of the arguments, both pro and con, with regard to this proposal. We also look forward to hearing the administration witnesses who will be appearing at a later date. Thank you, Mr. Chairman.

Mr. SOLARZ. Mr. Levine, do you want to contribute to the collective wisdom on this issue?

OPENING STATEMENT OF CONGRESSMAN LEVINE

Mr. LEVINE. Mr. Chairman, thank you very much. That is an implication that my statement will contribute to the collective wisdom and I appreciate your—

Mr. SOLARZ. Your statements always contribute to the collective wisdom, such as it is.

Mr. LEVINE. In that case, how long a one would you like?

Mr. Chairman, I would just like to briefly thank you for convening these hearings and associate myself with the remarks of my colleague, Mr. Wolpe.

Mr. Wolpe and I wrote a letter to the Washington Post several days ago which expressed our respective concerns with regard to this issue and there is no point in belaboring them. They are on the record. The only point that I would like to emphasize is my very deep concern about the dramatic shift that this agreement includes from case-by-case determination to the 30-year approval. I believe that is something of deep concern and should be of deep concern to the citizens of this country and of Japan as well as to other countries concerned about plutonium and the potential conse-

quences of its proliferation. I am deeply concerned about the precedent this sets.

I would like to make one other point in connection with the letter that the majority of the members of this committee sent to the Administration suggesting that this agreement be renegotiated. During the time that a number of us were circulating the letter, several critics or skeptics of our position raised the question as to whether or not this was simply taking on Japan, whether this was done in a fashion that was hostile to Japan.

For the record, I think it should be very clear that that was by no means the purpose of those of us who raised questions about this agreement. To the contrary, our objections are raised with a view toward trying to protect both the Japanese and the United States from the potential implications of this 30-year approval process and it is a deep concern about the merits of the agreement that provoked us to take the position that we have. And I would appreciate it if the witnesses would address themselves to those issues in the course of their testimony. Thank you, Mr. Chairman.

Mr. SOLARZ. Thank you, Mr. Levine.

I am informed by staff that the session for tomorrow has been put off until next Tuesday in order to accommodate the concerns of those members who want to be on the floor for the debate on the contra issue.

So, why do we not begin now to hear from our witnesses who were good enough to join us today. Dr. Wolfe, do you want to lead off? Then we will hear from Mr. Leventhal, Mr. Kearney and Professor Milhollin.

Let me remind each of you gentlemen that your statements will be included in the record and if you can possibly summarize your views in five or ten minutes, that would leave the maximum amount of time for questioning which I think would be most productive. But please proceed as you see fit.

STATEMENT OF BERTRAM WOLFE, VICE PRESIDENT, NUCLEAR ENERGY, GENERAL ELECTRIC COMPANY

Dr. WOLFE. Thank you, Mr. Solarz, it is a real pleasure to be here. In the interest of time, I will not go through my biographical information except to make the point that I have been dealing with the Japanese in nuclear matters for some 20 years and so have a feeling of their situation and their feelings on the matter.

I just cannot start without referring to Mr. Levine's last statement and indicate that what I am going to say in general would give my impression that rather than weaken U.S. controls and U.S. interests on proliferation, this present agreement does exactly the opposite. Conversely, if it is not approved, my feeling is that our influence in Japan will essentially go away in the next few years.

Mr. Solarz, I have previously testified before the Senate Foreign Relations Committee and, in addition, I have written a letter to Senator Cranston and I would like both of those to be put in the record, as well as the written testimony.¹

¹The letter appears at the end of Dr. Wolfe's prepared statement, his testimony before the Senate Foreign Relations Committee appears in app. 29.

Fundamentally, our present agreement provides U.S. control only when U.S. uranium, or enriched uranium is used.

The meaningful control that the present agreement provides is a case by case approval of the transfer and reprocessing of spent fuel derived from uranium supplied by or enriched by the United States.

Since most of the fuel which has been previously used in Japan has been enriched in the United States this present agreement has provided and still provides today a strong U.S. influence.

But as I indicated earlier, the real issue of concern is the future when personalities, policies and international politics may change in ways not presently foreseen.

If the proposed new agreement is not put into force, the Japanese will remain free to obtain and utilize non-U.S. origin fuel without any U.S. approval rights on the fuel's disposition, including reprocessing and subsequent fuel cycle uses.

Moreover, I believe that the very failure to adopt the new agreement will create pressures for the Japanese to turn to non-U.S. sources of supply, not because they seek nuclear weapons capability but because they seek energy security.

The Japanese want predictability in their fuel cycle activities, a predictability that the present case by case U.S. approval, regime precludes. We wouldn't take it in reverse, and they, I don't think, will accept it for long.

I might point out that in the few areas where we do not provide technology exchange to the Japanese, for instance, in the reprocessing area, they have instead gone to the French and they're building a French-designed, based on French technology, reprocessing plant. And in the enrichment field, they've developed their own centrifuge technology and are building an enrichment plant.

The proposed new agreement recognizes these new realities. On the one hand, it significantly increases the fuel cycle activities over which the U.S. has the right of prior approval as provided in the Nuclear Non-Proliferation Act of 1978. At the same time, it replaces the case by case approvals with what is called a programmatic approval. That is, instead of requiring that the U.S. specifically approve each covered disposition of spent fuel and of material derived therefrom, the new agreement substitutes a conditional generic approval.

- The approval sets ground rules concerning facilities, procedures and activities, such that the Japanese program can proceed without specific U.S. approvals as long as the ground rules are met. The U.S. of course has the right to assure that they are being met.

Thus, under the new agreement, safeguard designs and concepts approved by the United States would be applied to the design and operating procedures of all of their plants, even though the fuel utilized may not all be of U.S. origin.

Thus, the effect of the programmatic approval which commits the Japanese as well as the United States for a 30-year period is that the U.S. will be setting the ground rules to be used generally by the Japanese for all of their spent fuel and of the derived materials, whether they buy them from the United States, or not.

The U.S. would therefore maintain its influence even if the Japanese shift some of their sources of enriched material to other supplying nations.

As I indicated at the outset, the significance of the new agreement should be judged not only by its affect on Japan but also with respect to the precedents it sets for the U.S. non-proliferation influence worldwide.

Gentlemen, I fear that on our present course, the U.S. will lose influence worldwide, as well as in Japan. And we already have at least one specific example.

The Swiss frustrated by the time consuming implementation of U.S. case by case reviews have refused to purchase nuclear fuel fabricated in the United States, which would make their future fuel cycle activities subject to U.S. case by case reviews.

Thus, the present type of approval process instead of helping to maintain U.S. non-proliferation influence worldwide, tends to discourage or eliminate it in countries with advanced nuclear programming.

The new agreement in my view provides a model for nuclear cooperation with other advanced nations such as the EURATOM countries which have their own advanced nuclear technology and are independent or can be independent of U.S. enrichment and other nuclear supply capabilities.

Moreover, the new agreement also establishes the foundation for continued U.S. Japan cooperation in support of effective non-proliferation measures in countries with less advanced nuclear programs, cooperation which is essential in light of Japan's increasingly advanced indigenous nuclear technology and the prospect of its entry into the nuclear export field.

Mr. SOLARZ. Dr. Wolfe, those were the second bells on a roll call vote which is now underway. Unless you're in a position to finish in about one minute, it would be best for us to temporarily recess and return.

Dr. WOLFE. I have about a minute and a half or so, and I'll do it whichever way you want.

Mr. SOLARZ. Well, why don't you finish up then.

Dr. WOLFE. The issue on the new agreement, Mr. Chairman, has been portrayed by some as a choice by the U.S. between less or more direct non-proliferation control. I believe that the new agreement increases U.S. non-proliferation influence in the Japanese program.

Nor is the issue a choice of whether the U.S. should facilitate or retard Japanese progress toward a plutonium economy. I'm personally on record as questioning the value and the advisability of a plutonium economy in the present light water reactors. But this is a question of perceived national welfare and arguments can be made on both sides.

The fact is that the Japanese have the technology, the resources and the supply alternatives to pursue their chosen energy options without regard to the disposition of the proposed agreement. They, as we would do if we were in their role, are unwilling to permit a foreign power, even though a close ally, to control energy choices which are central to their continued economic prosperity.

The idea that rejection of the new agreement will prevent or even seriously delay Japanese use of plutonium fuels if it is their decision to proceed with such use is clearly a flawed idea built on a wish.

Indeed, the reaction to rejection as I know the Japanese is likely to move the Japanese closer to those nations such as France and Germany which espouse the plutonium recycle economy and as I've indicated before, they are already using French reprocessing technology to build their reprocessing plant.

The real issue as I see it is the choice between the continuation of a strong cooperative U.S. influence in Japan's nuclear program or essentially no influence in the future.

Mr. Chairman, I appreciate your attention and forbearance.

Thank you.

[The prepared statement of Dr. Wolfe follows:]

PREPARED STATEMENT OF BERTRAM WOLFE, VICE PRESIDENT AND GENERAL MANAGER,
NUCLEAR ENERGY, GENERAL ELECTRIC COMPANY

Mr. Chairman and Members of the Committee:

I am Bertram Wolfe, the Vice President and General Manager for Nuclear Energy of the General Electric Company. I received my B.A. in Physics from Princeton University in 1950, and my Ph.D. from Cornell University in 1955. I entered the nuclear energy field in 1955, and have been engaged in that field continuously since then, all but two years of that time at General Electric. During those three decades, I have worked in nearly every phase of nuclear energy, from reactor design to development of new nuclear reactor concepts. Until recently, I was the General Manager of GE's Nuclear Technologies and Fuel Division, a position which included the responsibility for technology licensing and exchange activities for General Electric nuclear power reactors worldwide. In my present position, I am responsible for the whole scope of GE's civilian nuclear energy activities.

I am and have been an active participant in a number of national organizations dedicated to the improvement of U.S. technology and capability. I am a member of the National Academy of Engineering and the Energy Research Board. I am also the immediate past president of the American Nuclear Society and remain on its Board of Directors. I am, in addition, a member of the Board of Directors of the American

Nuclear Energy Council (ANEC) and am pleased to appear before you today on the Council's behalf. The nuclear industry, which ANEC represents, strongly supports the proposed new U.S.-Japan nuclear cooperation agreement and welcomes the opportunity to set forth the reasons for that support for the Committee's consideration.

The new agreement, in a real sense, reflects the maturing of the Japanese nuclear power program and of the cooperative relationship between our two countries in related technology development and non-proliferation policies. The first U.S.-Japan nuclear cooperation agreement was signed in 1958. It was part of President Eisenhower's "Atoms for Peace" program, which was intended to limit the spread of nuclear weapons by providing for transfers of civilian nuclear power technology and materials in exchange for governmental pledges that the technology and materials would be used only for peaceful purposes. The Atoms for Peace program proved to be a highly successful response to the concern over nuclear weapons, expressed by President Eisenhower in 1953, that "the knowledge now possessed by several nations will eventually be shared by others -- possibly all others."

Since 1958, the U.S. and Japan have engaged in a long and mutually beneficial nuclear trade relationship; indeed, the nuclear field remains one of the relatively few areas in which the U.S. has a highly favorable trade balance with Japan. Importantly, moreover, Japan has been a strong and consistent supporter of U.S. non-proliferation objectives within the IAEA and elsewhere, an early and firm adherent to the Nuclear Non-Proliferation Treaty, and has conducted its own massive nuclear power program in a manner which has scrupulously adhered to Japan's safeguards commitments. Further, the Japanese nuclear power program is among the world's leaders in efficiency, economy and safety.

I personally have been involved with nuclear power activities in Japan for nearly twenty years, most recently as the leader of GE's commercial nuclear activities in that country. Accordingly, I believe I have some insights which may be useful in the Committee's consideration of the proposed new Agreement for Cooperation.

I am not a disinterested observer on nuclear power issues. I believe that nuclear energy constitutes a necessary and desirable part of the energy mix of modern, industrialized nations and that it can make, and is making, an enormous contribution to the well-being of our country and others. But

I am not an uncritical advocate of any and all nuclear uses, or users, and I am a strong supporter of the need for effective non-proliferation controls. The proposed agreement, in my judgment, realistically and practically accommodates those considerations.

Focusing on its most essential characteristics, what this new agreement does is enlarge the scope of U.S. non-proliferation controls -- in response to the requirements of the Nuclear Non-Proliferation Act of 1978 -- and provide means for their application which are predictable and practicable for both parties. The new agreement substitutes a programmatic U.S. approval regime for the current case-by-case, shipment-by-shipment U.S. control of Japanese fuel cycle activities. This programmatic approval regime would set the boundaries on reprocessing of Japanese spent fuel and on plutonium use activities in Japan, the bases for U.S. revocation of consents given, and the steps for and consequences of revocation. The agreement also provides for the development and application of safeguards satisfactory to the U.S. and for safeguards inspections by the U.S. and the International Atomic Energy Agency (IAEA).

As long as the Japanese stay within the "envelope" set by the programmatic approval, and comply with their other obligations under the agreement (and under the Nuclear Non-Proliferation Treaty and their agreements with the IAEA), they can proceed with the approved recycling activities -- activities which they clearly perceive as crucial to their long-term energy security.

As in any negotiated bargain between co-equal parties, the agreement responds to the needs of each side. The Japanese agree to the significantly expanded U.S. control requirements set forth in our Nuclear Non-Proliferation Act of 1978. For its part, the U.S. will supplant its shipment-by-shipment approval regime -- which, the Japanese have made clear they are unwilling to continue to accept -- with a programmatic approach.

Is this a good bargain for the U.S.? My knowledge and experience tell me that it is. Indeed, perhaps it is the only realistic bargain available with the Japanese. Let me explain why. Until the early 1970's, the U.S. held a pre-eminent position in light water reactor technology and a virtual Free World monopoly on fuel enrichment capacity. All that has changed. Our monopoly in enrichment was ended in the 1970's by the French and by a British-Dutch-German consortium. In the same period, while civilian reprocessing in the U.S. ground to

a halt (essentially in response to the changes in U.S. Government policy toward reprocessing of spent fuel), the British and French went ahead with large civilian power reprocessing endeavors, including agreements to reprocess Japanese spent fuel. In the field of nuclear power plants, the reactors built by the Germans, French, Swedes and the Japanese -- based on U.S. light water technology -- match the performance of the best reactors in this country.

I believe that the U.S. still has a lead in nuclear power capability and technology. But the hard fact is that a nation such as Japan, should it perceive itself to have compelling reasons to cease nuclear trade with the U.S., can find necessary nuclear capabilities, equipment, services and other supplies elsewhere. In the case of Japan, many of these are already available, or could soon become so, within its own borders.

In sum, the Japanese no longer need to obtain from the U.S. those very goods and services which create the basis for exercise of U.S. control over their fuel cycle activities. If we continue under the existing agreement, with its case-by-case fuel cycle activity approvals by the U.S., it is my firm belief that that agreement will progressively become a "dead letter" -- with the Japanese either turning to others for the goods,

services and technology they have heretofore obtained from the U.S. or developing the capacity to provide these for themselves. That is the reality of the situation. This same reality leads to the conclusion that what we should seek is to retain our constructive influence on the Japanese nuclear program and a degree of overall control consistent with legitimate Japanese energy security goals. That, Mr. Chairman, is what this proposed agreement provides.

As a result of my work in Japan, I have gotten to know the Japanese nuclear leaders. I have listened to their arguments on reprocessing and the recycling of plutonium in light water reactors. Their views are heavily influenced by the fact that Japan has a very limited indigenous supply of energy. Obtaining energy from plutonium in breeder reactors is a high priority for them, and they see recycling in light water reactors as a step on their path to the breeder. Some may believe that plutonium recycle in light water reactors is the wrong approach for the Japanese -- and I have expressed my own doubts to them on commercial grounds -- but it is clear that only when the Japanese decide, for their own economic and energy policy reasons, that such recycle is a poor choice will they change their current program.

Any U.S. attempt to block or micro-manage Japanese plutonium use would be doomed to failure given the size and sophistication of Japan's nuclear power program, its vital role in the Japanese economy and Japan's determination to achieve energy security. Realism, and a U.S. self-interest, argue for providing reasonable flexibility to the Japanese who, it's worth emphasizing, have an unimpeachable non-proliferation record.

Our continued cooperation with Japan, on terms of mutual respect, would set an example for the rest of the world that we are serious about our commitments to both nuclear non-proliferation and reliable nuclear supply arrangements. It will also help improve America's trade deficit with Japan. Aside from the significant nuclear trade between Japanese companies and utilities and U.S. commercial organizations such as Westinghouse and GE, each year Japanese utilities purchase about \$300 million in uranium enrichment services from the Department of Energy, representing around one-fourth of DOE's uranium enrichment sales. In addition to the trade balance effects, without this Japanese support DOE's enrichment prices would inevitably rise as its costs would have to be spread among fewer utility customers. This would result in higher electricity costs to U.S. ratepayers.

In summary, without continuation of a constructive U.S. relationship with Japan, which the new agreement embodies, the U.S. would lose:

- much of its remaining influence over non-proliferation policies and practices in Japan,
- contact and exchange with advanced Japanese nuclear technology, and
- a very substantial amount of trade with Japan, which helps to counterbalance our trade deficit with that country.

The proposed U.S.-Japan agreement provides an effective way for this country to influence and monitor Japanese plutonium use programs and the safeguards put in place to assure that they serve peaceful purposes only. It will also reinforce our energy and security relations with our most important ally in the Far East. In our own national interest, the Congress should allow this agreement to go into effect without change.

(Signature)
GE Nuclear Energy

Bertram Wolfe
Vice President and General Manager

General Electric Company
175 Currier Avenue, San Jose, CA 95125
408 925-6900

December 18, 1987

The Honorable Alan Cranston
U.S. Senate
Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Cranston:

Let me start by thanking you for your courtesies last Tuesday during my testimony on the proposed new U.S.-Japan Agreement for Cooperation on the Peaceful Uses of Nuclear Energy. I welcomed the opportunity to make a presentation and appreciated your attention during my testimony.

In light of some of the statements made at the hearing, however, and the importance of the matter, I felt an obligation to express my concern that there may be a misunderstanding about the new agreement and the implications of its turndown by the United States. I say this because I know of your strong and sincere feelings -- feelings which I share -- about the spread of nuclear weapons, and the need to minimize that possibility. In this regard, I believe that, if the proposed U.S.-Japanese agreement is not ratified, it will lead to the eventual elimination of the U.S. as an effective force against proliferation -- the exact opposite direction from where we should be moving. Let me explain why.

The new agreement has many positive features. Among the most important is that it brings under our surveillance and control the reprocessing of fuel used in Japan which is of non-U.S. origin and the subsequent use of plutonium recovered therefrom. In addition, the new agreement provides other advantages to the U.S., including influence and control on such matters as physical security of irradiated fuel during transport, security of plutonium storage facilities, and physical protection during retransfers of materials. Under the present agreement, the U.S. does not get such control even as to fuel purchased from the U.S. or as to fuel used in the less than 20% of Japanese reactors which were supplied from the U.S.

If the proposed new agreement does not come into force, we will be left with the present agreement. That agreement provides the U.S. with little leverage should the Japanese decide to pursue their nuclear power program independently of U.S. involvement. Let me point out that the U.S. decision not to export reprocessing technology has not stopped the Japanese from importing reprocessing technology from other supplier nations. The Japanese now plan to build an 800 tonne/year reprocessing plant with French technology. Similarly, our policy against the export

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of enrichment technology has not prevented the Japanese from developing their own centrifuge technology, which they will use in their new enrichment plant.

For the past decade, the Japanese have not ordered any further U.S. equipment (such as control rod systems) which would make their indigenous reactors (or the fuel irradiated therein) subject to U.S. control. Under the existing agreement, if the Japanese utilize fuel enriched in Europe (where, I should point out, there is significant excess enrichment capacity), they are not subject to any U.S. control over the retransfer and reprocessing of spent fuel -- and the use thereafter of the recovered plutonium -- from the 80% of their reactors built independent of U.S. equipment supply. This is a well-understood aspect of the current U.S.-Japan agreement -- fully appreciated in Japan as well as by our own government. Therefore, it eludes me why people dedicated to our maintaining non-proliferation influence should oppose (on non-proliferation grounds) a new agreement which provides greatly expanded U.S. influence and control over Japanese nuclear activities.

Programmatic control, rather than case-by-case control, is the sole benefit the Japanese receive from the new agreement. The Japanese consider this vital to their fuel cycle planning and energy security; and frankly, based on past history one can sympathize with them. For this, they accept expanded U.S. influence and control in regard to all their nuclear activities. This is an enormous benefit for our country and its non-proliferation objectives for, without the new agreement, we will ultimately lose all control and influence over those activities.

This is not mere speculation on my part. The Swiss utilities, discouraged by the delays and uncertainties of the U.S. case-by-case approval regime, have now adopted a policy of not using nuclear fuel manufactured in U.S. facilities. Thus, U.S. rigidity has not strengthened U.S. influence over Swiss nuclear activities, but eliminated it. Let's not make the same mistake with Japan.

The Japanese have for many years been leaders in international non-proliferation activities. As you pointed out at the hearing, it is likely that the Japanese can, if they desire, have nuclear technology completely independent of ours -- perhaps (in the future) even superior technology. Under the circumstances, their willingness to be bound by U.S. programmatic controls for the indefinite future has to be viewed as a measure of their sincerity in non-proliferation cooperation and as a major plus in terms of the U.S. desire to retain non-proliferation influence in their nuclear program. Again, it eludes me how some, in the name of non-proliferation, can oppose an agreement providing us with this long-term influence when the only real alternative is to have none at all!

To summarize, the proposed U.S.-Japanese agreement provides a means to retain and expand U.S. non-proliferation influence in Japan and a precedent which can lead to renewed non-proliferation influence for the U.S. in Europe and the rest of the world. Conversely, I firmly believe (based on years of experience and personal observation) that failure to

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proceed with the agreement will lead to ever diminishing U.S. non-proliferation influence both in Japan and elsewhere. Maintenance of the status quo with respect to Japan will not advance our proliferation goals -- it will do just the opposite.

Your strong feelings and leadership on the non-proliferation issue are well known. I hope that these thoughts, based on two decades of involvement with the Japanese nuclear program, provide a practical insight which will be useful to you in your deliberations.

Sincerely,



Bertram Wolfe

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cc: Senator John Glenn

Mr. SOLARZ. Thank you very much for sharing your views with us. The committee will stand in recess for about ten minutes.

[Brief recess is taken.]

Mr. SOLARZ. The committee will come to order. Can those in the hearing room who are not members of the committee please take their seats.

Having heard from Dr. Wolfe, the committee will now hear from Paul Leventhal, President of the Nuclear Control Institute.

Mr. Leventhal, your statement will be included in the record. Please feel free to summarize your views.

STATEMENT OF PAUL LEVENTHAL, PRESIDENT, NUCLEAR CONTROL INSTITUTE

Mr. LEVENTHAL. Thank you, Mr. Chairman. I have prepared a short summary statement which I should be able to read in five to ten minutes.

Mr. Chairman and members of the committee, on June 14, 1946, when Bernard Baruch presented his plan for international control of atomic energy to the United Nations, he said, and I quote, "We are here to make a choice between the quick and the dead. That is our business."

Now, more than forty years later, I submit that this is still our business and the business of this Committee in particular, as it considers the pending U.S. Japan agreement for nuclear cooperation. Quickness is still of the essence because this agreement, if it is allowed to come into force automatically less than two months from now, will inaugurate a plutonium economy on a global scale over which the United States will relinquish all meaningful control.

In my prepared testimony, I go into considerable detail as to why this agreement clearly violates U.S. atomic energy law. A number of the points that I've made in my testimony have been enunciated by members of the committee. I would urge that each member review the Institute's legal analysis. I would like to use the few minutes I have to summarize my testimony to stress the grave implications for U.S. security and economic interests if the agreement is not disapproved or substantially modified.

And I would like to explore a course of action for the Committee to protect these vital U.S. interests. The bottom-line consideration should be to maintain real—and I emphasize the word, real—U.S. control over all plutonium produced with U.S. supplied nuclear fuel and reactors and to insure that large-scale commercial use of this highly dangerous material, as distinguished from experimental, pilot or demonstration programs, cannot proceed until such time as effective technical safeguards and physical security measures are shown to be in place.

This the agreement does not do. Indeed, under its terms, Japan is free for at least the next 30 years to make commercial use of a minimum of 150 metric tons of plutonium, to be recovered from fuel supplied by the United States, under safeguards and physical protection arrangements that the Nuclear Regulatory Commission and the Department of Defense have declared to be inadequate.

This is an enormous amount of plutonium, one and a half times what the United States now has in its nuclear arsenal of 24,000 weapons. It is enough for Japan to proceed directly with large-scale use of plutonium in its commercial power program, first in light water reactors and eventually in breeders.

Without this carte blanche arrangement, Japan has only 11 to 12 metric tons of non-U.S. controlled plutonium at its disposal, which is far short of the 100 tons or so that we calculate the Japanese need to proceed with their present ambitious plan. It would take Japan at least 15 years to produce and recover as much plutonium from non-U.S. sources as it would now have free access to under the proposed agreement.

The carte blanche arrangement in this agreement is all the more egregious because of a decided trend away from commercial plutonium use by other non-nuclear weapons states party to the Non-Proliferation Treaty. Sweden has abandoned plans for reprocessing and plutonium use in favor of disposing of spent fuel.

Switzerland, which was just mentioned by Dr. Wolfe a moment ago, is trying to exchange its separated plutonium for U.S. enrichment credits.

West Germany has suffered severe setbacks to its reprocessing and breeder programs as the consequence of a major scandal involving corruption in, and allegations of diversions of weapons grade material from, its nuclear fuel cycle industry.

Nevertheless, the United States Government, which itself abandoned domestic reprocessing and breeder programs, is prepared to give the green light to Japan. Use of plutonium as a fuel is a bad bargain even in resource poor Japan when compared with the alternative of inexpensive, highly assured supplies of low enriched uranium, which is unsuitable for weapons. Already, ample supplies of low enriched uranium now can be extended dramatically through efficiencies achieved in producing and burning it.

Plutonium use is a terrible bargain when weighed against long-term proliferation and terrorism risks. Can we assume that plutonium produced in Europe and Japan will never be used by any nation or by terrorists in weapons against the United States or its interests abroad?

Plutonium, once separated from spent fuel, lasts forever, but peace and stability among nations may not.

What is the U.S. interest then in acquiescing in Japan's demand for free access to U.S. origin plutonium? Our principal interest appears to be to maintain good relations with Japan by removing the irritant that differences over plutonium have caused as far back as the Ford Administration. Yet, the United States also has an obvious interest in minimizing the amount of atom-bomb material in the world.

U.S. concerns about plutonium were the essential impetus behind the Nuclear Non-Proliferation Act of 1978, but the careful case by case approach to foreign plutonium use requests prescribed by the Act is being cast aside by the present Administration in the interest of placating Japan.

If those of us opposed to commercial use of plutonium are wrong, and many tons of plutonium can be managed without losing weapons quantities—a single weapons quantity for that matter—to ter-

rorists or to nations, the worst that could happen by avoiding the use of plutonium is the loss of access to an unnecessary and highly toxic energy source.

If those, like Ambassador Richard T. Kennedy, who favor commercial use of plutonium in major industrial countries are wrong, and weapons quantities of plutonium do fall into the wrong hands, the worst that can happen by proceeding with the plutonium economy is the destruction of cities, financial markets and industries, and all that would follow.

I urge members of the Committee to review the Institute's analysis, "Dangers in a Plutonium Economy," which is part of Attachment 3 to my testimony.¹

It summarizes the vulnerabilities of safeguards and physical protection arrangements as pointed out by the NRC and DOD and again mentioned by certain members here today.

It discusses the feasibility of building a crude atomic bomb with stolen plutonium, the effects of a terrorist atom bomb explosion and the consequences of a severe plutonium transportation accident.

Each of these considerations should give the committee pause and should lead to prompt consideration of disapproving or sharply modifying the pending agreement.

The Senate Foreign Relations Committee, by a vote of 15 to 3, has advised the President that the proposed nuclear agreement to cooperate in Japan's establishment of a plutonium economy is unlawful and dangerous. There is now pending in the Senate a resolution of disapproval, introduced by the majority and minority leaders.

Unless the House Foreign Affairs Committee and the House leadership act in similar fashion, there may be little incentive for the Administration to negotiate changes in the agreement, and the Congress will be giving Ambassador Kennedy the opportunity to prove he is right.

From that point on, prayer may be the best approach to averting the spread of nuclear weapons to additional nations and to terrorists.

I urge the Committee promptly to obtain from the Administration a commitment to support a resolution of approval with conditions governing implementation of the agreement in its present form.

If the Administration refuses to make such a commitment, or fails to reach agreement with the House and Senate committees on conditions for an approval resolution by the time each committee is discharged from further consideration of a resolution which, under the 45 legislative days allowed by law is about a month from now. Then the committee should report a disapproval resolution and seek support of the House leadership for its prompt passage on the House Floor.

Unless implementation of the programmatic consent arrangements of the agreement are made subject to strict safeguards, physical security and environmental requirements, to periodic review

¹ The analysis referred to appears in app. 22.

and renewal based on current reassessment of proliferation and terrorism risks at the time of renewal, and to unqualified suspension rights, this agreement should be disapproved and the existing agreement, which does not expire until the year 2003, should remain in force.

I thank you for your attention.

[The prepared statement of Mr. Leventhal follows:]

PREPARED STATEMENT OF PAUL LEVENTHAL, PRESIDENT, THE NUCLEAR CONTROL INSTITUTE

Mr. Chairman and members of the Committee: thank you for the invitation to testify on behalf of the Nuclear Control Institute regarding the proposed renegotiated Agreement for Nuclear Cooperation between the United States and Japan.

Since the Committee is confronted with some 452 pages of complicated text and supporting documents that have been submitted by the Executive Branch, it is useful, I think, to come directly to the point: the proposed nuclear agreement with Japan is illegal and dangerous.

The new agreement makes a mockery of the Nuclear Non-Proliferation Act by discarding the law's multiple protections against unwarranted spread and use of plutonium. It provides a carte blanche for Japan to pursue for the indefinite future a full-scale industrial program to make use of plutonium as a fuel in its nuclear powerplants. Plutonium is an extremely toxic material that is produced in military reactors for use in most nuclear weapons. It is also created as a byproduct of reactors in commercial nuclear powerplants. The Japanese will obtain nearly all of their plutonium from nuclear fuel and nuclear reactors supplied by the United States.

Under the present agreement, which does not expire until 2003, the United States considers Japan's requests to reprocess spent fuel and to make use of the separated plutonium on a case-by-case basis. By replacing this approach with a blanket 30-year approval, the President has presented Japan with a "plutonium economy" of its choosing --- one that is open-ended in terms of quantity of materials involved and technology employed. Indeed, Japan could conceivably acquire more plutonium than the United States now has in its weapons, without further constraint imposed by the United States or assurance that effective safeguards and security will ultimately be applied. By exercising in advance, for the life of the Agreement, virtually every reasonably foreseeable consent that might be required by Japan

over the agreement's term, the Administration has essentially rendered the Act's consent-rights regime---the heart of U.S. nonproliferation controls---a dead letter.

This approach represents a rejection by the Reagan Administration of the efforts of the three preceding Presidents to reduce proliferation and terrorism risks by slowing the spread of plutonium. It also represents a presumption that no President over the next 30 years will face circumstances warranting restraint over Japan's shipment and use of plutonium obtained from U.S.-supplied fuel and reactors.

The new agreement with Japan legitimates and sets a precedent for global commerce in plutonium in quantities that eventually could dwarf the amounts now contained in all of the world's nuclear weapons. This commerce, over time, could create dangers to the security of the United States at least as great as those posed today by the nuclear weapons of the Soviet Union. Indeed, a single theft of the dozen or so pounds of plutonium that would be needed by terrorists for a bomb could alter the course of history.

Broadly viewed, then, the agreement is flawed because it violates vital U.S. interests by inaugurating a plutonium economy of massive proportions with little apparent appreciation of long-term proliferation, terrorism and safety risks worldwide. I will explore each of these risks in a moment. In specific terms, the agreement is fundamentally flawed in the following ways:

Programmatic Consents - It provides unprecedented blanket, long-term consent to Japan, a state that does not possess nuclear weapons, to receive shipments of plutonium from nuclear-weapon states (France and Great Britain), and it provides such consent for reprocessing and plutonium use, not just in existing facilities in Japan, but in future, as yet unplanned, bulk-handling facilities and reactors (both conventional and advanced) in Japan, contrary to the case-by-case review procedures mandated by Section 123a. (5) and (7) of the Act;

Plutonium Air Transport - It provides for return of separated plutonium by air transport from Western Europe to Japan, via a polar route and most probably with a U.S. stopover in Alaska, even though there is no certified safe cask for such transport;

Timely Warning - It makes a mockery of the "timely warning" criterion in Section 131b. of the Act, since the timely warning determination concerning retransfer and reprocessing risk is made almost exclusively on the basis of vague, political factors instead of the technical effectiveness of safeguards and physical security measures that Congress clearly intended and, therefore, is contrary to the safeguards and physical-security requirements of Section 123a. (1) and (6) of the Act.

Congressional and Public Review - Future inclusion of new bulk handling facilities and reactors under the long-term consent arrangement will be made on the basis of simple "notification" by Japan to the United States without any requirement that changes in the nature and scope of the program be made public and be subjected to effective Congressional and public oversight and review;

Safeguards - There is no assurance in the new Agreement that adequate safeguards will be employed at new bulk-handling facilities and reactors, since the parties are essentially obligated to accept whatever level of safeguards the IAEA determines it can implement---a further departure from the safeguards requirement of Section 123a. (1);

Suspension/Termination - The ability of the United States to suspend and/or terminate the arrangement is basically nullified by provisions which (1) allow the Japanese to call for the return to Japan of material in the United States produced through or by Japanese components in the event of an alleged breach, thereby enormously increasing Japanese leverage over the United States, and (2) radically qualify the circumstances in which suspension and/or termination would be permissible, by limiting suspension to only the "most extreme circumstances of exceptional concern" and requiring consideration of economic impacts. In practical terms, the United States has no suspension rights under this agreement, which is remarkable since it authorizes Japan to acquire more plutonium than we have in all of our weapons.

These points represent a concise outline of the principal flaws of the agreement. We have prepared a more detailed analysis for the Committee's consideration that I would like to submit for the hearing record [Attachment 1].

The President, in a message accompanying his transmittal of the agreement to Congress on November 9, stated that the agreement "meets all statutory requirements." This agreement, in fact, is legally defective and, because it is incompatible with both non-proliferation law and sound policy, imposes extraordinary risks on U.S. interests. The Committee should return the agreement to the President by means of special procedures provided in Section 123b. of the Atomic Energy Act for such a contingency. Under the provision, the Senate Committee on Foreign Relations and/or the House Committee on Foreign Affairs can advise the President that, in its judgment, the agreement is not consistent with the terms of the Act and request that it be renegotiated to conform with the law or, failing acceptance of this recommendation, resubmitted with a waiver of applicable statutory requirements.

If the agreement as it reads today is resubmitted by the President with such a waiver, it would not come into force unless both Houses acted affirmatively to approve it within 90 legislative days (excluding recesses of more than three days). A much different procedure applies if the Committee permits this agreement to stand without requiring a waiver: the agreement will

go into effect automatically 90 legislative days after its submission unless both Houses act affirmatively within that time to reject it and, in addition, muster the two-thirds vote needed to override a Presidential veto of the rejection.

These procedures, enacted in 1985, are based on the premise that it should be difficult for Congress to stop a nuclear agreement that has been carefully negotiated to meet all the requirements of law, but it should be easy for Congress to stop one that fails to meet legal requirements. The statutory burden is especially heavy on this Committee and on its Senate counterpart, therefore, to reject and send back to the President a nuclear agreement that is represented by the President to be lawful when, in fact, it fails to meet statutory requirements set forth in Section 123a. of the Act.

The Senate Committee, by a vote of 15-3, has sent a letter to the President providing him such notice. A majority of the members of this Committee have signed a similar letter, but the Committee is yet to put the matter to a vote. A formal vote would give added weight to the letter, as would prompt Committee action to report out the Atomic Energy Law Enforcement Act, which would give the force of law to this procedure.

The Committee has to look no further than the Department of Defense and the Nuclear Regulatory Commission for compelling reasons to return this agreement to the President. Each recognized the Agreement's deficiencies and urged its rejection by the President, to no avail. Separate letters were sent to the President by Secretary Weinberger and Chairman Zelnick, setting forth the reasons for opposing the agreement in its present form. The NRC letter was transmitted to Congress with the agreement, but the DoD letter, which, according to a report in NuclearFuel, opposed the agreement on similar grounds to the NRC's, was not.

The Committee is entitled to obtain the DoD letter as well, and all supporting documents and analyses from NRC and DoD, because both agencies are included among those named in Section 602 as being required to keep the Committee "fully and currently informed with respect to their activities to carry out the purposes and policies of this Act and to otherwise prevent proliferation. . . ." In statutory terms, the Committee has the same total and immediate access to correspondence and records as was exercised by the old Joint Committee on Atomic Energy in overseeing non-proliferation activities of the Atomic Energy Commission and the Pentagon. It is important that the Foreign Affairs Committee utilize this authority to examine closely the complete record of the legal and policy positions taken by DoD and NRC before it determines whether the agreement meets all statutory requirements. I submit for the hearing record press accounts from The New York Times and NuclearFuel regarding the DoD and NRC positions on the agreement [Attachment 2].

To illustrate the point made earlier, that the new agreement shows little regard for long-term proliferation, terrorism and

safety risks worldwide, I will review briefly current developments regarding each of these risks.

Proliferation Risks

To explore the proliferation risks associated with this agreement is not to suggest that Japan poses a proliferation risk. Indeed, the NRC, in its letter opposing the agreement stated, "The Commission recognizes the importance attached to the relationship between the United States and Japan and has no reason to question Japan's non-proliferation credentials." I personally have the highest regard for the Japanese nuclear officials whom I met during a visit to Japan three years ago and with whom I continue to communicate. I share the NRC's view fully.

A principal reason given by the NRC for its opposition is its concern about the size of future Japanese plutonium facilities and the effectiveness of international safeguards to be applied to those facilities. The Commission stated: "The proposed safeguards measures for these facilities have not been fully developed or routinely utilized and may not provide an effective level of safeguards when implemented. At the large plutonium plants that Japan plans to operate, this could result in safeguards material accounting uncertainties of hundreds of kilograms of plutonium [per year]." (Emphasis supplied.)

In very polite language, the NRC is suggesting that IAEA safeguards on these large future plants will be inadequate to provide timely warning of a diversion of a significant quantity of plutonium---a factor that the Nuclear Non-Proliferation Act requires be given "foremost consideration" by the United States in deciding reprocessing and plutonium-use requests. The agreement deals with this problem, first, by transforming "timely warning" from a strict technical test of safeguards to a vague political evaluation of the country involved, and, second, by permitting the parties to ratchet down safeguards requirements to whatever level the IAEA informs them it can effectively apply. This is not what was intended by the NNPA and is one of the reasons that the agreement is unlawful. But the concern here goes beyond mere legalities.

If the U.S.-Japan agreement goes forward, it will mark the U.S. authorization for the start-up of a plutonium industry that, in the view of the NRC, may not be safeguarded effectively. The implications are staggering in relation to the amounts of plutonium that are projected to be separated from spent fuel if the plutonium business proceeds according to plan in Europe and Japan. By the year 2000, as much as 350 tons of plutonium could be separated from spent fuel, of which Japan's share could be 85 tons. Over the 30-year base period of the agreement, about 255 metric tons of Japanese-produced plutonium will have been separated in reprocessing plants in Japan and Europe, of which at least 153 tons will have been separated from U.S.-supplied nuclear fuel, according to an analysis of Japan's present plans done by Dr. Milton M. Hoenig, Scientific Director of the Nuclear Control

Institute. By way of comparison, the United States and the Soviet Union together have about 200 tons of plutonium in all of their weapons.

I submit for the hearing record Dr. Hoenig's study, "Production and Planned Use of Plutonium in Japan's Nuclear Power Reactors During 30-Year Base Period of the Proposed U.S.-Japan Agreement," as well as another NCI analysis, "Dangers in a Plutonium Economy." I also submit for the record two articles on risks associated with growing amounts of plutonium in commerce: "We Are Ignoring the Plutonium Issue at Our Peril," which I wrote for the International Herald Tribune and "Why Recycle Plutonium?" by David Aloright and Harold Feiveson in Science Magazine. [Attachment 3]

Ironically, the State and Energy Departments and ACDA, in a joint response to the NRC letter, acknowledge that "[t]he fact that measurement uncertainties at large plants will lead to proportionally large material accounting uncertainties has been recognized from the beginning of IAEA safeguards. . ." and that "[w]aiting until the facilities have been built and the detailed procedures for implementing safeguards have been worked out will not significantly alter the achievable material accountancy uncertainties." The solution, they state, is to ratchet up "IAEA safeguards objectives and inspection goals" to compensate for the larger measurement uncertainties---an approach that Japan pledges in the agreement to support. There is no claim, however, that the resulting safeguards will be effective, and there remains the provision that permits the lowering of inspection goals to whatever level the IAEA informs the parties it is able to implement.

Indeed, NRC Chairman Zech, in a recent letter responding to questions from this Committee, was critical of the Safeguards Concepts Papers attached to the proposed agreement, stating that "the standards for judging the acceptability of individual safeguards measures or the collective system of measures for a facility are generally lacking or ambiguous." He continued, and I quote:

For example, the Concepts Papers state that flexibility is maintained in the concepts to allow for choice among alternative safeguards approaches and to enable attainment of IAEA safeguards objectives and inspection goals. Although NRC agrees with the appropriateness of maintaining flexibility in defining safeguards approaches, we feel that without quantification of the IAEA inspection goals and other pertinent safeguards measures, the risk is increased of drawing improper conclusions as to the effectiveness of the safeguards approaches.

If NRC had been consulted in the formulation of the Agreement, we would have recommended that performance objectives and standards for judging the acceptability of the individual safeguards measures be defined as quantitatively as possible. We believe this could and should have been done. Alternatively, we would have recommended that the U.S. reserve the right to review and approve the safeguards measures on a case-by-case basis.

Other than whether this highly questionable arrangement meets the requirements of U.S. law, there is the more fundamental question of whether the United States Government is being prudent in establishing a precedent for the formation of a plutonium industry abroad of such high proliferation risk, especially after deciding not to proceed with a domestic commercial plutonium industry for a combination of proliferation, economic and safety factors---all of them still valid today in the United States and worldwide.

The proposed arrangement is all the more egregious because of a decided trend away from commercial plutonium use by other non-nuclear weapons states party to the NPT. Sweden has abandoned plans for reprocessing and plutonium use in favor of disposing of spent fuel. Switzerland is trying to exchange its separated plutonium for U.S. uranium enrichment credits. West Germany has suffered severe setbacks to its reprocessing and breeder programs as the consequence of a major scandal involving corruption in, and possible diversions of weapons-grade materials from, its nuclear fuel cycle industry. Nevertheless, the United States government, which itself abandoned domestic commercial reprocessing and breeder programs, is prepared to give the green light to Japan.

Use of plutonium as a fuel is a bad bargain, even in resource-poor Japan, when compared with the alternative of inexpensive, highly assured supplies of low-enriched uranium. Already ample supplies of low-enriched uranium now can be extended dramatically through efficiencies achieved in producing and burning it. Plutonium use is a terrible bargain when weighed against long-term proliferation and terrorism risks. Can we assume that plutonium produced in Europe and Japan will never be used by any nation or by terrorists in weapons against the United States or its interests abroad? Plutonium, once separated from spent fuel, lasts forever, but peace and stability among nations may not.

Terrorism Risks

On the basis of the long-term proliferation risk alone, it is prudent to establish precedents today that inhibit plutonium's spread, not accelerate it. An even stronger case can be made for such restraint in the context of what may be a far more immediate danger---that of nuclear terrorism.

The Department of Defense, in a recent assessment of the adequacy of international standards for protecting plutonium, stated: "Opportunities for terrorist acts, including attempts to steal civilian plutonium, will increase substantially as a result of the increased commercial use of plutonium." A similar view was expressed in June 1986 by an international task force of experts on nuclear energy and terrorism that was convened by the Nuclear Control Institute: "Tons of plutonium will be in commercial transit, posing increased opportunities for theft and diversion by terrorists." The Task Force, after examining the availability of economic alternatives to the use of plutonium to fuel reactors, stated that "...plans for reprocessing and for commercial use of the recovered plutonium over the near term raise issues of international plutonium trade and concomitant proliferation and terrorism risks that seem unjustified by present economic benefits."

The Pentagon study was prepared in response to a law (the Wolpe Amendment to the Omnibus Diplomatic Security and Anti-Terrorism Act) enacted last year, requiring five Federal agencies to prepare independent reports on the adequacy of physical protection of plutonium and highly enriched uranium during transport and storage in civil programs outside the United States.

The DoD study expressed greater concerns about the adequacy of international physical-security standards than the reports prepared by the State and Energy Departments, the Arms Control and Disarmament Agency and the Nuclear Regulatory Commission. The DoD report, citing "increased opportunities for acts of nuclear terrorism involving mass destruction," called for physical protection measures that are "fully adequate." The report was critical of the adequacy of both international and national efforts to protect plutonium and highly enriched uranium in commerce, and made a number of recommendations for improvement. Release of the DoD report was delayed for several months while the Administration attempted, apparently unsuccessfully, to have DoD modify its views to conform to the findings of the other agencies.

The Pentagon's findings generally support the findings of NCI's International Task Force on Prevention of Nuclear Terrorism, a balanced panel of 26 experts from nine countries that was convened to assess risks of terrorism against civil and military nuclear programs. The Task Force report, which was published in April along with a number of technical and policy papers (Preventing Nuclear Terrorism, Lexington Books), pointed to the growing amounts of plutonium in world commerce as a principal contributor to the risk of nuclear terrorism.

The NCI Task Force found that "the probability of nuclear terrorism is increasing," and cited as one of the factors "an increasing number of potential targets in civil nuclear programs, especially where weapon-useable forms of uranium and plutonium are used as fuels." The Task Force called for efforts to better protect and to minimize commercial use of these materials.

The NCI Task Force called for a "reexamination of civil applications of plutonium on economic grounds" and urged that the reexamination should include the costs of providing "protection equivalent to government protection of (nuclear) weapons." DoD also suggested that civil weapons-usable materials should be given protection comparable to protection of weapons.

The Task Force commissioned a highly authoritative, unclassified assessment of the possibility that terrorists could build a crude nuclear device. It was prepared for the NCI Task Force by five former weapons designers from the Los Alamos National Laboratory. The weapon designers found that making a crude nuclear device, with a nominal explosive yield of 10 kilotons, from commercial plutonium or highly enriched uranium, while more difficult than previously suggested by some experts, is within reach of terrorists having sufficient resources to recruit a team of three or four technically qualified specialists not necessarily having previous experience in building weapons. (J. Carson Mark, Theodore Taylor, Eugene Eyster, William Maraman, and Jacob Wechsler, "Can Terrorists Build Nuclear Weapons?," in Preventing Nuclear Terrorism).

According to the DoD report, "It is prudent that physical security requirements and systems take the capabilities of terrorist organizations, rather than their intentions, as their point of reference." The proposed agreement with Japan fails to heed this warning and fails to incorporate DoD's recommendations that all guards and escorts be armed and that physical-security protection be based on a postulated threat. Indeed, the agreement goes beyond minimal IAEA voluntary physical protection guidelines in only two respects recommended by DoD: determining the trustworthiness of guards and assuring communication with response forces.

The DoD approach is important because intentions of terrorist organizations can change quickly. If they do, large quantities of civilian bomb-grade materials could be vulnerable to groups described by DoD as "well-armed, highly mobile, capable of undertaking sophisticated operations, knowledgeable about electronic security systems and security force routines, and adept at 'infiltrating' targeted organizations or sites (perhaps by taking members of employees' families hostage)." We ought to face squarely today the likelihood that terrorists could build a World War II variety atomic bomb if they can get hold of a few tens of pounds of plutonium or highly enriched uranium.

Under the circumstances, the Administration should be making a supreme effort to discourage and dissuade our European and Japanese trading partners from rushing into a plutonium economy. Instead, the Administration seems content to placate the Japanese by papering over the problem in the hope that the worst will not happen.

The DoD report makes clear that present U.S. policy is inadequate to the task of keeping atom-bomb materials out of the hands of terrorists. In fact, the Administration's so-called "plutonium-use policy," which condones large-scale commercial use of U.S.-controlled plutonium in industrialized nations deemed to be of no proliferation risk, should now be seen as a major contributor to the danger of nuclear terrorism.

Safety Risks

The third risk associated with commerce in plutonium results from plutonium's extreme toxicity. Microgram quantities---mere specks, are sufficient to cause lung cancer if inhaled, according to laboratory studies. Environmental concerns were a major factor in the decisions to halt U.S. domestic plutonium plans by shutting down the Clinch River Breeder Reactor and the Barnwell Reprocessing Plant.

Because the Japanese intend to transport by air many tons of plutonium over Canadian and U.S. territory, from Europe to Japan, much attention has been focused on the adequacy of the casks to be used to ship the plutonium.

NCI disclosed, in a report released last March, that a cask under development by the Japanese had failed high-velocity impact tests on the ground at the U.S. Sandia National Laboratory. Japanese cask development efforts are still under way, and at this time no cask has been submitted by the Japanese to the U.S. Nuclear Regulatory Commission for safety certification in accordance with P.L. 94-79. Some experts predict that the Japanese will not succeed in developing a cask large enough for commercial shipments that can withstand the NRC's crash-tests.

Under the terms of the new agreement, Japan would transport by air 45 tons of plutonium from Europe to Japan by the year 2000. The agreement specifies that flights use ". . . the polar route or another route selected to avoid areas of natural disaster or civil disorder." State Department officials have confirmed that the primary route being considered is over Canada with a refueling stop in Alaska. Alaska's Governor Cowper has brought a lawsuit demanding preparation of an Environmental Impact Statement prior to further consideration of the agreement.

However, due to objections from the Government of Canada, which has indicated that it may bar flights over Canadian territory, the plutonium flights may be re-routed over the continental United States. As Senator Murkowski pointed out in a recent floor statement, "If Canada objects, these flights may cross over the 11 northern-tier states from Maine to Washington, possibly refueling in Washington."

Although the route for Japanese plutonium flights has not been finalized, it is known that a refueling stop will be required due to the enormous weight of shipping casks. Casks currently being developed are to weigh 5000 pounds and to hold about 15

pounds of plutonium each. Flights would carry approximately 500 pounds of plutonium each and occur twice per month by the mid-1990s.

The Japanese intend to ship the plutonium in powdered, oxide form. While this form of plutonium does not burn when exposed to air, as does the metallic form preferred by weapons designers, it could be dispersed in the event of a crash and could be inhaled. A cargo of 500 pounds of plutonium represents millions of potential cancer doses. If released into the environment, plutonium would remain potent for more than 100,000 years. The radioactivity from any plutonium release would actually increase for a number of decades after such a spill, due to a portion of the plutonium decaying into a more dangerous isotope.

The area of dispersal of plutonium, in the event of an aircraft crash and resulting plutonium spill, would depend on a number of factors, including the particle size of the plutonium oxide and weather conditions. If particles were smaller than one micron (one thousandth of a millimeter) in diameter, and were released into the atmosphere, they could be carried hundreds of miles, and would be brought down to earth only by rain showers, according to Professor George Rathjens at Massachusetts Institute of Technology. The alpha radioactivity emitted by a single 500-pound shipment, if released to the environment, would equal perhaps 25 per cent of the total alpha radioactivity emitted by all the plutonium dispersed to date by weapons tests. In the event of a crash, this plutonium would not be dispersed equally, but would be concentrated around the crash-site, representing an even larger risk to any inhabitants of the area.

Recently, the adequacy of NRC laboratory impact-tests for testing the crash-worthiness of casks has been called into question. NCI's report last March argued that if a "cask is developed that survives the simulated crash test required by [NRC regulations] . . . it would be desirable to ascertain, and to demonstrate to the public, that a full complement of casks will survive an actual plane crash. This objective can be accomplished by crashing a 747 with a full load of casks containing non-radioactive material." I submit for the hearing record the NCI press release describing its report, "Air Transport of Plutonium Obtained by the Japanese from Nuclear Fuel Controlled by the United States," and certain related materials [Attachment 5].

In December, Congress enacted the Murkowski-Proxmire Amendment to require such a demonstration before plutonium flights can pass over or through the United States. An actual crash-test is necessary to give adequate assurances that in the event of a high-speed crash, no significant amount of plutonium would be released. Data recorded by the National Transportation Safety Board indicate that jumbo jets have crashed in the past at speeds of approximately 500 miles per hour. That speed is nearly twice the speed of the NRC's laboratory impact-test. These tests involve only a single cask, whereas there would be tens of casks on an actual flight. It is impossible to predict the pattern of motions and forces that will occur when 5000-pound casks crash

into each other and into the fuselage of a plane at speeds of 500 miles per hour until an actual crash-test is performed. If such a crash results in the scattering of test material, we should know this before a plane is loaded with plutonium and flown over U.S. territory, or for that matter, anywhere in the world.

The environmental hazard is yet another serious risk associated with a world-wide civil plutonium economy, which the new U.S.-Japan agreement would inaugurate. It is also another example of how serious technical questions have been left unresolved by U.S. negotiators, in their haste to accommodate the Japanese. Just as there is reason to doubt that safeguards will be adequate to detect a diversion of bomb-grade material, there is also reason to doubt that plutonium containers will maintain their integrity in the event of a severe air-crash. Congress should ask itself what is the pay-back to the United States for accepting such large environmental and national security risks.

Conclusion

I will conclude by addressing certain arguments in support of the agreement being heard from sectors of the nuclear power industry in the United States that have close ties with or represent the interests of nuclear utilities and vendors in Japan. Their basic argument is that unless this new agreement with Japan is approved, the Japanese may well take their nuclear business elsewhere. Two fundamental concerns are expressed---that Japanese utilities will cancel their uranium enrichment contracts with the U.S. Department of Energy and that Japanese nuclear vendors will sever their relationship with U.S. vendors for co-development and manufacture of major components for the current generation of reactors and for advanced reactor designs. Thus, failure by the United States to ratify the agreement is seen as being contrary to U.S. commercial as well as non-proliferation interests.

At present, almost all of Japan's enrichment requirements are supplied by DoE, and these orders make up nearly one-quarter of DoE's enrichment business. The Japanese have made commitments for enrichment services through the year 2000 that could produce between \$260- and \$435-million annually for DoE during this period, according to an analysis, "Will DOE Lose Japan's Enrichment Business?", prepared by Dr. Hoenig of the Nuclear Control Institute. I submit this study for the hearing record. [Attachment 6]. By that time, Japan plans to have the domestic capacity to meet up to half its enrichment requirements and will satisfy the rest through purchases abroad---most of it, as of now, from the United States.

Clearly, Japanese utilities have the option to switch from the U.S. to European suppliers of enrichment, including the Soviet Union. If they gave notice today, they could cancel enrichment contracts with DoE without penalty after 1995. The question, however, is whether it would be in the Japanese national interest

for their utilities to take their enrichment business elsewhere, even if the new nuclear agreement is not ratified in its present form, in view of the highly reliable enrichment supply arrangements that have prevailed with the U.S. thus far. The answer, I submit, has less to do with the pending agreement than with future Japanese perceptions of the reliability of the U.S. enrichment industry. At this time, DoE's enrichment business is fraught with uncertainty for reasons that have little to do with the U.S.-Japan agreement.

At present, when enrichment capacity worldwide exceeds demand by about 2-to-1, foreign customers, including the Japanese, are wary about extending their commitments to DoE in the face of a number of serious unresolved problems. These problems include the outcome of a pending lawsuit by U.S. uranium producers seeking to ban DoE enrichment of foreign uranium for use in domestic reactors; the restructuring of DoE's accumulated \$8-billion debt associated with enrichment to determine the portion to be recovered through charges to enrichment customers; the settlement of "demand charges" against DoE by the Tennessee Valley Authority for electricity ordered but not used by TVA because of the shutdown of the Oak Ridge enrichment facility; the uncertainty of government support and operation of DoE's next-generation AVLIS enrichment plant utilizing laser technology; and the possible reorganization and privatization of the DoE's enrichment business.

Decisions made by the Japanese and other foreign customers of DoE about future commitments for enrichment services will be based on these factors and other financial considerations, such as the decline of the dollar, which will dictate whether DoE remains competitive and reliable in relation to other suppliers of enrichment services.

A similar situation prevails with regard to the relationship between Japanese and U.S. nuclear vendors. At present, there is a close working relationship principally between General Electric and Westinghouse, on the one hand, and their Japanese partners on the other. This relationship is based, from the Japanese perspective, on the importance of U.S. reactor technology for maintaining the safe operation of Japanese nuclear powerplants, which are based almost entirely on GE and Westinghouse designs. Is it reasonable to expect that the Japanese would abandon long-standing relationships with these U.S. vendors out of pique over refusal by the U.S. to enter into the new agreement in its present form? I do not believe so, so long as U.S. vendors are able to maintain technological leadership and to offer services that are invaluable to the safe operation of Japanese nuclear powerplants.

European vendors, whose reactors are also based on GE and Westinghouse designs, are beginning to make inroads in Japan on the basis of new technology that rivals and in some cases may exceed what is being offered by the U.S. vendors. Unless the U.S. nuclear industry can remain competitive with French, West German and Swiss rivals in particular, the Japanese may take their

business to the European competition regardless of how Congress acts with regard to the new U.S.-Japan agreement. This is precisely analogous to what happened after Congress approved the U.S. nuclear-cooperation agreement with China after being exhorted by the Administration and the U.S. nuclear industry that failure to approve the agreement would mean the loss of \$25-billion in reactor sales to China. Congress approved a seriously flawed agreement and China gave virtually all of its reactor business to the French anyway.

The fundamental issue is whether the Congress is prepared to enter into an agreement with Japan that inaugurates a global plutonium fuel economy with all the associated uncertainties and risks for U.S. national-security and non-proliferation interests. This is a bad agreement. As I stated at the outset, it is unlawful and dangerous for reasons that have nothing to do with Japan. This agreement ties the hands of every President for at least the next 30 years. It will lock into place the policy of this Administration and the hundreds of tons of highly toxic, weaponsusable plutonium that are likely to be produced, shipped and used commercially as a result of this policy.

In closing, I ask this Committee to remember the extraordinary power of one. One bomb made from stolen commercial plutonium, one crash of a cargo plane carrying commercial plutonium, could cause losses of life and treasure beyond anything imaginable today. And after such an unthinkable precedent is set, could such calamities become commonplace? Could civilization survive the dangers of a world that makes widespread commercial use of plutonium? Is this agreement, albeit with a close and trusted ally, worth the risk?

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Nuclear Proliferation: Studies and Strategies for Stopping the Spread of the Bomb



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Biographical Sketch of Paul Leventhal

Paul Leventhal founded Nuclear Control Institute in 1981 and serves as its President after having worked as a U.S. Senate aide on nuclear power and proliferation issues.

Mr. Leventhal served as Special Counsel to the Senate Government Operations Committee, 1972-1976, and as Staff Director of the Senate Nuclear Regulation Subcommittee, 1979-1981. He was responsible for investigations and hearings and for drafting legislation that led to enactment of the Energy Reorganization Act of 1974, restructuring the Atomic Energy Commission into independent regulatory and promotional agencies, and to enactment of the Nuclear Non-Proliferation Act of 1978, establishing stricter controls to ensure non-military use of U.S. nuclear exports. He also served as Co-Director of the Senate Special Investigation of the Three Mile Island Nuclear Accident in 1979-1980.

Mr. Leventhal was a Research Fellow at the Harvard University Program for Science and International Affairs, concentrating on nuclear-weapons proliferation under a grant from the Ford Foundation in 1976-1977.

Mr. Leventhal served as Assistant Administrator for Policy and Planning at the U.S. National Oceanic and Atmospheric Administration (NOAA) in 1977-1978.

He came to Washington in 1969 to serve as Press Secretary to Senator Jacob K. Javits (R-N.Y.) after nearly a decade of political and investigative reporting for The Cleveland Plain Dealer, The New York Post and Newsday. In 1972, he became Congressional Correspondent for National Journal.

Mr. Leventhal has a bachelor's degree in government, magna cum laude from Franklin and Marshall College and a master's degree from Columbia University Graduate School of Journalism. He is married to Sharon Tanzer Leventhal, an officer of Nuclear Control Institute. They live in Chevy Chase, Maryland, with their sons, Theodore and Joshua.

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Mr. SOLARZ. Thank you very much, Mr. Leventhal.

We will now hear from John Kearney, Senior Vice President of the Edison Electric Institute.

Mr. Kearney..

**STATEMENT OF JOHN J. KEARNEY, SENIOR VICE PRESIDENT,
EDISON ELECTRIC INSTITUTE**

Mr. KEARNEY. Thank you, Mr. Chairman.

My name is John J. Kearney. I am a Senior Vice President of the Edison Electric Institute—the national association of investor-owned electric utility companies. Our members operate 96 commercial nuclear power units which provide over 15 percent of the electricity in this country.

We appreciate this opportunity to express EEI's views on the proposed new agreement between the United States and Japan in the peaceful uses of nuclear energy. I too will summarize my views and I appreciate the fact that my full statement will be part of the record.

And I would like to also request that a letter that we wrote today to President Reagan be included in the hearing record.

Mr. SOLARZ. Without objection, it will be included at the appropriate point in the record.¹

Mr. KEARNEY. Thank you, Mr. Chairman.

Other witnesses who are expert on non-proliferation matters have explored or explained to the committee the reasons why the new agreement will produce substantial nonproliferation benefits. Dr. Wolfe has augmented that position today.

We are not experts on nuclear non-proliferate matters, although we believe that the Japanese have an exemplary record of developing nuclear power in a manner which shows high regard for our mutual objective of limiting the spread of nuclear weapons.

We do believe though that enactment of a new agreement is in the national interest because it will permit the continuation of the strong interconnection between Japanese and American nuclear utilities in the many aspects of developing, constructing and operating nuclear power plants.

My prepared statement provides detailed background regarding the history of U.S. Japanese nuclear cooperation. Initially, the flow of nuclear technical knowledge was in one direction, from the United States to Japan. But now with the current expansion of nuclear power in Japan and the current lack of expansion in the United States, the tables have turned.

As Japan has gained experience with nuclear power applications, its nuclear power program has produced a steadily expanding record of technical and institutional innovations as well as an unparalleled record of operating experience. The availability of this knowledge and experience to the U.S. electric utility industry is invaluable.

Examples of past and on-going cooperative efforts include an exchange program with respect to the liquid metal fast breeder reactor, LWR safety including financial participation in support of the

¹ The letter referred to appears in app. 10.

U.S. loss of fluid facility, and the Japanese utility support of U.S. studies instituted after the Three Mile Island accident.

Perhaps the largest collaborative project being carried out at the present time is the joint development of a new generation of light water reactors for the deployment in Japan and possibly in the United States as the demand for electricity expands in this country. From the perspective of American utilities, this collaboration has a potential to provide American utilities with a new choice in assessing future options for construction of base load electric generating plants.

Implementation of the agreement also has a direct bearing on the maintenance of a strong, cost effective American uranium capacity. Currently, Japanese utilities purchase approximately \$300 million annually of DOE's enrichment services which amounts to about 30 percent of DOE's annual output. These Japanese purchases could increase over the next decade making a favorable contribution to the U.S. trade imbalance.

If, however, the new U.S.-Japanese agreement is not implemented, Japanese utilities are likely to purchase a steadily increasing portion of their enrichment needs from European suppliers. If this were to occur, DOE's enrichment price charged to U.S. utilities will inevitably rise quite substantially, as DOE's fixed costs are distributed over fewer customers.

Under normal Public Utility Commission practices these higher fuel costs incurred by utilities will be passed along to America's consumers of electricity.

In view of aggressive European efforts to attract a larger portion of the lucrative Japanese uranium enrichment business, it may not be realistic to expect the Japanese utilities to remain with DOE as an enrichment supplier when they have the option of signing with European providers who operate under government agreements with Japan which do not require the cumbersome and unpredictable case by case process of government consent to transfer, reprocess and subsequently use nuclear fuel enriched in European facilities.

Without the favorable climate which would be provided by the proposed new Agreement, the on-going cooperation between the United States nuclear utilities and their Japanese counterparts will be destined to slacken and probably cease. If Japanese utilities elect to purchase European reactor models, the shared background will be lost, and the benefit of international collaboration will increasingly be realized by countries other than the United States.

Equally important would be the loss or curtailment of the advance LWR program which would deprive U.S. utilities of access to advance reactor technology.

In summary, the United States and its electric utilities benefit substantially from the close coordination with their Japanese counterparts and stand to benefit in the future from the fruits of joint U.S. and Japanese efforts to develop advanced reactor designs. It would indeed be ironic if the United States were to deprive itself of the benefits of a return flow of technical expertise from Japan just at a time when the United States was finally in a position to realize substantial benefits after years when the flow of technology and experience was larger in the other direction.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Kearney follows:]

PREPARED STATEMENT OF JOHN J. KEARNEY, SENIOR VICE PRESIDENT, EDISON ELECTRIC INSTITUTE

Mr. Chairmans:

I am pleased to appear, on behalf of the Edison Electric Institute (EEI) and its member utilities, to express EEI's views on the proposed new Agreement between the United States and Japan concerning the peaceful uses of nuclear energy, which is now undergoing congressional review. The Edison Electric Institute is the national association of investor-owned electric utility companies. Its members operate 96 nuclear power reactors and currently have five other reactors under construction.

During my testimony today, I wish to explain the strong interrelationship between Japanese and American nuclear utilities in the many aspects of developing, constructing, and operating nuclear power reactors. Furthermore, I will explain the reasons why EEI believes that implementation of the new Agreement is essential to the continuation of this long-standing relationship between utilities in both countries, with important implications for continued progress in the fields of nuclear safety, nuclear waste storage and disposal, as well as many other areas of collaboration.

HISTORY OF U.S.-JAPAN NUCLEAR COOPERATION

Extensive governmental and private sector cooperation in the field of nuclear power dates from 1963, when the Japan Atomic Power Company decided to use standardized light water reactors (LWR) for its future power reactors. The first Japanese LWR, Tsuruga 1, which was based on U.S. LWR technology, went into operation in 1970. It is fair to say that, during these early years, the flow of technology and operating experience was primarily in a single

direction: from the United States to Japan. However, as Japan gained experience with nuclear power applications, its nuclear power program began to produce a steadily-expanding record of technical and institutional innovation, as well as an unparalleled record of operating excellence.

After initial heavy reliance on American reactor vendors, Japanese reactor manufacturers and architect-engineering firms developed a substantial indigenous capacity to design and build nuclear power reactors, and Japanese utilities progressed from students of nuclear science to teachers of Japanese operating experience.

While Japan has acquired the capability of manufacturing complete reactor systems, its licensing and other commercial relationships with American reactor vendors, together with the in-depth technical capacity of U.S. manufacturers, continues to provide important support to the Japanese reactor industry. Consequently, U.S. reactor technology still has a firm hold in Japan, although complacency would be unwarranted, especially in view of recent decisions by Japanese utilities to place some of their future reactor orders with European vendors. As long as Japanese and American utilities operate similar LWRs, the rationale for continued close collaboration between utilities in both countries will be especially strong.

BENEFITS TO THE UNITED STATES OF U.S.-JAPAN COOPERATION IN NUCLEAR POWER

In the early years of peaceful U.S. nuclear cooperation, the pooling of research and development efforts was rarely attempted. By the mid-1960s, however, this situation had changed, due in part to the complexity of technical objectives, coupled with the fact that overseas programs, both in Japan and Europe, were growing at a rate faster than that in the United States. While U.S. nuclear cooperation with its partners in the Euratom countries at first far overshadowed cooperative efforts with other countries, major U.S. cooperative programs with Japan had been inaugurated by the late 1960s. One of the first major programs was a cooperative exchange program with respect to the liquid metal cooled fast breeder reactor. LWR safety has been -- and continues to be -- another significant area of cooperation with Japanese financial participation exceeding \$1 million annually, over several years, to support the U.S.-loss of fluid (LOFT) facility. In more recent years, the Japanese utilities have contributed many technical personnel and approximately \$18 million to help carry out the U.S. studies which were instituted following the Three Mile Island (TMI) reactor accident.

Many significant American-Japanese cooperative efforts in the nuclear power field are carried out under the U.S. leadership of the Electric Power Research Institute (EPRI), and the Japanese leadership of the Central Research Institute of Electric Power

Industry (CRIEPI) of Japan. Recent examples of EPRI-CRIEPI research projects include a joint study of theories of inelastic design analysis of high-temperature nuclear plant components, a joint investigation of in-reactor densification characteristics of mixed-oxide fuels, and a newly-agreed joint study of development of regulations pertaining to radiation. In addition to these important efforts, Japanese and American utilities maintain extensive ongoing technical programs, including the sharing of operating experience and the exchange of engineers and other technical personnel.

Perhaps the largest collaborative project being carried out at the present time is the joint development of a new generation of LWRs for deployment in Japan, and possibly the United States, depending upon whether new reactors are ordered to help U.S. utilities meet the rapidly growing demand for electricity in this country. On the U.S. side, Westinghouse Corporation is collaborating with its Japanese counterparts to develop advanced pressurized water reactors (PWR) and General Electric Company has a similar effort to develop an advanced boiling water reactor (BWR). These projects, which have already resulted in multi-million dollar payments to American suppliers, are expected eventually to result in payments to American companies totalling more than \$1 billion, with obviously favorable implications for the U.S. trade imbalance with Japan. From the perspective of American utilities, the most notable aspect of this collaboration is its potential to provide American utilities with a new choice in assessing future options for

constructing baseload electricity generating stations. American utilities will be able to choose between coal-fired plants and the advanced generation of LWRs which will flow from joint U.S.-Japan collaboration. While individual utilities must make their own decisions about installation of new generating capacity, EBI believes that it would be a serious mistake for American companies to lose the capacity to design and construct advanced power reactor systems. However, simple economic facts will dictate a loss of this American capacity unless cooperative partners such as Japan are willing to share the bill of research and development efforts and provide a market for the new designs.

IMPORTANCE OF IMPLEMENTATION OF THE AGREEMENT TO MAINTENANCE OF A STRONG, COST EFFECTIVE AMERICAN URANIUM ENRICHMENT CAPACITY

U.S. electric utilities using nuclear power obtain nearly all of their uranium enrichment services from the Department of Energy (DOE). Enrichment, which is a process to upgrade natural uranium to low enrichment levels which will support fission, is the most costly step in the manufacture of nuclear power reactor fuel. At present, Japanese utilities purchase approximately \$300 million annually of DOE's enrichment services, which amounts to thirty percent of DOE's annual output. These Japanese purchases, which could increase over the next decade, make a favorable contribution to the U.S. trade imbalance with Japan.

If the new U.S.-Japan Agreement is not implemented, Japanese utilities are likely to purchase a steadily increasing portion of their enrichment needs from European suppliers. If this were to occur, DOE's enrichment prices charged to U.S. utilities will inevitably rise quite substantially, as DOE's fixed costs are distributed among fewer customers. Under normal public utility commission practice, these higher nuclear fuel costs incurred by a utility would be passed along to American consumers of electricity.

IMPORTANCE OF IMPLEMENTING THE NEW AGREEMENT

Certain reservations concerning the new Agreement apparently stem from the fact that the existing Agreement extends through the year 2003, which may appear to lessen the need to implement the new Agreement on a prompt basis. This is a seriously flawed conclusion, in EEI's view. As the Japanese government has pointed out, the existing Agreement lacks the stability and predictability required for Japan's steadily expanding nuclear power program, primarily because it requires Japanese utilities, through the Japanese government, to apply to the United States government for consent to engage in routine transactions which are required to operate Japan's nuclear power reactors. A prime example is movement of U.S.-supplied spent fuel from Japanese power reactors.

Japan lacks a long-term storage capacity for high-level nuclear waste and has pledged to refrain from storing such material on site for long periods. Hence, spent fuel is sent to France and the United Kingdom for reprocessing. Before such shipments may take place, consent must be obtained from the U.S. government, a process

which routinely takes nearly half a year and could be withheld at any time, as was threatened during the presidency of Jimmy Carter. The new Agreement would provide U.S. consent on a one-time programmatic basis, subject to a continuing U.S. right to reexamine and possibly terminate the Agreement if certain unlikely events were to occur. Under the present Agreement, reprocessing in Japan and subsequent use of U.S. origin nuclear material also requires U.S. consent on a case-by-case basis.

Other witnesses have explored the reasons why the long-term programmatic consent provisions are an essential ingredient in the new Agreement, resulting in substantial new U.S. controls not now provided by the existing Agreement. EEI's background and expertise is best directed in this instance to an appraisal of the likely commercial consequences of a failure of the new Agreement to enter into force or a congressional decision to allow it to take effect only under conditions which substantially alter the key provisions of the new Agreement, such as the long-term programmatic consent provisions of the accompanying implementing agreement.

In EEI's judgment, a failure to implement the new Agreement would inevitably cause the Japanese government and utilities to lessen substantially their reliance on U.S. sources of nuclear components, technology, and services. As Deputy DOE Secretary William Martin indicated in testimony to this Committee on December 16, 1987, "between now and the end of the century, Japan is

expected to obtain from the United States a total of approximately \$3 billion in nuclear fuel cycle goods and services," exclusive of enrichment services. Examples of nuclear purchases by Japanese utilities in the United States are as follows: 1) between \$22-30 million annually for nuclear fuel fabrication services purchased by one of Japan's ten electric utility companies; and 2) approximately \$11 million in 1987 alone for nuclear power plant components purchased in the United States by one Japanese electric utility.

In view of aggressive European efforts to attract a larger portion of the lucrative Japanese uranium enrichment market, it may not be realistic to expect Japanese utilities to remain with DOE as an enrichment supplier when they have the option of signing with European providers who operate under governmental agreements with Japan which do not require the cumbersome and unpredictable case-by-case process of governmental consent to retransfer, reprocessing, and subsequent use of nuclear fuel enriched in European facilities. In addition to a possible loss of the Japanese market for enrichment services, which is currently in excess of \$300 million a year, many other areas of Japanese nuclear business, presently held by American firms, could also be expected to be captured by companies in Europe, in the wake of a failure of the new Agreement to enter into force. In this respect, a glance at relevant history is instructive.

As a first step in establishing its nuclear industry, Japan purchased a British natural uranium magnox reactor. As Professor Keichi Oshima and Dr. Mason Willrich pointed out in a

joint study of U.S.-Japan nuclear energy relations, "This choice had a profound impact on the U.S. nuclear community, both governmental and private. Surprise and disappointment that Japan would place its first nuclear power reactor order outside the United States was mixed with determination on the part of the U.S. government and industry to compete more effectively in the future."

The United States overcame the early threat to its ability to develop a cooperative nuclear program with Japan, partly as a result of the U.S. decision to offer longer terms for bilateral agreements and supply contracts, coupled with an offer of requirements type enrichment contracts and enriched fuel commitments adequate to cover a five-year nuclear power expansion program in Japan. Subsequently, Japan elected to purchase American LWRs and LWR technology on what proved to be an exclusive basis, until recently.

Little attention has been paid to the fact that Japan has negotiated effectively with the United States over the past two decades to amend its nuclear cooperation agreement on several occasions. This process resulted in a number of provisions which recognized Japan's excellent non-proliferation credentials, its emerging technological leadership, and its ability to turn away from the United States in favor of other cooperating partners. These U.S. inducements to Japan included a unique provision for supplying fuel for nuclear ship propulsion and a liberalization of the original U.S. prohibition of reprocessing in Japan, which allowed

reprocessing in Japan subject to a mutual agreement that safeguards could be effectively applied to the reprocessing facility in question.

Thus, the record of U.S.-Japan nuclear cooperation clearly shows a propensity and ability of the Japanese government and its nuclear industry to insist on nuclear cooperation terms which recognize Japan's emergence as a world leader in many fields, including the generating of power in commercial nuclear reactors. Logic and history both suggest that a failure to implement the new Agreement will not be without profound consequences, to the material and long-lasting disadvantage of the United States and its nuclear power industry and nuclear utilities.

ADVERSE IMPACT ON AMERICAN UTILITIES OF A FAILURE TO IMPLEMENT THE NEW AGREEMENT

Without the favorable climate which would be provided by the proposed new Agreement, the ongoing cooperation between U.S. nuclear utilities and their Japanese counterparts would be destined to slacken and possibly cease, although this would hopefully not occur immediately. As a practical matter, the existing exchange and cooperation programs between the two countries^{are} largely based upon the circumstance that U.S. and Japanese utilities use nearly identical U.S.-licensed reactor technology. If Japan elects to purchase European reactor models, this shared background will be lost and the benefits of international collaboration will increasingly be realized by countries other than the United States.

Equally important would be the likely loss or curtailment of the advanced LWR program, which would deprive U.S. utilities of access to advanced reactor technology from American sources. As noted earlier, U.S. utilities would also suffer economically from a likely withdrawal of the Japanese utilities as DOE enrichment customers.

If the United States were still the world leader in designing and operating nuclear power reactors and related fuel cycle facilities, a loss of the preeminent U.S. role in nuclear commerce with Japan could perhaps be tolerated, despite the resulting adverse trade impacts. However, as is universally recognized, the United States is no longer the world leader in nuclear power technology, although it remains strong in many areas in this field.

In summary, the United States and its electric utilities benefit substantially from their close association with their Japanese counterparts and stand to benefit in the future from the fruits of joint American-Japanese efforts to develop advanced reactor designs. It would be ironic indeed if the United States were to deprive itself of the benefits of a return flow of technology and expertise from Japan just at the time when the United States was finally in a position to realize substantial benefits, after years when the flow of technology and experience was largely in the other direction.

In early May of this year, top U.S. utility officials will meet in Tokyo with their Japanese counterparts, in the latest in a series of annual conferences, which help to focus and direct the

many ongoing exchange and other cooperative programs and to plan new efforts. At this year's conference, we hope we are in a position to celebrate the imminent entry into force of the new Agreement which has emerged from congressional review intact and with a renewed U.S. commitment to continue its historic cooperation with Japan in advancing our mutual interests and realizing the benefits of safe and economically efficient generation of nuclear power.

Thank you Mr. Chairman, this concludes my testimony and I will be pleased to entertain any questions which members of the committee may have.

Mr. SOLARZ. Thank you very much, Mr. Kearney.
Mr. Milhollin.

STATEMENT OF GARY MILHOLLIN, PROFESSOR, UNIVERSITY OF WISCONSIN LAW SCHOOL

Mr. MILHOLLIN. Thank you, Mr. Chairman.

I assume my statement will be incorporated in the record with all the others.

I think I'd like to begin by just making a point which I would say is a point of perspective. All of the members of this Committee and all of the witnesses and most of the people in this room will have reached retirement age before this proposed agreement expires. And a fair number of us will have completed our retirements.

I think it's likely that many of us will expire before the agreement does. I think what we ought to do is make sure that we don't leave a legacy to our successors that is too burdensome and dangerous for them to live with. The decisions we're going to make in the next few weeks are going to be with successors on the committee and are going to be with successive administrations and with the American public for a long time.

I would like to address three different subjects. First, the subjects I call trade issues. The fact is that Japan wants to move to a plutonium economy primarily because it wants to achieve independence in its nuclear fuel cycle. It wants to have plutonium fuel because it doesn't want to be dependent on outside sources for uranium fuel. And the primary outside source now is the United States. And the industry witnesses here today hope that will continue to be true.

But the fact is that as Japan uses more plutonium in its program, its imports of uranium fuel are going down and that means mostly imports of U.S. uranium fuel are going down. Japan will extract a lot more plutonium from spent fuel than it will be able to use soon for any purpose; for breeder reactors, light water reactors or any other reactors.

It will then be forced to stockpile the plutonium. This will cost more than it would cost Japan if Japan bought uranium fuel from us. But after all, it's Japan's program. If Japan wants to spend money to extract plutonium and build a big stockpile that costs a lot to store, that's up to the Japanese.

Except that Japan's actions have security concerns for everyone in the world that transcend Japan. Atomic energy makes national boundaries and national interests that we've always thought of pretty much irrelevant. Chernobyl taught us that if it didn't teach us anything else.

The material unaccounted for in Japan is a proliferation risk, not because the Japanese government is going to do something bad with it, but because private industry could do something bad with it. There's a tremendous scandal right now in Western Europe involving the representatives of more than one country who engaged in a scheme of embezzlement to ship plutonium in drums that weren't supposed to contain it.

The IAEA safeguard system is being relied upon right now to make sure that some of that did not go to Pakistan. If you have hundreds of kilograms, in fact, hundreds of bombs' worth of pluto-

nium unaccounted for because of what Japan wants to do, that transcends Japan.

Second, Japan protects plutonium from theft according to an international guideline which is weak. It's much weaker than the arrangements we have in the United States for protecting plutonium here. When Japan wanted to send several bombs' worth of plutonium on a freighter through the Straits of Malacca with one or two guards, that satisfied the international guideline, and would again, if Japan wanted to do it next week or next year.

Because we have these consent rights over Japan's plutonium program, we can prevent Japan from doing things which endanger security, such as the shipment that was planned in 1984.

The new agreement asks the United States to give up those consent rights. Once the United States gives them up, what will happen? The United States has supplied over 80 percent of Japan's reactor fuel. The United States has supplied 75 to 80 percent of the plutonium in South Korea, 85 to 90 percent of the plutonium in Sweden, and about 90 percent of the plutonium in Switzerland.

Once Japan gets a blanket approval, all these other countries will demand equal treatment.

Is there a line we can draw between Japan and South Korea? American blood has been shed in South Korea. I'm not sure we can draw a line there. We've tried to prevent South Korea from reprocessing plutonium for a long time with success, and it's been our plutonium that South Korea wanted to reprocess, wanted to extract. We have said, no.

We said no to India when India wanted to extract our plutonium, but we're going to say, yes, to Japan. I submit to you that we're not going to be able to draw lines in the future around Japan and prevent everybody else from doing what we're going to allow Japan to do.

The second general category of issues I'd like to talk about are security issues, but I think I've addressed most of those. I think the question under the security heading is this: Does the United States get more security with the proposed agreement than it gets with the existing one.

I can't find anything in the proposed agreement as powerful as our consent rights under the existing agreement. Under the existing agreement, we can monitor everything Japan does with spent fuel from U.S. reactors for the rest of this century and into the next one. There is nothing comparable in the proposed agreement, nothing that even approaches that right.

If we were to suspend the blanket consent in the proposed agreement, Japan could reasonably think that was a breach and suspend its own performance. Under the existing agreement, we can exercise our consent rights over plutonium with no question. There's no way it could ever be considered a breach. We simply have discretion in approving plutonium use.

The last point I'd like to make is what I call conditions. On page 12 of my testimony, I've listed some conditions the Congress should insist upon if it agrees to the agreement.

The first of the conditions on page 12 is that Japan agree, in exchange for blanket consent, to protect plutonium under a standard

which is at least as high as the one the U.S. uses for protecting plutonium in this country.

The second condition is that before Japan can add a new facility to the approved list for using U.S. plutonium, that there be current information on the accounting principles at the plant. And that that information show that the accounting system will detect critical masses of nuclear weapon material that's missing.

And as a follow up to that condition, third, that there be some limit on the amount of nuclear weapon material that can get lost in Japan's new plants, that there be a quantitative limit on the number of critical masses that are unaccounted for.

These last two conditions are ones that Chairman Zech of the Nuclear Regulatory Commission suggested in his letter to Chairman Fascell.

They are very reasonable conditions. And it's hard for me to see why they would be burdensome for Japan.

Thank you.

[The prepared statement of Mr. Milhollin follows:]

PREPARED STATEMENT OF GARY MULHOLLIN, PROFESSOR, UNIVERSITY OF WISCONSIN
SCHOOL OF LAW

THE PROPOSED NUCLEAR TRADE AGREEMENT WITH JAPAN:
QUESTIONS AND ANSWERS

Mr. Chairman, I am pleased to testify on the proposed nuclear trade agreement with Japan. I am a Professor of Law at the University of Wisconsin, have acted as an Administrative Judge at the Nuclear Regulatory Commission, and as a consultant to the Department of Defense on nuclear non-proliferation.

The proposed agreement is complicated--it has a text with annexes, an implementing agreement with additional annexes, side letters, and notes verbales. It is endorsed by the Departments of State and Energy, but opposed by the Nuclear Regulatory Commission and former Secretary of Defense Weinberger. It raises many questions that have not been answered.

To better assist the Committee, my statement is arranged to help answer the questions most frequently asked about the agreement.

Questions concerning trade

1. Question: Why has a new nuclear trade agreement with Japan been proposed? The present one doesn't expire until the year 2003.

Answer: Because the Nuclear Non-Proliferation Act of 1978 (NNPA) asked the President to re-negotiate existing agreements. The object was to increase U.S. non-proliferation controls.

2. Question: What is the main effect of the proposed agreement?

Answer: It would reduce Japan's dependence upon the United States. Japan would no longer need case-by case U.S. consent to extract plutonium from U.S.-supplied reactor fuel. Japan would have blanket approval--extending into the next century--to extract as much plutonium as the United States has now in its nuclear arsenal. Japan would use the plutonium to reduce the amount of reactor fuel it imports from the United States.

3. Question: What is plutonium?

Answer: A man-made nuclear explosive. Thirteen pounds of it made the world's first nuclear explosion in 1945. It can also fuel nuclear reactors. Before it can be used for either purpose, it must be extracted from spent reactor fuel.

4. Question: Why does Japan want to extract the plutonium?

Answer: Japan says it wants to use it for reactor fuel. However, Japan plans to extract about 40 tons by 1995, could extract over 80 tons by the year 2000, and will only need about 10 tons for reactor fuel. The rest will be stockpiled. Table 1 shows how much plutonium Japan plans to extract.

5. Question: Why does Japan want to use plutonium reactor fuel?

Answer: To reduce its imports from the United States. The plutonium fuel would replace the natural uranium that Japan is now buying from U.S. producers, and the uranium enrichment that Japan is now buying from the U.S. Department of Energy. The plutonium would either replace U.S. fuel in light water reactors, or run breeder reactors that would replace the light water reactors that now use U.S. fuel. Plutonium fuel costs more for Japan to make than U.S. fuel would for Japan to buy, but Japan is willing to pay the higher cost for energy independence.

6. Question: How would this affect the U.S. balance of payments?

Answer: It would increase Japan's surplus, which now exceeds \$50 billion per year.

7. Question: Would the United States lose Japan's nuclear fuel business without the proposed agreement?

Answer: The agreement is not connected to the business. Japan would remain free to buy its fuel on the world market--as it is now. Japan buys practically none of its uranium from the United States, but has most of its uranium enriched here under contracts with the U.S. Department of Energy. As long as Japan has a balance of payments surplus with the United States, Japan will need to buy valuable U.S. items such as reactor fuel.

8. Question: According to President Reagan, U.S. nuclear exports to Japan "could amount to \$1 billion or more each year in the coming decade." Is this correct?

Answer: No. Over the next decade Japan is only expected to buy \$260-\$435 million worth of U.S. enrichment per year, and only 2% of its uranium from the United States, according to DOE figures cited by Dr. Milton Hoenig in a study submitted for the record today. Those amounts are not likely to go up. There are no other major nuclear transfers to Japan on the horizon.

9. Question: How much U.S. enrichment might Japan buy in the future?

Answer: Japan's policy is to reduce its nuclear imports. Japan intends to supply one third of its own enrichment needs by the year 2000 with a new enrichment plant. Japan's dependence on U.S. enrichment is expected to fall to 25%-50% of its needs by that time. If Japan begins to use plutonium fuel to replace imported U.S. fuel, as it would under the proposed agreement, Japan's U.S. imports will go down further in proportion to the amount of plutonium used.

10. Question: How much of Japan's plutonium does the United States control now?

Answer: More than 80%. U.S. control will not fall below 75% until the next century. This means that any Japanese plan to use plutonium on a broad scale in this century is subject to U.S. control under the present agreement. The proposed agreement would give up this control by consenting in advance to Japan's use of plutonium fuel. Table 1 shows the percentage of U.S. control out to 1995.

11. Question: Will the proposed agreement make nuclear trade with Japan "more stable and predictable," as the Administration asserts?

Answer: Yes, for Japan. The main source of unpredictability is that the United States could use its consent rights to interfere with Japan's use of plutonium in the future. The proposed agreement would remove that uncertainty. It would give U.S. consent in advance (blanket approval) to Japan's plutonium program. This would make trade more predictable for Japan. There would be less predictability for the United States, however, because of its loss of influence over Japan's program.

12. Question: Is there instability and unpredictability now in U.S. nuclear trade with Japan?

Answer: No. The United States has granted every request Japan has made for plutonium use. Rigid time limits in U.S. law require quick review of Japan's requests. "Batch approvals" have been given to make sure Japan is not inconvenienced.

13. Question: Will plutonium extraction help dispose of nuclear waste?

Answer: No. An authoritative international study of the nuclear fuel cycle concluded that extraction did not help dispose of waste. Other studies have agreed. The amount of toxic waste and plutonium is the same after extraction as it is before. However, because the extraction step generates additional processing wastes, the total volume of nuclear waste is actually greater after extraction.

Questions concerning security

14. Question: Will Japan be able to keep track of the large amount of plutonium it will extract?

Answer: Not with existing technology. The measurement uncertainty of plutonium in process is plus or minus one percent--even at the best theoretical level. Scores of tons will be extracted in Japan. Over the life of the proposed agreement, there will be enough material unaccounted for to build hundreds of atomic bombs. When commenting on these facts, the Nuclear Regulatory Commission said: "we have concerns that...200-300 kilograms of plutonium could remain unaccounted for each year."

15. Question: If better accounting technology were developed, would Japan be required to use it?

Answer: No. Under the present agreement--but not the proposed one--there is a U.S. right to consent to plutonium separation on a case-by-case basis. The United States can withhold the consent in the future if Japan refuses an accounting improvement. The proposed agreement, however, would take away U.S. consent and also the leverage. It would be Japan that would have to consent to any change in accounting methods. Japan would also have the right to extract U.S. plutonium at plants that have not been built. Japan would only have to promise to apply the same accounting methods to those plants that it applies to existing plants that are similar.

16. Question: The proposed agreement contains "safeguards concepts." Could they be used to prevent a future Japanese plant from using U.S.-origin plutonium?

Answer: No. The "safeguards concepts" are accounting principles--intended to keep track of plutonium in process. When Japan wants to add a plant to the blanket approval list, Japan must send the United States a notice stating that the accounting principles at the plant are in accordance with one of the concepts. The concepts--spelled out in the "notes verbales"--are general statements of what

is desirable. The note on plutonium extraction says that "new and improved techniques...[may be] introduced," but only "to the extent that undue interference in plant operation is avoided." It also says that new plants will be "designed and operated...to facilitate...safeguards [i.e., accounting]" but only "as far as practicable...." When Japan sends a notice to the United States stating that a new plant has satisfied the concept, the agreement limits the U.S. response to "a statement that such notification has been received." The Nuclear Regulatory Commission, after reviewing this procedure, said: "we question whether an exchange of notes...is all that is needed to give the U.S. confidence that all material under its control remains in peaceful safeguarded use."

17. Question: If plutonium were diverted in Japan, would the United States learn of it in time to react (have "timely warning") before weapons could be made?

Answer: No. The inspection system (safeguards) of the International Atomic Energy Agency is not designed to report a diversion within the time it takes to make a weapon--one to three weeks for plutonium oxide. It is designed only to detect a diversion within that time. It takes the Agency months to evaluate a discrepancy and report it. Weapons could be made long before the IAEA reported a diversion to anyone. U.S. intelligence might detect a diversion within one to three weeks, but that is a matter of chance, independent of the agreement.

18. Question: Under U.S. law, U.S. reactor fuel can only be transferred for plutonium extraction when it "will not result in a significant increase in the risk of proliferation beyond that which exists at the time the approval is requested." Does the proposed agreement meet that requirement?

Answer: No. Sec. 131 of the Atomic Energy Act expressly defines a transfer of spent fuel for plutonium extraction as a "subsequent arrangement." Such arrangements can only be approved if the Secretaries of Energy and State find that there will be "no significant increase in the risk of proliferation beyond that which exists at the time the approval is requested." The Secretaries must

compare the risk that "exists at the time the approval is requested" to the risk that will be caused by--or exist at the time of--the transfer that is being approved. Such a comparison is only valid for risks that will occur during the time period for which the Secretaries' information is valid. That is, the Secretaries can only compare risks on the basis of information about the risks, and the risks must occur during the time period covered by the Secretaries' information. The new agreement approves spent fuel transfers for the next thirty years--and thus exceeds the time for which current information is valid.

19. Question: Is it realistic to worry about timely warning and proliferation risks in Japan, whose government is not likely to divert nuclear material?

Answer: Yes. The primary risk is not the Japanese government. It is Japanese industry. There is now a massive scandal in Germany caused by corrupt industry managers who, in a scheme of bribery and embezzlement, shipped plutonium between Belgium and Germany in drums not authorized to carry it. There are also allegations that Pakistan may have got nuclear weapon material as part of the deal. The material balance accounts of the IAEA have been used to determine whether a shipment to Pakistan actually happened. If such a scheme arose in Japan under the proposed agreement, the large amount of material unaccounted for would make it impossible to know where all the material went. The Toshiba affair shows that Japanese industry is not immune to illegal acts that endanger security.

20. Question: Can the lack of timely warning, and the lack of current information on proliferation risk, be offset by political factors, such as Japan's open, democratic government, strong ties to the United States, and well-known opposition to nuclear weapons?

Answer: No. The Administration asserts that Japan could not--because of the open nature of its government--divert plutonium without first changing its policy on non-proliferation, or its security alliance with the United States. Such changes, the argument goes, would be overt and the United States would learn of them. However, if Japan did

change one or all of these things, and the United States did learn of them, the United States would have no right to take action under the proposed agreement. There is no link between any of these political factors and U.S. rights. The only way the United States can, for example, legally demand the return of its plutonium is if Japan breaches the agreement. Unfortunately, such a breach would not occur until Japan diverted the plutonium. The agreement does not require Japan to have a democratic or open government, support non-proliferation, or maintain a security relation with the United States. Because the U.S. right to intervene is triggered only by a diversion, the previously-occurring political factors are irrelevant to any U.S. response. The only important factors--those that affect intervention time and thus timely warning--are the speed of detection (safeguards adequacy) and the time it will take the diverter to make a weapon.

21. Question: Would plutonium in Japan be better protected from theft under the new agreement?

Answer: No. Japan would only be required to protect plutonium according to a guideline set by the International Atomic Energy Agency. The Pentagon recently told Congress that a foreign country's assurance that it follows that guideline does "not... permit a confident conclusion in all cases that the physical protection provided is adequate...."

22. Question: Would plutonium in transport be better protected under the new agreement?

Answer: Only for international air transport. The new agreement's rules on air transport are much stronger than the IAEA's guideline. Also, the new agreement requires air transport for international shipments. However, the Administration is already thinking of abandoning air transport because a suitable transport cask might not be found.

23. Question: What if air transport is not used?

Answer: The international guideline apparently would apply. In the early 1980s, Japan attempted to ship 250kg (40 bombs' worth) of plutonium through

the pirate-infested Strait of Malacca on a freighter with only one or two guards. The shipment fully satisfied the guideline. Fortunately, the United States used its consent right to hold the shipment up until there was an escort of Japanese, U.S. and French warships (the shipment came from France) and observation by satellite.

24. Question: Would plutonium under the proposed agreement be as well protected in Japan as it is in the United States?

Answer: No. The international guideline is much weaker than the NRC and DOE regulations that protect plutonium in the United States. It is also much weaker than the DOD regulations that protect U.S. nuclear weapons held abroad.

25. Question: Would the United States be able to require Japan to improve the level of protection in the future?

Answer: No. Without the case-by-case consent rights, the United States will have no effective way to challenge Japan's level of protection in the future.

26. Question: In the proposed agreement, how important is the U.S. right to suspend the blanket approval?

Answer: It has no legal significance--it only restates the rights the United States would have anyway under international law. The United States could suspend the blanket approval only "in the most extreme circumstances of exceptional concern...." There would also have to be an "exceptional case," posing a "threat to...[U.S.] national security," or a "significant increase in the risk of nuclear proliferation." The only examples of such cases cited in the agreement are breaches of--or a withdrawal from--the Non-Proliferation Treaty, breaches of international safeguards, or breaches of the new agreement itself. All such cases would breach both the proposed and existing agreements with Japan, and entitle the United States to suspend its performance anyway under international law.

27. Question: What is the difference between the U.S. right to suspend the blanket approval under the proposed agreement--discussed above--and the U.S. right to consent to plutonium extraction under the present agreement?

Answer: Under the proposed agreement, the United States can suspend the blanket approval only after a problem comes up. To take action, the United States must show that Japan has done something extremely grave and threatening to U.S. security. If Japan disagrees with the U.S. suspension, Japan can regard the suspension itself as a breach, entitling Japan to suspend its own performance. Under the present agreement, however, the U.S. right to consent to plutonium extraction allows the United States to suspend Japan's use of plutonium without question. The control can be used before a problem comes up, and could never be considered a breach.

Questions concerning the role of Congress

28. Question: What would the role of Congress be under the proposed agreement?

Answer: Congress' role would end when the agreement took effect. Congress would no longer be informed of case-by-case approvals, because there would be none. Congress could not legislate changes in plutonium use policy affecting Japan in the future because the proposed agreement would bind all future Congresses and administrations.

29. Question: What would the role of the U.S. public be under the proposed agreement?

Answer: No greater than the role of Congress.

30. Question: What benefit would the United States get from the proposed agreement?

Answer: Japan will give the United States detailed accounting of the plutonium balances at the new plants added to the agreement in the future, and use a higher level of physical security for international air shipments. However, these

benefits could be had under the present agreement through use of the consent rights.

31. Question: What would the United States give up under the proposed agreement?

Answer: The agreement would allow Japan to make the balance of payments worse by reducing its nuclear imports from the United States, create a large stockpile of nuclear weapon material having no civilian use, escape U.S. control over future accounting practices, escape U.S. control over future protection of plutonium from theft, and exclude the U.S. Congress and public from further participation in nuclear policy concerning Japan.

32. Question: What effect will the proposed agreement have as a precedent?

Answer: It will codify the acceptability of commercial plutonium use throughout the world. The United States now controls 75-80% of the plutonium in South Korea, 85-90% of the plutonium in Sweden, and about 90% of the plutonium in Switzerland. The United States has already used its plutonium control to discourage the Swiss from selling South Africa a heavy water plant that posed a proliferation risk. The United States has also discouraged plutonium use in South Korea, a country with nuclear weapon ambitions in a volatile area. Once Japan receives a blanket approval, however, these countries will expect equal treatment. The Department of Energy is already preparing to approve a technology transfer to South Korea that will aid in the study of plutonium-bearing fuels after they have been irradiated.

33. Question: If the United States gets less from the new agreement than it gives up, why not retain the existing agreement?

Answer: The existing agreement should be retained. It does not expire until the year 2003.

34. Question: If the proposed agreement is approved with conditions, what should the conditions be?

Answer: The blanket approval for future plutonium use should be removed. If it is retained, it should be made subject to the following conditions:

1. That Japan protect U.S.-origin nuclear weapon material (plutonium and high-enriched uranium) from theft under regulations at least as detailed and rigorous as those the NRC and DOE apply to U.S. plutonium and high-enriched uranium held in the United States. The Department of Defense and the Nuclear Regulatory Commission should be required to approve the adequacy of the standard that Japan adopts.
2. That no new Japanese plant be added to the blanket approval list unless, at the time it is added, it satisfies Sec. 131 of the Atomic Energy Act. The Secretaries of Energy and State would be required to have information current enough to find that the plant "would not result in a significant increase in the risk of proliferation beyond that which exists at the time the approval is requested." The addition of such a plant would be a "subsequent arrangement" under Sec. 131 and require the customary findings, reports to Congress, and notice in the Federal Register.
3. That no new Japanese plant be added to the blanket approval list unless, at the time it is added, the materials accounting system applied to it is capable of detecting the diversion of not more than some specified minimum number of critical masses of plutonium or high-enriched uranium per unit of time. The Nuclear Regulatory Commission could be asked to recommend such a number to Congress for approval.

FIGURE 1

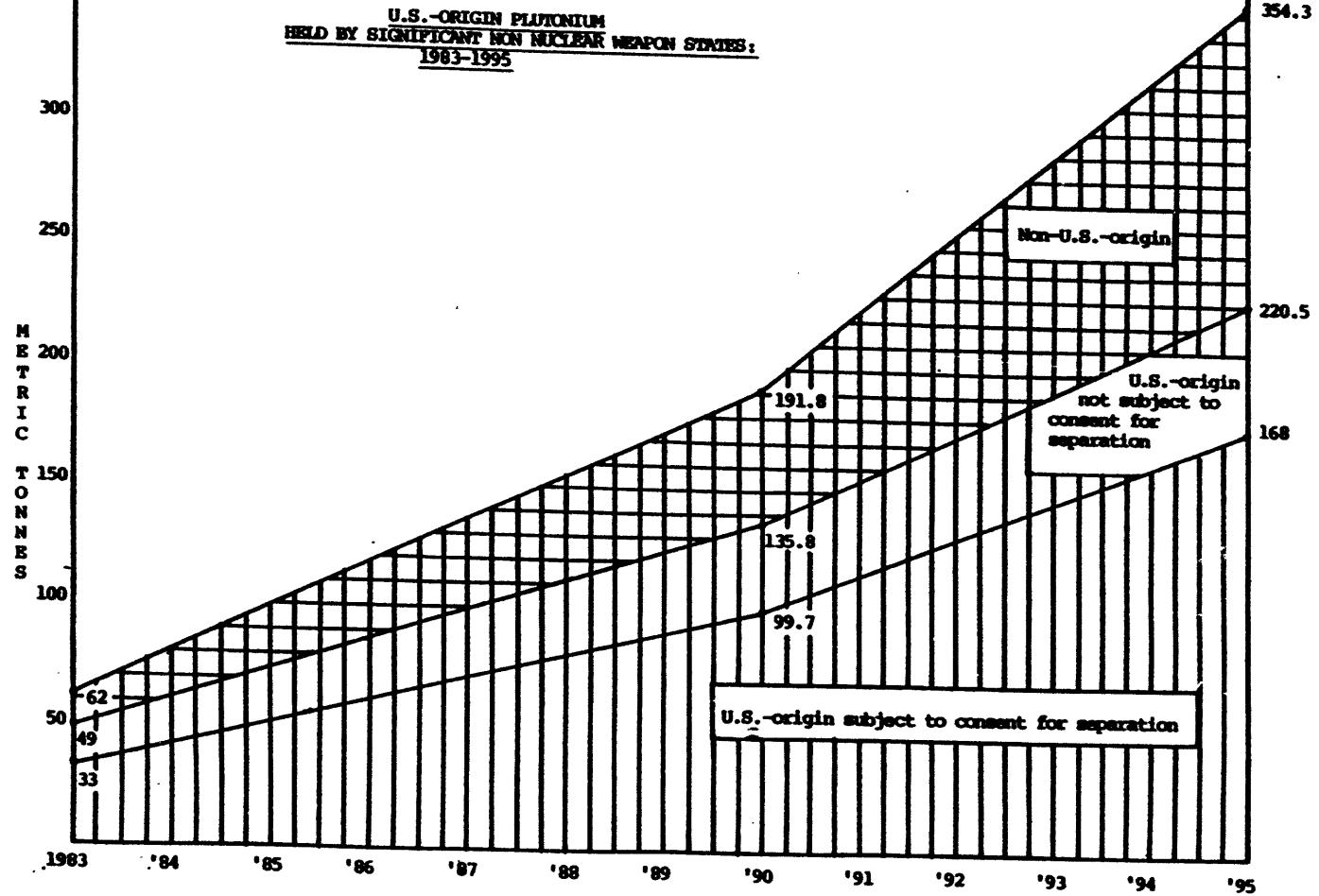


FIGURE 2

U.S.-ORIGIN PLUTONIUM
HELD BY SIGNIFICANT NON NUCLEAR WEAPON STATES
(NOT INCLUDING JAPAN) :
1983-1995

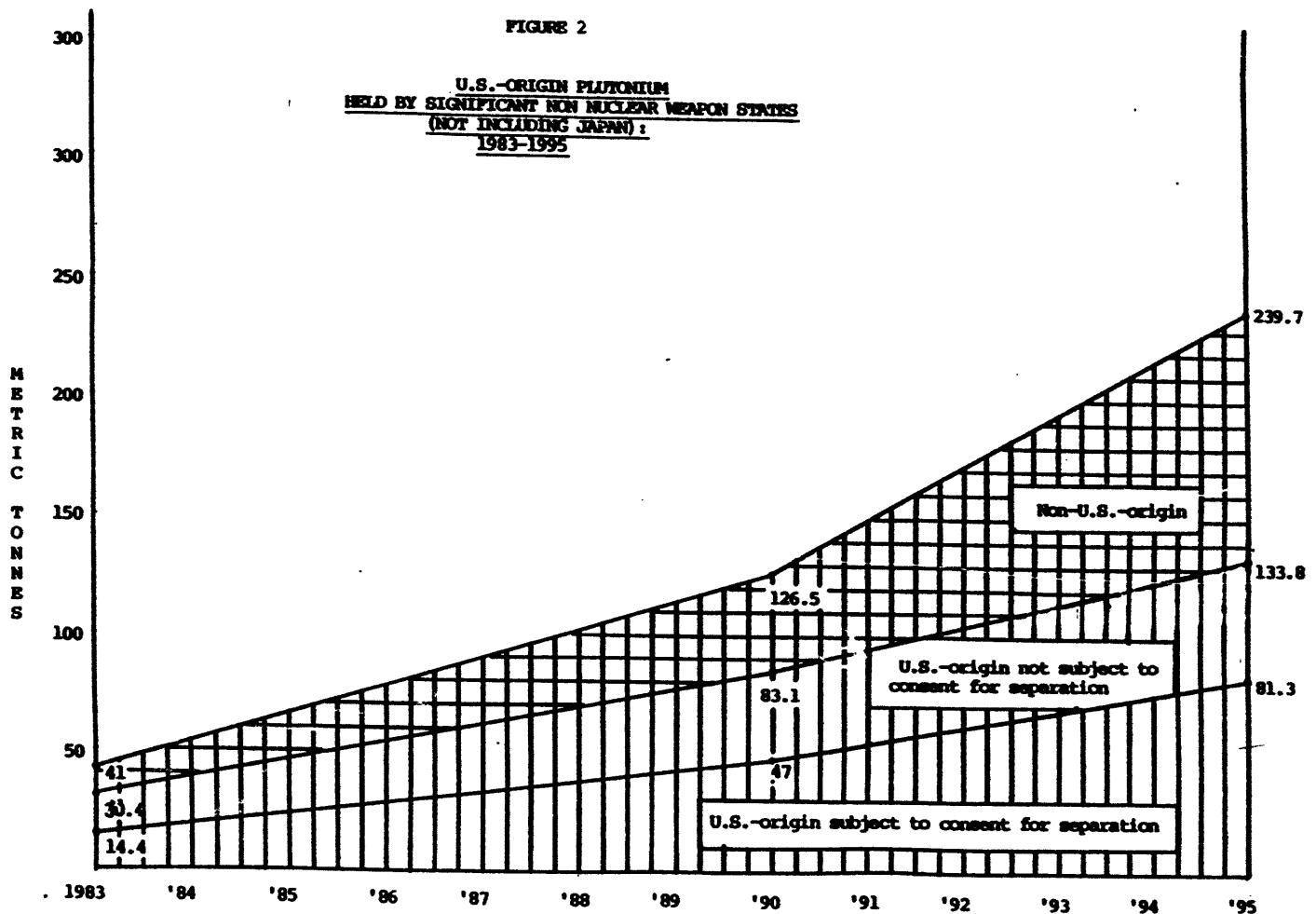


Figure 3

JAPAN

(blank) Non-U.S.-origin



U.S.-origin no
subject to U.S.
consent for
separation



U.S.-origin
subject to U.S.
consent for
separation

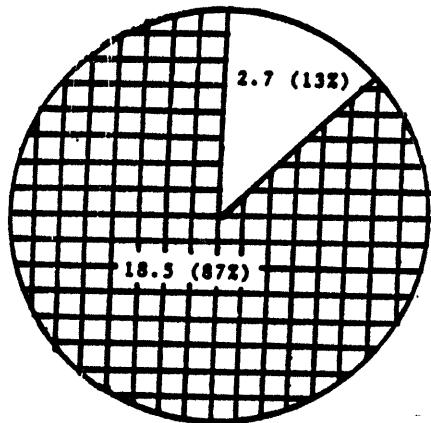
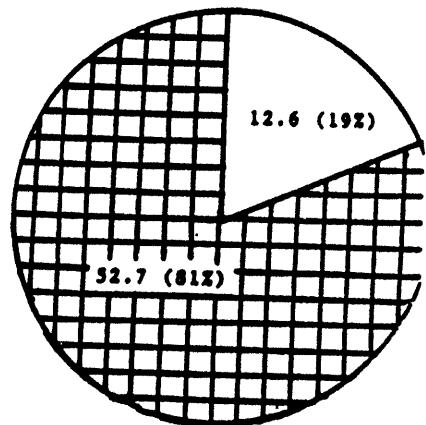
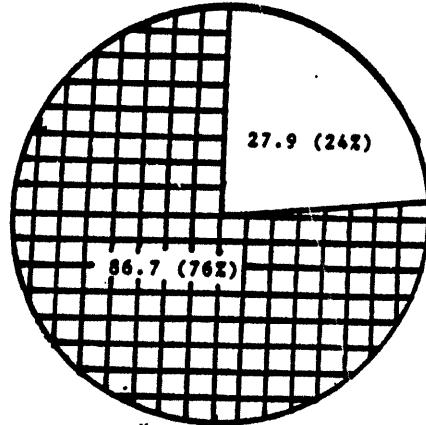
Through 1983Through 1990Through 1993

Table 1

JAPAN

**Holdings of U.S. controlled plutonium
(metric tons, cumulative)**

	Through 1983	Through 1990	Through 1995
Pu created in spent fuel			
- light water reactors	19.2 ^a	61.9 ^a	110.3 ^a
- gas cooled reactors	1.7 ^b	2.4 ^b	2.9 ^b
- heavy water reactors	.3 ^b	1.0 ^b	1.4 ^b
- total Pu	21.2	65.3	114.6
Pu subject to U.S. conse. t for separation	18.5(87%) ^c	52.7(81%) ^c	86.7(76%) ^c
Pu subject to U.S. safeguards, peaceful use, and retransfer control	18.5(87%) ^c	52.7(81%) ^c	86.7(76%) ^c
Pu in spent fuel contracted for separation			
- light water reactors	19.2 ^a	42.2 ^a	42.2 ^a
- gas cooled reactors	1.7 ^b	2.4 ^b	2.4 ^b
- heavy water reactors	---	---	---
- total Pu	20.9	44.6	44.6
- U.S. controlled	18.5 ^a	35.9 ^d	35.9 ^d
Pu in spent fuel approved by U.S. for separation	18 ^e		
Pu separated thus far			
- in France	.8 (LWR; U.S. controlled; thru '84) ^f		
- in the U.K.	1.4 (GCR; non U.S. controlled; thru '84) ^b		
- in Japan	1.5 (LWR; U.S. controlled; thru fiscal '84) ^g		
- total Pu	3.4 (thru '84)		
- U.S. controlled	2.0 (59%)		
Separated Pu produced or received thus far			
- from the U.K. (retransfer)	1.1 ^h		
- from the U.K. (purchase)	? ⁱ		
- from Euratom (retransfer)	.43 (.39 U.S. controlled; thru '84) ^j		
- from U.S. (direct export)	.16 ^k		
- separated in Japan	1.5 (U.S. controlled; thru fiscal '84) ^l		
- total Pu	2.9 (at least)		
- U.S. controlled	1.75		

Notes to Table 1

- a) Letter from Carol S. Thorup, Vice President, Nuclear Assurance Corporation, Norcross, Georgia, to Arch Roberts, House Committee on Foreign Affairs, May 15, 1985, enclosing an excerpt from Fuel Trac.
- b) Fuel Trac, Reprocessing Status Report, Nuclear Assurance Corporation, Norcross, Georgia, Oct., 1983.
- c) This plutonium was made with U.S. enriched uranium. Therefore, according to the current U.S.-Japan agreement, the United States has the right to approve any separation of this plutonium, the right to approve its retransfer, the right to have the plutonium safeguarded (Japan, as a ratifier of the NPT, has already placed its entire nuclear program under safeguards), and the right to its peaceful use. It is possible that the plutonium created by Japan's experimental heavy water reactor, called Fugen, is also U.S. controlled. In 1976, shortly before Fugen started up, 159.5 tons of U.S.-origin heavy water was retransferred to Japan from the Federal Republic of Germany. NMSS Reports TJ-23, TJ-7. From 1979 to 1981, the U.S. supplied 17 tons of heavy water to Fugen in direct exports. NMSS Report TJ-7. The total amount of U.S. controlled plutonium shown in the Table should be increased slightly if Fugen has consistently used U.S. controlled heavy water.
- d) The amount of U.S. controlled plutonium is estimated by assuming that the amount of U.S. controlled plutonium to be separated bears the same proportion to the total to be separated as the amount of U.S. controlled discharged bears to the total amount discharged.
- e) Reprocessing and Plutonium Use Cases Requested and Approved Under the NNPA From 1978-83; Requests for Reprocessing Approved From 1983-85, U.S. Department of Energy. Through late 1985, Japan had received permission to ship 9.1 tons to the United Kingdom and 8.9 tons to France for separation. Apparently, Japan has actually shipped about 1,000 tons of spent LWR fuel to the United Kingdom (1,000 tons will yield about 9 tons of plutonium) and the same amount to France. Nuclear Fuel, March 10, 1986, p 6.
- f) Albright, Civilian Inventories of Plutonium and Highly Enriched Uranium, International Task Force on Prevention of Nuclear Terrorism (Background Paper), Spring 1986, Table 4.
- g) Through fiscal 1984, the Tokai Reprocessing Plant had reprocessed about 180 tons of spent fuel. The table assumes that 6.7 kilograms of plutonium were extracted per ton. Present Status of Nuclear Development in Japan, Japanese Atomic Energy Commission, August, 1985, p. 10.

Notes to Table 1

- h) Near-Term Plutonium Market Outlook, March, 1983, ORNL/Sub/83-4011/1, Nuclear Assurance Corporation, Norcross, Georgia.
- i) The United Kingdom supplied plutonium to Japan in the early 1970s for use in Japan's breeder program, but the amount is unknown. Nuclear News, April, 1983, p 82; Sizewell B. Public Inquiry, Transcript of Proceedings, March 17, 1983, p. 71.
- j) Japan received 250 kilograms by retransfer from France in 1984. Nuclear Fuel, Nov. 26, 1984. Japan also received 177 kilograms (139 of U.S. origin) before 1978. Albright, The Availability of Plutonium in Japan to Meet Future Needs, Preliminary Draft, Federation of American Scientists, July 31, 1984.
- k) NMSS Report TJ-25.
- l) "Analysis of Consents and Approvals Agreed Upon in Conjunction with New Agreement for Cooperation between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy," Attachment #7 to Memorandum for the President, Oct. 1, 1987, from John C. Whitehead and John S. Herrington, p. 85.

Mr. SOLARZ. Thank you very much.

The gentleman from Wisconsin, Mr. Roth, asked for the opportunity to make a brief statement at this time, and since we have a record vote, I suggest as soon as he's finished, we recess for several minutes while we go and vote.

Mr. Roth.

OPENING STATEMENT OF CONGRESSMAN ROTH

Mr. ROTH. Mr. Chairman, I appreciate you calling on me. I want to thank you for holding these hearings. They are most important and far reaching.

Because time is of the essence and we have these very important witnesses here today, I would ask that my short introductory statement be entered into the record at the appropriate place.¹

Mr. SOLARZ. Thank you very much.

Why don't we go and vote and then return as quickly as possible. Dr. Wolfe has to leave—I think he said—by 3:30 or quarter to 4:00. So we'll try to get back as soon as possible.

[Brief recess is taken.]

Mr. SOLARZ. The subcommittees will come to order.

Mr. Bilbray, would you like the honor, the distinction and the pleasure of leading off with whatever questions you may have?

You have no questions.

Mr. Atkins, as a reward for your attendance today, although you usually have a very good attendance record, you may begin.

JAPAN AS EXPORTER OF NUCLEAR TECHNOLOGY

Mr. ATKINS. Thank you very much, Mr. Chairman.

Let me just if I could ask about the witnesses' Europe perception in terms of the Japanese nuclear industry. It's my understanding that the Japanese are orienting their nuclear industry as they do most of their other industries, towards exports. That Japan presently does not have any requirements that countries that receive Japanese nuclear exports comply with the Nuclear Non-Proliferation Treaty. And I'm just curious as to your sense as to how this treaty would affect that and how important that issue is.

Dr. WOLFE. I'll be happy to take a try at this.

The fact is, Mr. Yatron, is—who is it?

Oh, Mr. Atkins. Excuse me.

Mr. ATKINS. Twenty years difference in seniority. That's all right.

Dr. WOLFE. So is my inexperience in this field.

Mr. ATKINS. Same physique, different seniority.

Dr. WOLFE. The fact is that the Japanese are not exporting any significant equipment at the present time, although I believe in Japanese style, they look toward a major export program in the future as their technology expands.

Mr. ATKINS. Is there any question about that, though? I mean, it would seem to me that follows as a natural thing.

Dr. WOLFE. I think that in the future, they will be an exporter of nuclear technology worldwide. I would think that the agreement

¹ Mr. Roth's prepared statement appears in app. 2.

that we are negotiating with them now would lead them to adopt the same kind of agreements with the people to whom they export, and so I would think that the present agreement would be a help.

You weren't here when I gave my testimony, but as I indicated, my belief is that under the present agreement or if this agreement is not ratified that we will lose all influence in Japan, and the Japanese will proceed independent of us.

I should point out that the Japanese are, I think, at the forefront of non-proliferation activities in the world, so even without us, I believe, but we would not have the influence in that case, I believe they would behave responsibly.

CONDITIONALITY ON JAPANESE NUCLEAR EXPORTS

Mr. ATKINS. In that case, Dr. Wolfe, what possible objection would the Japanese have to putting a requirement onto this agreement which would require that any exports, Japanese exports of nuclear material be only to countries that observe and obey the Nuclear Non-Proliferation Treaty?

Dr. WOLFE. I think that's already in this agreement, that any material of U.S. origin, which is the only thing we control in the old agreement, has to be—

Mr. ATKINS. That's true for material of U.S. origin of course. I'm talking about the growing Japanese exports of Japanese equipment and why we shouldn't control that.

Dr. WOLFE. Well, let me just say, the new agreement requires that any export of material originating in the United States or any material that is produced in Japan from U.S. reactors or U.S. special equipment has to come under the same kind, has to be exported under the same kind of an agreement.

And I think the precedent would be such that I would find it difficult to believe that the Japanese would agree to transport material in that category under one set of agreements, and non-U.S. under another one. But let me just point out, the present agreement, the one which will remain in effect if we do not pass this one puts no requirements on them with respect to material of non-U.S. origin being exported. Including, for example, uranium which was radiated in U.S. reactors and turned into plutonium which was reprocessed and then sent out of Japan.

Mr. ATKINS. Dr. Wolfe, then you don't see any reason for Japanese objection to an amendment to this agreement which would require them to export all of their nuclear materials under the same strictures that materials that are of U.S. origin are exported?

IAEA MEMBERSHIP EXPORT RESTRICTIONS

Dr. WOLFE. I of course can't speak for the Japanese, but let me make one other point. The Japanese are a part of the International Atomic Energy Agency and so have the restrictions to meet the IAEA non-proliferation goals which requires that they put restrictions on any material they ship out there, U.S. or otherwise.

The present agreement, the new agreement requires that they maintain their membership in the IAEA so that in effect the present agreement does exactly what you are asking. I mean, the

new agreement does exactly what you are asking. The present agreement has no such requirements.

Mr. ATKINS. Just a membership in the IAEA is not, I don't believe is sufficient to stop them. Isn't there some trade between Japan and Argentina and South Africa in nuclear materials presently?

Dr. WOLFE. I believe the only trade is that the Japanese buy uranium, some of which may come from South Africa. I don't believe they export.

Mr. ATKINS. They don't export anything to either of those countries?

Dr. WOLFE. That's my understanding. I don't know of any that they export. And I think the IAEA requirements which we helped to develop are meaningful. They're not non-meaningful.

Mr. ATKINS. They're meaningful, but there's nothing in the IAEA requirements that would prohibit Japan from exporting nuclear materials to Argentina or to South Africa.

Dr. WOLFE. The IAEA requirements require that the export materials, sensitive materials only under guidelines which the IAEA agrees to be part of it which are designed to prevent use of that material in weapons.

Mr. ATKINS. But that's separate from the requirements in the Non-Proliferation Treaty, and under the IAEA, they could export, say, to Argentina, which is not a signatory to the NPT.

Dr. WOLFE. There I am not sure. I believe that the conditions are such that they cannot ship material to a country that might use it, without restrictions that would prevent that country from using it for military requirements. That's basically the IAEA position.

Mr. ATKINS. Mr. Leventhal.

AGREEMENT SETS PRECEDENT ON COMMERCIAL PLUTONIUM USE

Mr. LEVENTHAL. I think I can amplify on that simply by pointing out that even the United States is free to export, and has exported certain items to Argentina, a non-party of the Treaty. We can't export whole reactors or fuel, but we can export certain components like heavy water, and we did approve a transfer of U.S.-origin heavy water to Argentina.

On the broader question, I think Japan's non-proliferation credentials are impeccable today, and there's no reason to assume that they will not remain so. But the fundamental concerns of this agreement go beyond the here and now to considerations that can't be predicted today.

Putting Japan to one side, the precedent set by this agreement is something that we have to grapple with today. We cannot signal to the world community that we are no longer concerned about widespread, large-scale, commercial use of plutonium.

So I think Japan's non-proliferation credentials are not the issue here. It's the fundamental question of the terms of this agreement and the extent to which it sets a precedent that will result in recovery of plutonium in enormous quantities. The amount of plutonium produced in spent fuel worldwide by the year 2000 is going to approach 2,000 tons. Two thousand tons of potential nuclear weapons material, of which maybe 400 tons will have been separated

into weapons-possible form by that time, if all present plans go forward.

Compare that with the 200 tons that the U.S. and the Soviets have, combined, in all of their weapons today. That, I think, is the fundamental issue here. We have to try to appeal to the Japanese, as best as we can, to look at it from a broader perspective than their very narrow focus on their own energy concerns today.

Mr. SOLARZ. The House now has a vote in progress. I apologize for these interruptions. I think we may have at least an hour after this vote, so we'll have an opportunity to pursue these matters at a more sustained length. We stand in recess for about ten minutes.

[Brief recess is taken.]

Mr. SOLARZ. The committee will resume its deliberations and considerations.

Mr. Leach.

AMBASSADOR GERALD SMITH ON PROPOSED AGREEMENT

Mr. LEACH. Well, I just wanted to address two questions to the critics, or one question to the two critics.

Last week, Gerard Smith, who is as distinguished as anyone I know in the arms control community—in fact, having once worked for him, I rather revere him, indicated that he felt this agreement was a) dramatically in our best interests, and b) a continuation of the Carter Administration policy and, in fact, implicitly a better agreement than he thought could be negotiated.

So the question is not so much what are the shortcomings of the agreement, but aren't we better off with this agreement rather than having no agreement at all?

Sir?

Mr. LEVENTHAL. I would be pleased to respond to the point of view put forward by Ambassador Smith. It's one that I fundamentally disagree with. I think, frankly, it represented a turnaround of the Carter policy and has led to the kinds of problems we're facing today.

The Smith perspective is that the basic relationship with Japan takes a far higher priority than any concerns we may have about plutonium in Japan. And I think—

Mr. LEACH. Excuse me. I don't think that's the position advanced by Mr. Smith. I think you're putting up a straw man. Nowhere in this article does he suggest that. In fact, he says specifically in terms of the points of argumentation, that "First, it strengthens American influence over the Japanese nuclear energy program as compared with the existing agreement," and, "second, the agreement provides greater stability in nuclear commerce between the two countries."

Those are the two arguments that he hangs his hat on. There is nothing in his argumentation that I have seen that says that the overall Japanese bilateral arrangement is more important than the concerns involved in this agreement.

Mr. LEVENTHAL. I would refer you to an article that he coauthored with George Rathjens right at the end of the Carter Administration, in which he essentially proposed the policy that has become the Reagan Administration's policy. The fundamental

reason given for that policy, as I recall the article, was that differences over plutonium represent an unfortunate and unnecessary irritant in U.S. Japanese relations.

I believe that's the basic perspective from which he is coming. Now, granted, it is not spelled out in the op-ed article from the Washington Post, but I believe that fairly characterizes his basic approach to this issue.

The only thing I would add is that I disagree with his conclusion that the U.S. gains control and influence by means of this agreement. While I have a high regard for the work he has done in the strategic arms control area, I am frankly critical of his approach to nuclear non-proliferation. Implicit in it is the assumption that the fundamental bilateral relationship of allies has to take precedence over non-proliferation and terrorism concerns relating to plutonium in their nuclear programs.

Mr. LEACH. Well, I just want to make it clear again that you've placed a straw man in the record that does not respond to the questions that I raised. And it's a straw man which I would doubt very much that Mr. Smith would adhere to.

You've also raised one character argument that I do think is fairly important. You've suggested you admire him in his arms control work but not his non-proliferation work. They are one and the same. The Non-Proliferation Treaty is an arms control treaty. The INF agreement is an arms control treaty, it's also a non-proliferation treaty.

To make that distinction, I think, is very unfair to Mr. Smith.

Now, having said that, is it not true that this agreement is stronger than the existing agreement?

COMPARISON OF EXISTING AGREEMENT TO PROPOSED AGREEMENT

Mr. LEVENTHAL. I think it is not. I do not believe it to be as strong as the present agreement. Under the present agreement, the U.S. has clear, unqualified consent rights over applications of plutonium produced through the use of U.S. supplied fuel, while under the pending agreement, we do not.

And I believe, it becomes impossible to assert, as Ambassador Smith does, that we gain greater control when we give our consent up front, for the duration of the agreement which is a minimum of 30 years, with suspension rights that are highly qualified and essentially not applicable in a real-world situation.

AMBASSADOR SMITH'S NEGOTIATING AUTHORITY

So, I do not agree with the basic viewpoint of the article. And I would also disagree that the approach he espouses in this piece represented the Carter policy. It represented how he wanted to move the Carter policy.

There were disagreements within the executive branch of the Carter Administration over the approach that Gerard Smith was taking in the final year and a half or so. That might be something that the committee might want to look further into.

Mr. LEACH. But you wouldn't deny that he was the chief negotiator for the Carter Administration?

Mr. LEVENTHAL. He was the chief negotiator but I'm not sure that he had authority of the President to pursue the approach that he suggests was indeed the Carter policy.

Mr. LEACH. You know, I'm a member of Congress and I listen to some critics of the INF accord and all arms control agreements argue these guys didn't have the authority of the President to negotiate that. I mean, I've never known a negotiator not to have the authority of the President of the United States.

Now, it has been true that in a few instances, negotiators have stepped beyond precise guidelines. But to suggest that our chief negotiator, a man of the stature of Gerard Smith, didn't have the authority of the President, I think, is a misunderstanding of our constitutional process.

Mr. LEVENTHAL. Let me state it this way. There were differences within the Carter Administration over the approach that Smith was taking. The question is what did the President himself say or do when Smith's proposal was made directly to the President. And there, I think, the committee could perhaps get further information.

IS NEW AGREEMENT CONSISTENT WITH CARTER NON-PROLIFERATION POLICY

Mr. LEACH. All right, Mr. Smith states in his Washington Post article, "The new agreement is similar to one I was authorized to explore with Japanese officials in 1980."

Is that statement a fabrication?

Mr. LEVENTHAL. I think the best way for me to answer that is to say that I have reason to believe that, because of the differences raised within the Carter Administration over the policy that Smith espoused, the President's own viewpoint may not have been as enthusiastically in support of what Ambassador Smith proposed as he is suggesting in that article.

Mr. LEACH. I want a precise answer to this question.

The statement is, "The new agreement is similar to one I was authorized to explore with Japanese officials in 1980."

Is that true or false?

Mr. LEVENTHAL. I can't say.

Mr. LEACH. No one is enthusiastic to a hundred percent on policies that come to be put forth, but they either authorize or they don't authorize.

Is that a true or false statement?

Mr. LEVENTHAL. I have no way to know either way what the President specifically—

Mr. LEACH. But the implication is that you are calling Gerard Smith, well, to put it mildly, you're saying he is misrepresenting a position. All I can say, sir, is I don't know you. I worked for Mr. Smith, and there's no one I know in the history of this Government that has more integrity. I would not have the slightest doubt that this is a valid statement. And you're suggesting that it isn't. That's a very strong suggestion. If you can validate that, I would be very interested in it. I'm confident that there are people in the administration from all perspectives that would think it too weak and too

strong, but I am also confident that Gerard Smith would not mislead in a carefully written article.

NEGOTIATING INSTRUCTIONS ON NEW AGREEMENT

Mr. LEVENTHAL. Let me say this, Congressman. Clearly, the negotiating instructions in any Administration are classified, so therefore I can't speak of my own knowledge as to what those instructions actually were. But I think that information is available to the Committee in terms of a written record if you wanted to explore it.

I think there's also an indication that the present ambassador for Non-Proliferation far exceeded his negotiating instructions and I think that's something the committee surely can, and should be, looking into in terms of a determination as to whether this agreement is in the U.S. national interest.

Mr. MILHOLLIN. Mr. Leach? Mr. Leach?

Mr. LEACH. No. I would not like to be interrupted for this second.

Mr. MILHOLLIN. I'm sorry.

Mr. LEACH. A very powerful statement has been made. You are suggesting that this agreement is flawed because our negotiators exceeded their directions and their mandate and that this agreement is being sent out to the Congress under a false flag?

Mr. LEVENTHAL. This present agreement?

Mr. LEACH. Yes.

Mr. LEVENTHAL. I would urge you to look at the classified letter from former Secretary of Defense Weinberger as to how he characterized the agreement, in order to get a better sense as to whether it was negotiated fully in accordance with the negotiating instructions of the President.

Mr. LEACH. Yes, Mr. Milhollin?

Mr. MILHOLLIN. You said that you would like to hear the views of some critics.

Mr. LEACH. Sure.

Mr. MILHOLLIN. With respect to Ambassador Smith's position.

OPPOSING NEW AGREEMENT

Mr. LEACH. Well, first may I say, there's one question that hasn't been answered yet. Is this agreement better than no agreement?

That was my initial question 15 minutes ago.

Mr. MILHOLLIN. I'd like to respond to that if I might?

Mr. LEVENTHAL. Well, could I just answer that quickly.

Mr. LEACH. Yes.

Mr. LEVENTHAL. I would say that this agreement is worse than no agreement because no agreement would simply keep in force the present agreement under which U.S. consent rights are fully preserved. And I think that is the most important aspect of our non-proliferation policy.

RIGHTS VS. INFLUENCE

Mr. LEACH. Mr. Milhollin?

Mr. MILHOLLIN. I wanted to say that I have spoken to Ambassador Smith privately about non-proliferation questions and have a very high regard for him as you do.

I think the disagreement that I have with his judgment about the proposed agreement may be found in the difference between rights and influence.

We have certain rights under the existing agreement that we won't have under the proposed one. And the rights under the present one are very clear. They have a history of being exercised and they can be exercised for fifteen more years. Those rights will be absent under the present agreement.

Now, it's a question of judgment whether by giving up your rights, you get more influence. Ambassador Smith thinks that we do. I must say that I disagree with that. I think that countries tend to follow their own interests, especially over long periods of time. And rights can be enforced. Influence tends to wax and wane according to the moment.

Perhaps it's because I'm a lawyer, I'm more comfortable having rights than influence, because as I said, rights exist and influence is a matter of the moment.

I think one of the arguments we've heard today is that influence will be greater under the proposed agreement because of increased sales of uranium, whereas under the existing agreement, our sales of uranium will go down, and with it, our influence.

That's the arguments I've heard from the witnesses who endorse the agreement.

I think that's an assumption that can't be proved. I think Japan will buy its uranium where it's in Japan's best interest to buy it. Under the proposed agreement, as under the existing one, there is no connection between Japan's uranium purchases and the agreement. The connections which exist which give us influence are consent rights.

We can use those consent rights to influence what Japan does about protecting plutonium and about accounting for it, tracking it. We have rights which we can enforce.

Influence we will have perhaps. Rights, I'm sure we have. We've used those rights in the past. We've used them in the case of Switzerland.

A few years ago, Switzerland wanted to sell a heavy water plant to South Africa. South Africa has only light water reactors. It didn't need a heavy water reactor for any civilian purpose.

We held up Switzerland's spent fuel transfers because we controlled them with our consent rights because we had sold Switzerland the fuel. We held those up because of that concern about Switzerland's export policy.

And this goes to the question Mr. Atkins asked a minute ago about Japan's export policies. Through the consent rights, we can influence what Japan does in the export trade for as long as the present agreement exists because we have the consent rights. We used it to influence Switzerland. We can use it for other purposes.

RIGHTS IN NEW AGREEMENT ENUMERATED

Mr. LEACH. Mr. Chairman, my time is expired.

I would like, though to place in the record that even though I'm not conversant with the letter of Secretary Weinberger, it's my un-

derstanding that Secretary Carlucci does support this agreement and he is the current Secretary of Defense.

Secondly, it's my understanding that the basis for the argument for strengthening influence is one that is also rooted in the notion of expanding consent rights and guarantees, at least in the following areas.

That this agreement would require IAEA safeguards on all Japanese equipment and nuclear materials, not just that subject to the current agreement.

It would expand U.S. consent rights over storage.

It would require prior U.S. consent over the reprocessing and alteration not just of U.S.-origin material but also non-U.S.-origin material used in U.S. supplied reactors.

It would make explicit the prohibition against use of U.S.-origin material or material produced with U.S. equipment for peaceful nuclear explosions, and the perpetuity of safeguards is required.

Now I just make that point to show that we don't have the abstract issue simply of rights versus influence. There are a lot of rights in this agreement. Some of those rights are new and extended over current rights that exist.

I think that ought to be placed on the record so that we don't get the impression that it's a rights versus influence or goodwill type of contrast and circumstance.

BLANKET APPROVAL NEGATES CONSENT RIGHTS

Mr. MILHOLLIN. Would you like for me to respond to the increased rights?

Mr. LEACH. I'd be delighted but I would only defer to the Chairman. I have far exceeded my time and there are other members.

Mr. SOLARZ. I think it would be useful to the committee if you could respond to this seemingly impressive list of new rights, or expanded rights, which the agreement gives us in relationship to the existing agreement, particularly in light of your view that we're worse off with the new agreement than we would be without a new agreement.

Mr. MILHOLLIN. I think it's clear that we have fewer rights. The other witnesses today have indicated that we will be able to have consent rights over materials which are produced with the use of U.S. equipment, and that's a new right under the proposed agreement. But in fact, if we give up our consent rights and give blanket approval for 30 years for the use of the material, then our consent rights don't—there's no way to exercise the rights. That is, abstractly, we have them, but under the implemented agreement, we give them up in advance for thirty years.

So I question how meaningful it is to say that we have these additional rights, and the vehicle for using them, which is the consent right, we give up.

HIGH THRESHOLD FOR EXERCISING SUSPENSION RIGHTS

Mr. LEACH. If I could interrupt just briefly here.

Mr. MILHOLLIN. Sure.

Mr. LEACH. It's not exactly that we're giving up consent rights. We're giving a blanket approval with the right of suspension of

that approval. That's a massively different interpretation from the black and white description that you've given us.

Mr. MILHOLLIN. Well, the suspension can occur only in specified conditions which are laid out in the agreement. There's such a high threshold for exercising those suspension rights that I think it's clear that Japan would have to do something so severe that it breached the agreement for us to use the suspension rights. And under international law if they breach the agreement, we can use the rights anyway.

ECONOMIC CONSEQUENCES OF REJECTING NEW AGREEMENT

Mr. SOLARZ. The gentleman from the State of Washington, my fellow co-chairman, Mr. Bonker.

Mr. BONKER. Thanks, Mr. Chairman.

To any of the panelists, if Japan wants to use plutonium as reactor fuel, it would necessarily have to replace the natural uranium it is now buying from U.S. enrichers, both commercial and the U.S. Department of Energy, and that would in effect reduce Japan's import of this material from the United States.

As I understand it, it's more costly for Japan to use plutonium as a reactor fuel than it is to rely on imported enriched uranium. Anybody have any idea how much more costly that would be?

Dr. WOLFE. Well, I've written papers on it. As I've indicated, I am not in favor for commercial reasons of plutonium recycled in light water reactors. The penalty, according to my calculations, is roughly a half a mil per kilowatt hour, as much as that for using plutonium recycle under today's economics, which when you multiply the number, it represents many millions of dollars if you do it. So economically in today's light water reactors, it doesn't make I think economic sense.

Let me just answer your question on the reduction of the purchase of uranium. It doesn't make that much difference in light water reactors. It reduces the amount of uranium by about 20 percent, not an astronomical amount.

But if this agreement is not signed, is not agreed to by the United States, the clear response of the Japanese in my view is to reduce purchase by the Japanese of fuel from the United States as much as they can by going to Europe where they don't have the same kind of case by case requirements that the U.S. implies.

Mr. BONKER. Are you suggesting that if they don't receive some kind of blanket authority and they have to continue with case by case, that they're going to go to other suppliers?

Dr. WOLFE. Absolutely as we would in the circumstances. This case by case is not just a trivial response. It takes five government agencies to approve and typically it takes a year or a year or two to get an approval, and no one is going to subject their—

Mr. BONKER. Well, what does this represent as a lost export potential?

Dr. WOLFE. Pardon me?

Mr. BONKER. In terms of our trade relations with Japan, you suggested that if they seek other suppliers, we're going to be denied a market there. What does that amount to in terms of trade?

Dr. WOLFE. Today they import about \$300 million a year of our uranium and another couple of hundred, few hundred from organizations such as G.E. and Westinghouse and others. And I think with time that—

Mr. BONKER. So we'll lose markets there?

Dr. WOLFE. Pardon me?

Mr. BONKER. We're going to lose markets there if we don't—

ENERGY INDEPENDENCE OVER ECONOMIC CONSIDERATIONS

Dr. WOLFE. Oh, I think there's no question that we're going to lose market because they look at their energy situation as an absolutely critical part of their national welfare. And they, like we, are not going to subject their energy policy to external influences which they don't agree with.

Now, you can argue about plutonium recycle, the pros and cons as I told you. I happen to agree more on that one with Mr. Leventhal than I do with the Japanese in terms of the economics. But if you look at things like energy security, and from the Japanese standpoint, the fact that they have no indigenous energy supplies, they look at plutonium recycle as a way to ultimately develop a breeder economy which would make them energy independent.

And so from their standpoint, any interference in this threatens their national welfare. I might say that it's not an easy argument. You can argue whether, in my view, you can argue whether plutonium recycle in Japan is as much of a threat as the Persian Gulf oil situation. We don't have our Navy in the Persian Gulf to protect our tourists.

So it's not a simple situation, and their attempt to become energy independent it seems to me has merit to it. I think this is the wrong way to do it. I think, though, that the ultimate goal of reducing energy requirements with oil is something we ought to be doing as well as they.

Mr. KEARNEY. Mr. Hamilton, could I say a few words on that, please? Mr. Bonker. Excuse me.

Mr. BONKER. As long as you address me by the right name, you can say whatever you want to.

Mr. KEARNEY. I apologize.

I certainly agree with what was said by the last gentleman.

In 1976, the Edison Electric Institute and the Japanese utility industry conducted a detailed study of the fuel cycle. And at that time, we concluded that plutonium recycle in light water reactors was economical, but it was very sensitive to several things, such as the cost of uranium which was projected to go up; but which has now gone down.

So I think from the economic point of view, it probably would make sense not to recycle. But as has been pointed out, there are other considerations, and apparently, energy independence is one of them.

There was also a remark about the amount of trade between the United States and Japan. DOE Deputy Secretary Martin in his testimony—I believe it was before the Senate—estimated that between now and the year 2,000, as far as goods and services are con-

cerned in the nuclear fuel cycle, DOE estimated that Japan would import \$3 billion worth from the United States.

PLUTONIUM NOT WEAPONS GRADE MATERIAL

Dr. WOLFE. Could I make—I've got to leave. And Paul, would you let me make one statement and leave, if it's all right, Mr. Chairman?

I'd like to just make one point. I hear everyone talk about tons of weapons grade material. Let me make the point that this is not weapons grade material as generally defined. It's plutonium which can perhaps be made into a bomb but it is not the material that you'd make thousands of bombs or hundreds of bombs as implied. It's very poor material on which to do it.

JAPAN MAY TURN TO OTHER COUNTRIES

The other point I'd make again is that we've already demonstrated that when we tried to inhibit the Japanese in terms of their national welfare, they do go to other countries as I've indicated in France and they've got a French reprocessing plant. They're developing their own enrichment.

So our thought that if we keep this requirement, we prevent them from doing what they think is in their own best interests I think is just plain not credible.

ACCOUNTABILITY IN NEW AGREEMENT

And I would just make one other point that it seems to me with respect to the conditions that Mr. Milhollin asked the Japanese to put on their plant, in effect, they are doing it, they will do it. And the new agreement gives us the right to put conditions on their reprocessing and plutonium and fuel storage facilities, I can't see why we'd agree to have less stringent requirements than we put on our own requirements.

I think that there's accountability that will be put in, and the only thing that I would say is there's a certain mathematical requirement that makes it very difficult. If you look at the mathematical requirement, you have to back it up with movie cameras and inspections and physical which clearly they're going to do.

So it seems to me this new agreement gives us that control which we don't have in the present agreement.

I leave by saying the present agreement in my view is almost worthless in terms of the long term because it applies only to U.S. supply.

Thank you for your patience.

Mr. SOLARZ. If the gentleman will yield on that particular point, on page 12 of Mr. Milhollin's testimony, he specifies three conditions which he thinks ought to be enacted if we decide to approve this agreement.

If I understand you correctly, you're saying that in fact we not only would have the right to do each of the things he would like us to do under the terms of this agreement, but that in fact we would do precisely that anyway?

Dr. WOLFE. We would have the right, and I presume we would do it with the one. I just wanted it made that one elaboration that some things may be mathematically impossible to do.

Mr. SOLARZ. To the extent that we already have the right under the agreement to do it, and to the extent that we would presumably exercise that right, do you see any problem in incorporating these recommendations into a resolution approving the agreement?

Dr. WOLFE. Mr. Solarz, you've gone beyond my capability. I don't understand how the politics works here. I would think that the strong Congressional direction to the Executive Branch and the Executive Branch agreement is all that would be required. The politics in the international field, I just have to tell you, I'm not an expert on. And how that would affect the Japanese attitudes, I just don't know.

VALUE OF UNITED STATES NUCLEAR EXPORTS TO JAPAN

Mr. BONKER. The Chairman often goes beyond the scope of most of the witnesses who appear before the Committee, so that's not unusual.

I'd like to settle this cost factor for just a moment, because we have differing estimates here. The President has stated that our exports to Japan could amount to \$1 billion or more each year in the coming decade, but in statements from DOE, we've seen figures that Japan is expected to buy only \$260 to \$435 million worth of U.S. enrichment materials, so?

Mr. KEARNEY. May I make an observation on that?

Mr. BONKER. Yes.

Mr. KEARNEY. I believe the DOE statement is referring to enrichment services only. Whereas the larger number refers to not only enrichment services but other purchases in the United States. They may be fuel, the natural uranium fuel. It might be services from some of the vendors or architect engineers.

Mr. BONKER. But has anybody ever documented a figure? I mean, I assume DOE has. But—

Mr. KEARNEY. We have not. We don't have the expertise.

Mr. BONKER. Does anybody know where the President got the \$1 billion figure? I know it's nice to round off figures.

Mr. KEARNEY. I have indicated what Mr. Martin had said in testimony. I can't verify it; but I'm sure DOE could.

Mr. BONKER. Well, I think it is a valid factor if we lose export sales, we can document that, but of course, that's only one of many factors that go into our consideration of this bilateral agreement.

GENERAL STATE OF SAFEGUARDS IN JAPAN

Lastly, what is the general state of safeguards in Japan on reprocessing plants and facilities that use plutonium? That question may have been asked earlier. If it has, I'll just look at the record later.

Mr. KEARNEY. I'm just not an expert in that field. I can't tell you.

Mr. MILHOLLIN. I'll hazard a guess. The studies I've seen of safeguards performance have varied but it's generally assumed that you can't do better than plus or minus one percent in a reprocess-

ing plant. Even that, I think, is an optimistic number. There are reprocessing plants in the world which have functioned as high as ten percent material unaccounted for. That's a staggering percentage which we wouldn't expect to see in Japan.

But still, I think plus or minus one percent is a reasonable number, and if you just do a simple mathematical exercise, you can figure out that that would mean that you have hundreds of critical masses unaccounted for if the kind of extraction is carried out that's being talked about.

Mr. SOLARZ. The gentleman from Michigan, Mr. Wolpe.

URANIUM SANCTIONS AGAINST SOUTH AFRICA

Mr. WOLPE. Thank you, Mr. Chairman.

I'm going to raise with Mr. Leventhal for a second an ancillary nuclear question related to South Africa which came up earlier but which has some bearing upon this discussion, I think.

The comprehensive Anti-Apartheid Act of 1986 banned the importation into the United States of South African and Namibian ore and uranium oxide. Unfortunately, the administration interpreted this ban so as to exempt uranium hexafluoride which is essentially uranium oxide changed into a gas before it is enriched and becomes uranium oxide again.

Now, it's my understanding from the industry press that the leading importers of South African uranium into the United States are six Japanese utilities: Kansai Electric, Chugoku Electric, Chubu Electric, Hokkaido Electric, Tohoku Electric and Tokyo Electric. And that there's evidence that some of these utilities have begun to import uranium hexafluoride into this country.

I would regard this as a direct undermining of our uranium sanctions against South Africa. I wonder if you could comment on that and whether it might make sense to condition any nuclear cooperation agreement with Japan on its conforming to this aspect of our nuclear policy toward South Africa?

Mr. LEVENTHAL. You accurately state the loophole that exists in the sanctions law, which specifically bars importation of uranium in ore or oxide form from South Africa or Namibia. The sanctions law has been interpreted by the administration and by the Nuclear Regulatory Commission to permit conversion of ore into oxide elsewhere and the subsequent importation for enrichment here of South African and Namibian uranium in hexafluoride form.

We brought a lawsuit. In fact, I believe you're a party to that suit, Congressman Wolpe, with the Lawyers Committee on Civil Rights Under Law. That suit is now on appeal in the Circuit Court of Appeals here in the District. It's not clear whether, indeed, this loophole will be found to be unlawful.

Assuming for the moment that hexafluoride imports of South African and Namibian origin will still be permitted, then there is a substantial loophole. In fact, as we understand it, about 40 percent of the uranium that Japan has enriched here is of South African and Namibian origin. Indeed, the enrichment done for Japan totals about \$250 million a year, out of a total of \$300 to \$350 million a year done for foreign customers. Of that \$250 million, about 40 percent represents South African and Namibian origin uranium.

It would seem that a conditional resolution of approval might be an appropriate vehicle to cut off importation of South African/Namibian uranium for Japanese utility customers. It would be a way to close the loophole and, personally, I think we would support that. The preferred route, of course, is to amend the sanctions law to specifically bar importation of South African/Namibian uranium in any form.

Yet there is an opportunity here, and perhaps it should be seized upon. We surely would not discourage the committee from doing so. It would eliminate a substantial amount of South African and Namibian uranium from coming into the United States.

Mr. WOLPE. Well, we will of course also be exploring that in relation to our consideration of new sanctions legislation that will begin in just a matter of days in my subcommittee.

ASSESSING FUTURE OF UNITED STATES-JAPAN NUCLEAR RELATIONSHIP

One of the arguments that's been advanced, if I understand the industry proponents of this agreement, is that it's good for American commerce, that under this Agreement, we will become a more reliable source of supply for Japan and that will enhance our trade.

Is not one of the consequences of the ability of the Japanese to more easily acquire plutonium diminished demand for uranium, for American uranium?

Mr. KEARNEY. Well, first of all, I don't think it's a matter of increasing. It's a matter of continuation of the agreements between the Japanese utilities and United States utilities and vendors. To the extent that there would be some decrease in the amount of enriched uranium because of the fact that there would be the utilization of plutonium would still not be as serious an impact, in my judgment, as the potential loss of the exchange of information between the Japanese and United States utilities and also perhaps the loss of other types of marketing opportunities such as the advance light water reactor work that I referred to in my testimony.

Mr. WOLPE. Would Mr. Milhollin and Mr. Leventhal care to respond to that, too?

Mr. MILHOLLIN. Yes. I think it's—I guess we're all trying to predict the future. I don't think it's credible to think that the Japanese are going to run away in a pique and stop doing business with us in the nuclear field if we don't approve this proposed agreement.

I think there's a chance that their uranium imports from us could go down, but I think it's more likely that they'll go down anyway because of substitution with plutonium fuel.

Japan, because of its trade situation with the United States, it's running more than a \$50 billion surplus, has to buy something from us. They're now buying enriched uranium which is a big ticket item which helps their trade situation with us. I think it's incredible to think that the Japanese out of spite would just run up the trade surplus because they prefer to buy it from the French.

Mr. LEVENTHAL. I would strongly support that statement. Japan is very much dependent upon the accumulated experience of U.S. utilities and the technology and expertise available from U.S. vendors, in terms of assuring the safe operation of their own reactors.

It's hard to imagine that they would just pull up stakes and sever all relationships with the U.S. nuclear industry at the vendor and utility level.

I think it would be irresponsible of them to do that because of the experiential base that they use to check and improve their own technology and the performance operating experience of their reactors.

Mr. KEARNEY. Mr. Wolpe, could I just make a—

Mr. WOLPE. I'm sorry?

CASE-BY-CASE APPROVAL PROCEDURE

Mr. LEVENTHAL. Excuse me. I would just like to finish my thought. It does go back to something that Congressman Bonker referred to, or I should say Dr. Wolfe referred to in responding to Congressman Bonker. The assertion was made that the Japanese will take their business elsewhere because the case-by-case approval process has been so onerous from their perspective.

We did a little bit of research as to how case by case approvals have actually worked and I would in fact like to submit this for the record, but I can summarize it very briefly. Since 1978, there have been 73 reprocessing requests involving the transfer of irradiated fuel elements from Japan. Of the 73, 59 have been approved and 14 are still pending. None has been disapproved and all of these transfers have been to facilities in France and the U.K.

Of the approved requests, 79 percent were approved within six months of submission, not the years that Dr. Wolfe suggested that it might take, 56 percent were approved within four months, and 25 percent, within three months.

Of the 14 reprocessing requests not yet approved, the longest pending was submitted on September 14, 1987. And the longest delay, up to 458 days, that's the very longest, took place for unexplained reasons in the '83-'85 time frame, after announcement of the Reagan policy on reprocessing.

But anything over a year is the exception rather than the rule, and they're very few and far between.

THIRD COUNTRY ENRICHMENT FACILITIES AVAILABLE

Mr. KEARNEY. Mr. Wolpe, could I just add a footnote?

Mr. WOLPE. Sure.

Mr. KEARNEY. I think that all three of us here at the table do not have the vision or the knowledge to know exactly what the Japanese will do with or without the new arrangement. I think there is some logic to think that they may look elsewhere, but I think the important thing is to look at what they've done in the past.

We did not provide them with reprocessing technology; so they went to the French. They have already made a decision that they will build their own enrichment facilities.

They also have available to them the enrichment facilities in Europe and maybe even Russia. Enrichment facilities currently are in oversupply. So I think there's no reason why this could not be a decisive factor or a factor in what they might do.

But exactly what they might do none of us really knows.

PRECEDENT SET BY AGREEMENT

Mr. WOLPE. Let me just affirm your statement, because that's precisely the position of those of us who are concerned about the treaty. None of us do know the future.

And my concern is not so much frankly as it relates to Japan alone, but as it relates to the precedent that we will set by virtue of this agreement for our relationships not only with Japan but with EURATOM nations, with all other countries.

The fact of the matter is, we don't know what the security conditions will be around the world 30 years from now, what the terrorist potential will be 30 years from now.

We do have the Defense Department, though, recently in response to my amendment in the Omnibus Antiterrorism Act reporting back with substantial concern about the adequacy of international safeguards as it relates to the transportation and security surrounding the handling of American nuclear materials overseas.

And one of the specific statements the Department of Defense makes in its own report is to the effect that the more material that is out there, the much greater the terrorist dangers.

The public policy issues, it seems to me, are twofold.

One is, do we want to adopt a policy that for the long haul essentially has as its intention the expansion of the plutonium economy in Japan or anywhere else.

And secondly, do we want in fact to essentially provide advanced agreements for 30 years with respect to the handling of this material. You just testified we don't even know what's going to happen commercially. We certainly don't know what the security situation will be thirty years from now.

And so frankly, it is precisely the point that you just made that in my judgment provides the most persuasive case for some reassessment here as to the wisdom of this particular agreement.

JAPANESE COMMITMENT TO NON-PROLIFERATION

Let me ask on the security issue a couple of questions.

The point was made a moment ago in response to an earlier question I think by you, Mr. Milhollin, that the range of acceptable control is usually put at plus or minus one percent in terms of how much plutonium has escaped in some fashion.

Can the Japanese specifically in this instance, or other nations in fact, keep track of the large amount of plutonium that would be extracted under the agreement that is contemplated?

Mr. KEARNEY. Let me start by trying to put into focus what I think are the key issues in the present deliberations. In terms of its present nuclear activities, Japan, today, is an open society. It has been with the United States at the forefront of non-proliferation efforts. And, indeed, in cooperation with the United States and the IAEA, Japan has been helping to develop technological means to inhibit nuclear weapons proliferation throughout the world.

I doubt that anyone who has seriously considered the matter, including the opponents of the agreement, believe that Japan represents a proliferation threat in the foreseeable future.

So, the key issues, therefore, are the long-term effects of the proposed agreement on Japan and its potential effects on U.S. non-pro-

liferation policy world-wide. In both of these areas, I believe that the agreement provides highly positive results in terms of U.S. non-proliferation objectives.

If this new agreement is not adopted, we will be left with the present United States-Japan agreement which as noted expires in 2003. The present agreement, in essence, provides U.S. control rights over the disposition of spent fuel containing U.S. supplied or enriched uranium. Period. Period. That is all.

ALTERNATIVES AVAILABLE TO JAPANESE

This might have been sufficient—it was sufficient, in my view, in 1968, when Japan had no alternatives to the United States as a source of enriched uranium. But it seems to me hardly an adequate basis for exercising comprehensive control over Japanese nuclear fuel cycle activities today.

If the Japanese purchase their enriched uranium from the British or the French or the Russians or produce it themselves in the enrichment plant they are now building, the U.S. under the present agreement has no effective control over the further use of this material. None.

The reprocessing of such fuel and the use of the resultant plutonium would be beyond U.S. control or influence. The design of, and safeguards for, the Japanese enrichment and reprocessing plants, and of facilities for storage of weapons-sensitive nuclear materials would be matters in which this country would have no right or approval or influence.

ASSURING ADEQUATE SAFEGUARDS IN FUTURE

Mr. MILHOLLIN. The Nuclear Regulatory Commission has written to the Committee and pointed out that with existing accounting technology there will be unacceptably large numbers of critical masses of plutonium unaccounted for. The NRC has also suggested that before a new plant be added to the list of approved facilities there ought to be some quantitative cap on the amount of material that we can't find.

I've tried to achieve that same purpose in two of the conditions that I attached to page 12 of my testimony. It seems to me that we don't know now whether a facility in the future in Japan will be capable of being safeguarded adequately or not. I guess the difficulty I have with the agreement is that we're being asked to make a judgment in advance that doesn't need to be made, and can be made much better later with the participation of Congress. If my Condition 2 is added, then Congress would be informed of a subsequent arrangement at a later time when a reprocessing plant is added. We would know what the information is then about how good the safeguards are, and we could make the decision at that time.

IMPROVED ACCOUNTING TECHNOLOGY

Mr. WOLPE. If better accounting technology were developed, would Japan be required to use it under the contemplated agreement?

Mr. MILHOLLIN. The proposed agreement doesn't have these, I guess I would say performance standards in it. So that even if better technology were invented and it could pull down the amount of material unaccounted for, under the agreement Japan would still have the legal right to insist upon a lower accounting system. Under the new agreement, Japan has to agree to changes in accounting.

Under the existing agreement we could hold up reprocessing until Japan did agree. But under the new one that wouldn't be the case.

TIMELY WARNING OF DIVERSION

Mr. WOLPE. If plutonium were diverted in Japan, would the United States learn of it in time to react? That is, would there be timely warning before weapons could be made?

Mr. MILHOLLIN. No. The IAEA would not give timely warning. IAEA only gives timely detection. That is, there is a period of time after the IAEA detects a diversion for the IAEA to think about it, evaluate it, act on it. That time period is much longer than the time necessary to make a weapon. The only hope we would have of timely warning would be if our intelligence agencies discovered the diversion within one to three weeks, and that's a matter of chance that is independent of the agreement.

Mr. WOLPE. Under American law, "U.S. reactor fuel can only be transferred for plutonium extraction," this is from the language of the law, "when it will not result in a significant increase in the risk of proliferation beyond that which exists at the time the approval is requested."

Does the proposed agreement meet that requirement? I would ask that question of all three panelists.

CONCERNS LARGER THAN JAPANESE INTENT

Mr. KEARNEY. I'm just not an expert on it, Mr. Wolpe, but we will get somebody to answer for the record.

But let me just make an observation, and I hope I can say this correctly without getting people upset. Many of the lines of questioning here is on the assumption that the Japanese are going to make weapons.

Mr. WOLPE. Wrong. That is not true in fact, if you listened to me a moment ago, I talked about the security conditions that might obtain, as they relate to terrorist threats, to the amount of plutonium that might be available in international commerce, and to the precedent that this agreement establishes. So please do not erect that straw man. That is not the issue.

DETECTING DIVERSIONS

Mr. KEARNEY. Okay. But we're talking about a reprocessing plant, one of which exists already. And as I understand it, if the Japanese wish to reprocess fuel other than the fuel that they get from the United States they could do, whereas under the new agreement they would have to meet certain requirements. I say that from my knowledge of what I've heard today, not from my expert knowledge.

But when we talk about whether or not we would have time, or anyone would have time to see if there was some diversion or not, I'm sure that's true in the French reprocessing. I'm sure it's true in the British reprocessing. So I would think that the Japanese would want to live up to all of these standards because of their excellent non-proliferation record.

TIMELY WARNING UNDER NEW AGREEMENT

Mr. WOLPE. Could the other panelist respond to that too?

Mr. LEVENTHAL. Your specific question was to what point, Congressman Wolpe?

Mr. WOLPE. I was referencing American law, which states that U.S. reactor fuel can only be transferred when it will not result in a significant increase in proliferation risks, and I was asking if the proposed agreement met that requirement.

Mr. LEVENTHAL. I think the principal consideration here is the requirement of U.S. law that foremost consideration be given as to whether there would be timely warning of a diversion. I think, as Dr. Milhollin has already pointed out, the technical safeguards are simply not capable of doing that. In fact, the Japanese have gone through an elaborate safeguards development exercise with the U.S., the IAEA, and the French, and have learned the hard way that near real time accounting is not possible. And that presents a problem if indeed you want to depend upon technical safeguards as your last line of defense.

The administration has gotten around that by factoring in a lot of political considerations and coming up with the assumption that because Japan is a trusted ally and trading partner, and because we have commercial and other ties with Japan, we would know if something was going awry so that there would be timely warning. I think that's a highly questionable assumption. It's surely not one that was intended in the law.

So I would say the U.S. legal requirements are not met in this agreement in that regard.

DIFFICULTY IN ASSESSING FUTURE PROLIFERATION RISKS

Mr. WOLPE. Mr. Milhollin?

Mr. MILHOLLIN. The Atomic Energy Act requires that the Secretaries of State and Energy make a finding to the effect that there will not be a significant increase in the risk of proliferation as a result of plutonium transfer, spent fuel transfer or plutonium extraction.

The difficulty with the proposed agreement is that the information available to make the decision about the proliferation risk won't be valid at the time the event occurs which will increase the risk or not. We have information now, but that information won't be valid at the time when Japan wants to add new facilities. If Japan wants to add a facility ten years from now, our knowledge today won't be adequate to make a decision about the proliferation risk then. I think that's the difficulty I have with the proposed agreement.

IMPACT OF CONSENT RIGHTS ON PLUTONIUM SALES

Mr. WOLPE. There was reference made earlier by two of the pan-elists to the case of Switzerland. Could you comment on Mr. Wolfe's statement that Switzerland is moving away from U.S. origin uranium as a result of U.S. consent rights?

Mr. Leventhal.

Mr. LEVENTHAL. I think it may be true that Switzerland is beginning to acquire enrichment services from countries other than the United States. I'm not sure that their sole reason for doing so is out of pique over U.S. non-proliferation policy. Supply outpaces demand for enrichment, there is a two to one ratio right now between supply and demand worldwide in favor of the customer, according to DOE's data on the subject. The Swiss are in a position to shop around and get the best possible deal. I think the Swiss, like others, are doing that.

The point I made earlier in my testimony was that Swiss utilities are backing away from their original commitment to plutonium, probably for reasons of dis-economics, but also I'm sure for reasons of security and to avoid the political headache that goes with plutonium. They have offered to exchange, for enrichment credits, plutonium that the French originally separated for them from U.S.-supplied fuel. It's a further indication that nations like Japan, which are not energy independent, are nevertheless turning away from plutonium because it doesn't make sense. For that reason, I believe the U.S. should continue to press the original policy, as enunciated in the Nuclear Non-Proliferation Act, to try to discourage and inhibit to the fullest extent possible major commercial commitments to plutonium use.

OBLIGATION OF SUPPLIERS

Mr. MILHOLLIN. Just a brief comment. No recipient likes controls. We control plutonium in India. India doesn't like the fact that we control that plutonium and can prevent India from extracting it. Japan doesn't like the fact that we have control over Japan's plutonium. But the basis for the nuclear trade in the world is that it's done on a responsible basis and that suppliers have an obligation to follow what they sell. It's been U.S. policy for a long time to attach controls to what we sell, that is attach the right to agree to plutonium extraction.

This agreement, as the administration says, is a tremendous precedent, because this is the first time we will have given that up prospectively.

So I guess what I'm trying to do here is to urge the Committee to think through carefully what kind of assurances it needs before it gives up that prospective right.

RISKS OF STOLEN OR DIVERTED PLUTONIUM

Mr. WOLPE. The Chairman has been very indulgent, and with his further indulgence, my two last questions.

Mr. Wolfe indicated that Japan wants increased predictability and independence in its program. Isn't that reasonable? What is your reaction to that kind of argument?

Mr. MILHOLLIN. I think it is perfectly reasonable for Japan to want independence, as any recipient wants independence. But it is our obligation to only grant that independence insofar as our own interests are protected. Unless Japan's plutonium program can track plutonium adequately and can promise to protect it from theft under a high standard, then we have an obligation to insist on more. Because, let's face it, if plutonium is stolen, well, I think it's far less likely that any American is going to be damaged by plutonium falling out of the sky accidentally in an airplane than the risk that somebody is going to steal plutonium in Japan because there is so much of it, and it's so hard to keep track of, and human beings are fallible everywhere. And that plutonium, if it gets into the Black Market in the world, which it will, it will go to the highest bidder and it could very well wind up in this city.

So if you're just trying to predict the risks to yourself or to us or to the United States, I think that the theft of plutonium or diversion of it from storage and use is greater than from transport.

RELIABILITY OF UNITED STATES AS SUPPLIER

Mr. WOLPE. Mr. Leventhal.

Mr. LEVENTHAL. Could I just comment on the predictability part of that? I cited some numbers earlier to show that we have been a highly predictable and reliable supplier to Japan. I must say that I, personally, take offense when I read, as I did in the trade press, some spokesman for Japanese utilities suggesting that the United States has not been a reliable supplier. I know of no example where the United States has not been a reliable supplier. In fact, Japan's energy security today is largely the result of the enrichment arrangements made with the United States, which have been open ended and quite reliable and secure.

United States approvals for the removal of the spent fuel for reprocessing, as I indicated, have not been subject to any unreasonable delays. So I don't see the basis for Japanese complaints that the U.S. is unreliable or unpredictable.

The one issue where we do disagree is on the wisdom and the utility of plutonium use on a large-scale commercial basis. There, as Dr. Milhollin pointed out, we have a competing interest. There is a disagreement. It's a disagreement that some would say is an unfortunate and unnecessary irritant in U.S.-Japan relations. But, I would say in response that the U.S. has a vital interest in making sure that its cities are not blown up as a consequence of terrorists acquiring plutonium in commerce as a result of the Japanese program.

So that is a legitimate interest to be pursued and one that we should not shy away from.

JAPAN WANTS PREDICTABILITY IN NUCLEAR POWER PROGRAM

Mr. KEARNEY. As Professor Milhollin has pointed out, every nation would like to see predictability in its nuclear power program. It is not inconceivable that the Japanese may look otherwise to find that predictability as they go out in the future.

Mr. WOLPE. I'm going to ask my last question. I thank the Chairman for his indulgence.

Mr. SOLARZ. I want you to know we gave you advance programmatic consent to ask as many questions as you wanted. We relinquished our case-by-case right to rule on the appropriateness of your interrogatories.

Mr. WOLPE. But I suspect that deep down, the chairman deeply regrets having granted me that blanket programmatic approval.

Mr. SOLARZ. Well, the gentleman should know that I thought his good will was more important than the preservation of my rights.

Mr. Leach.

TRADE AND CONTROL ISSUES SYNONYMOUS

Mr. LEACH. I don't have any more questions, Mr. Chairman, but I do want to lay a couple of things in the record in terms of perspective where I think we've gotten a little off track, frankly.

First of all, we as a country, have major trade concerns. But also, as I think everyone recognizes, they are not exclusive concerns. However, this is not a trade versus control issue. We will be keeping certain controls. At issue is whether or not those are adequate, but I don't think there is any issue of whether our controls under this agreement are far greater than the controls if Japan were to go elsewhere. So there is no dichotomy of trade interest versus control interest. They are synonymous. The United States has a vested interest in trading and controlling, and this agreement is in that direction.

U.S. LAW WILL PREVAIL UNDER NEW AGREEMENT

Secondly, we do not have an issue of controls versus no controls as has been implied here because of a number of factors, one of which is, and I think it has been misleading from Dr. Milhollin, that suddenly the only standard will be an international one, not United States law. That is untrue.

What we will be doing is keeping United States law intact. But, instead of giving affirmative case-by-case approval in advance, we will be giving blanket approval with the right of veto at any point in time. In other words, United States law will prevail. We will have the right to cease cooperation. We will have the right of return of material. That is under United States law, not under an international standard.

What we will be eliminating is bureaucratic time constraints. Here there is a difference with regard to statistics. There is a difference with regard to looking at other areas of commerce, and a difference in regard to confidence about America in the future that I think we ought to understand. Let me give a couple of examples.

Mr. Leventhal has suggested that we have not had any major problem with approval. Yet he has also indicated, to turn the statistics around a bit, that in 21 percent of the cases it took over six months to approve.

If we look at the long term issues from a Japanese perspective, and the U.S. government cut off trade in soy beans, I would think to myself perhaps we might have some problems in other areas a little more explosive than that.

If we are to look at the long term, we may be concerned about a more militarist Japan. They may not have great confidence in our

leadership. It might be perceived that a Mr. Carter or Mr. Reagan are now mainstream American politicians, but would Mr. Robertson or would Mr. Jackson be considered mainstream American politicians?

In any regard, all I am raising is the fact that I think the dichotomy of distinctions that has been drawn by the panel of critics has been exaggerated. Legitimate points have been raised, and we ought to take them into consideration, but this is not an American law versus no American law, or control versus a non-control issue. It is an approach to controls.

My personal impression is the administration, given the fact that it takes two to tango—that is, that agreements have to be approved by other sides—and given also the fact that not only are we not the only supplier, but the country which is probably the principal competitor in this circumstance, that is France, is ahead of us in the technology with which the Japanese want to employ this particular material, it is not at all inconceivable that we cannot predict with any great certainty whether we will lose a major trade relationship. And, beyond that, in losing that trade relationship that we will not lose far greater controls. I think that is a perspective that has, frankly, not been presented by the critics.

SUSPENSION RIGHTS IN NEW AGREEMENT

Mr. LEVENTHAL. If I could just briefly respond to one point you made. As I understood your point, programmatic consent is okay as long as we have suspension rights, to put it very simply. If the suspension rights are there, then programmatic consent might be a reasonable way to go.

I would urge you to look at the provision of the agreement describing the suspension rights we have. I would submit that they are highly qualified, to the point that I do not think they can be exercised realistically without the Japanese having an opportunity to say that we are in breach of the agreement. And if that were done, then we are obligated to return to them plutonium—that is, a weapon state, returning plutonium to a non-weapon state, which is something that I think in the real world we would never do.

So it makes suspension virtually impossible. One of the things that I think ought to be considered by the Committee as a condition for a resolution of approval, if the administration is willing to negotiate one, is an unqualified suspension right, regardless of what Article III, Section 2 of the—

Mr. LEACH. I appreciate—

Mr. LEVENTHAL [continuing]. Agreement provides.

Mr. LEACH. I think it is also true that this agreement authorizes suspension rights in a very serious sense. I think you are describing a problem that is exaggerated.

Mr. LEVENTHAL. I would be happy to read to you from the text, if you would like.

Mr. LEACH. I would be happy to read back from Article 12. I mean we can do that all day. But the point is that we may suspend, and the point is, for example, as was suggested here earlier, although everyone denies it is a concern, that we may be concerned with diversion for weapons purposes. If the United States had evi-

dence of weapons purpose diversion under this agreement, we would suspend and could suspend. I do not think there is any doubt about that.

Thank you, Mr. Chairman.

Mr. SOLARZ. We now have a vote on the floor of the House. I have indulged the other members of the committee so far because I have quite a few questions of my own and I wanted to pursue them. So if it is not too much of a problem, if you gentlemen can wait a little while, we will recess for about ten minutes and then resume the hearing.

[Whereupon, a brief recess was taken.]

JAPANESE MOVEMENT TOWARD PLUTONIUM ECONOMY

Mr. SOLARZ. The committee will resume its deliberations.

[Pause.]

Mr. SOLARZ. Perhaps I could begin by asking you gentlemen the extent to which you think the approval or rejection of this agreement will in any way make the Japanese more or less likely to move toward a plutonium economy. To what extent do you think, regardless of what we do with this agreement, Japan will move toward a plutonium economy any way? If you can briefly respond to that, I would appreciate it.

Why don't we start with you, Mr. Leventhal?

Mr. LEVENTHAL. I think if the agreement is not approved and the existing agreement remains in force, the case-by-case approach could serve to inhibit the Japanese program, or at least to keep it at a pilot and demonstration phase longer.

My feeling is that it is not inevitable that Japan will go for a plutonium economy. Indeed, they may ultimately choose not to do it, based on the economics. This is what is happening in certain European countries that I enumerated in my testimony. Who would have imagined six months or a year ago that the German program would be where it is today, with the Kalkar breeder reactor being blocked by the state authority from receiving fuel and the Wackersdorf reprocessing plant now perhaps considered a dead letter. The entire fuel cycle industry is in disarray because of a corruption problem that never could have been anticipated.

Mr. SOLARZ. I gather that the agreement can be approved and they might decide not to move toward a plutonium economy, and the agreement could be rejected and they might decide to move toward a plutonium economy. This agreement does not obligate them to develop a breeder reactor so they may not. And even if the agreement is rejected, they might decide to go ahead anyway.

But my question is, how much of an impact on the decision is this agreement likely to have, and in your judgment at the end of the day do you think they are likely to move in this direction?

Mr. LEVENTHAL. My answer to that, Mr. Chairman, is that it is very hard to predict because there are so many factors that come into play. If plutonium use becomes more controversial in Japan as a result of the controversy that is being generated in the United States, that could have an inhibiting effect. I think the Japanese nuclear industry is very sensitive to public opinion in Japan.

The one thing that has not happened yet is that this has not become a grass roots issue in Japan as it has in other countries that have planned to embark upon a commercial plutonium program.

So, I guess the best answer I could give is that it is hard to say which way Japan will go, but that the U.S. interest should prevail, regardless. The U.S. interest is to maintain clear control over large amounts of plutonium to be recovered from U.S. supplied fuel in Japan and elsewhere.

Mr. SOLARZ. Mr. Kearney.

Mr. KEARNEY. Mr. Chairman, I start with the premise, on the knowledge of what I know about the Japanese future plans, that they are looking forward to a plutonium economy for the simple reason that they import 83 percent of their energy resources.

I think that with the new agreement or under the existing agreement, they would still proceed that way unless economics dictate something different which we do not really know, but I suspect that that is not uppermost in their minds.

What I would say is that under the new agreement, they may have to start slower, but I do not think that would inhibit their going to the plutonium economy at all.

Mr. SOLARZ. Is it your view that this agreement, whether it is approved or rejected, will have no consequences for whether they move toward a plutonium economy?

Mr. KEARNEY. I tend to agree, yes, with that statement.

COST EFFECTIVENESS AND ENERGY INDEPENDENCE

Mr. SOLARZ. I gather your view is that there are two factors primarily which will govern this. One is their desire to diminish their dependence on imported energy; and secondly, their calculations as to whether or not this is a cost effective method of generating energy.

Mr. KEARNEY. Yes, but we have to divide that into two parts. One is the plutonium recycle for water reactors, and second is the breeder economy which is their objective. I feel very strongly that at this moment they are headed in that direction, and probably correctly so given their situation.

Mr. SOLARZ. Their desire to diminish their dependence on imported energy which you referred to—is that in your view primarily a desire to diminish their dependence on imported oil or on the importation of enriched uranium from the United States?

Mr. KEARNEY. I think the main objective I would imagine, and of course I cannot speak for the Japanese, is to increase that share of energy that they use by electricity, and in so doing they would be decreasing their dependence upon oil which I think is very shaky for anybody that imports it, and consequently, it is not directed per se at decreasing enriched uranium, but rather getting as much energy out of uranium as possible.

Mr. SOLARZ. Going the route of a breeder reactor presumably enables them to do that on a more cost effective basis than they would be able to if they relied on enriched uranium?

Mr. KEARNEY. That is correct. That is at least potentially correct. We do not have a breeder economy, but they are certainly working on it.

Mr. SOLARZ. So there are really then two steps to this. First, you are saying, their main objective is to reduce their dependence on imported oil for energy by increasing the share of the energy they generate which comes from electricity. That in turn can be done more cost effectively from their point of view with plutonium and a breeder reactor than it can through the use of existing facilities which would rely on enriched uranium.

Mr. KEARNEY. Some time in the future. You just do not go there overnight.

Mr. SOLARZ. I understand.

Mr. KEARNEY. I think that is their objective. But really that is a question for the Japanese.

Mr. SOLARZ. Right. But nevertheless, the final decision in your view, will depend on a calculation of whether or not this is cost effective?

Mr. KEARNEY. In normal utility economics, the answer to that is yes. But we must have, the other thing is the overall energy security which may be factored into it.

Mr. SOLARZ. Mr. Milhollin?

Mr. MILHOLLIN. Mr. Solarz, I think that the agreement will not have much effect on Japan's decision. I think they will decide to go for breeders or not, or recycle plutonium into their existing reactors or not, because they will decide that it is cost effective. It is a cost effective way of reducing their dependence on outside sources. They want to reduce their dependence. It is just a question of how much it costs.

JAPANESE RESPONSE TO CASE-BY-CASE APPROVAL REQUIREMENT

Mr. SOLARZ. Let us assume for the purposes of discussion that whether or not they decide to develop a breeder reactor and a plutonium economy is not related to the approval of this agreement. Would it be fair to say that if they do decide to go that route, and we have not approved the agreement, then they will go that way intending to use materials which do not come from the United States because they are not going to be willing to run the risk of spending a billion dollars in ten years constructing a facility which on the basis of the existing agreement we might conceivably not give our approval to when it is ready to open, or when they think it is ready to open. Would that be a fair statement?

Mr. MILHOLLIN. I think you see the issues very well.

I think that the important thing is what kind of plutonium economy will they have if they have one. We do not know whether they are going to have one, and they probably do not even know. But the present agreement gives us the right to insist that if they do develop a plutonium economy and use our material, which they have got to do because through the end of this century and into the next we control 80 percent of it, then they have to have decent accounting and they have to have decent physical security. We have those rights now.

If we give them up, nobody knows what kind of a plutonium economy they are going to have.

JAPAN DEPENDENT ON UNITED STATES FOR PLUTONIUM ECONOMY

Mr. SOLARZ. Well correct me if I am wrong—and I am trying as a layman to work my way through these issues which I find very complex—as I understand it, if they are going to go for a plutonium economy, they are going to have to construct some facilities which they do not now have, is that correct?

Mr. MILHOLLIN. That is true. Complete facilities that are underway and so forth. That is right.

Mr. SOLARZ. Their concern is that under the existing agreement where we have the right to give approvals on a case by case basis, presumably they run a risk that they can put a lot of money and spend a lot of time on constructing a facility for this purpose and then we might not give our approval, in which case, to use George Bush's phrase, "They're in deep doo doo." And they presumably want to avoid that eventuality.

If they decide to go ahead and this agreement is not approved, does it not sort of clearly indicate that they will decide to go ahead by using materials supplied from other countries who are not likely to insist on safeguards and physical protection arrangements as strict or stringent as the ones that we have tried to build in to the new agreement?

Mr. MILHOLLIN. They cannot have a plutonium economy of any importance this century or in the early part of the next century without our permission. We control so much of their material that we are going to have a consent right under the existing agreement no matter what.

UNITED STATES HAS ACCOMMODATED JAPANESE REQUESTS

Your second question is, doesn't that present the risk for them that they are going to be in "deep doo doo" if we say no later on and they have to plan. That is the argument, right?

I think that if you look at what has happened so far, we have been very accommodating to any kind of a request they have made at all. It is inconceivable to me that we would turn down a request from them to do something with plutonium if they did it in a way that did not threaten any one. All I am asking for is that they do it in a way which allows us to keep track of the material and in a way which assures every one that it will be protected.

So to come back to the beginning, I think the issue is not whether they are going to have a plutonium economy. The issue is if they have one, how much of a risk will it be to the rest of the world?

Mr. SOLARZ. I got lost somewhere in your analysis.

Mr. MILHOLLIN. I'm sorry.

ALTERNATIVE PLUTONIUM SOURCES AVAILABLE TO JAPAN

Mr. SOLARZ. As I understand it, it is going to take a long time to develop this anyway. You presented a chart, I think, in your own paper which seems to suggest that by 1995 something like 24 percent of their nuclear materials will be of non-U.S. origin.

Mr. MILHOLLIN. That is right.

Mr. SOLARZ. I presume by some point in the 21st Century, and I gather it is going to take into the 21st Century or close to it to finish these facilities that would be necessary for a plutonium economy, they would presumably be in a position to acquire a sufficient amount of material from other countries to operate these new facilities.

In that sense, if they should decide to go for a plutonium economy, is it not true that they will not be dependent on the United States? And then the question arises, okay, if they are not dependent on us, what kind of conditions are other countries likely to impose on the materials they would provide compared to the conditions that are contained in this agreement?

Let me put the question to you this way. If they did not get it from the United States, where would they get enriched uranium from in the most likely eventuality? France?

Mr. KEARNEY. France or the Soviet Union.

Mr. MILHOLLIN. Or URENCO which is the UK—

Mr. SOLARZ. So take those three. If they go to a plutonium economy, from the point of view of non-proliferation, diversion, terrorist threats and the like, would you feel more comfortable with their going to a plutonium economy with this agreement that we have before us, or with the kinds of agreements that they would be likely to negotiate with the French or the Soviets or this European consortium?

Mr. MILHOLLIN. The issue is whether I would be more comfortable with them going to that economy with the proposed agreement or the existing agreement with Japan, because the existing agreement does not run out until 2003.

Mr. SOLARZ. Right. But the impression I have from our earlier colloquy is that if the new agreement is rejected and the existing agreement remains the basis for Japanese-American nuclear cooperation, the Japanese, if they should decide to go to a plutonium economy, are likely to decide to do so on the basis of materials acquired from France, the Soviet Union, or this European consortium rather than the United States because if they plan to get the materials from the United States they run the risk that we might not give them approval for the facilities that they construct.

Mr. MILHOLLIN. Two responses. First, it is too late for them to switch. They have long term contracts that are going to tie them up for 10 more years. Second, I do not think the United States would ever say no to a reasonable Japanese request. The only time we are going to use any rights under the present agreement or the proposed agreement is in the case where Japan does something we think is unacceptable and we are willing to take the diplomatic heat for being unhappy about it.

I think in that situation we have more rights under the present than the proposed agreement.

JAPANESE MOTIVATION FOR SEEKING BLANKET APPROVAL

Mr. SOLARZ. You have a rather sanguine view of Japan's prospects for consent and cooperation from the United States. I have to assume that the Japanese were not nearly as confident as you are, otherwise they would not have insisted on these arrangements.

They must be concerned. They are putting up a lot of money for these—

Mr. MILHOLLIN. I think you could look at it the other way. Since we have been so reasonable so far, what are they planning to do that they are worried about?

Mr. SOLARZ. I gather they had a bad experience with the Carter administration. I think their concern is that if they cannot work out some understandings in advance as to what would be acceptable and what would not be acceptable as is contained in this agreement—they do run the risk of unpredictable American responses.

From their point of view—whether it makes sense from our point of view is another question which I will get into—but it strikes me from their point of view it is entirely reasonable. Before I built a house for example, I would certainly want a pretty good understanding of what criteria I had to meet in order to get a certificate of occupancy so I can go in. I certainly would not want to sink a lot of money into the building of a house without any assurances that by the time the house was finished some quirky inspector somewhere might not give me a certificate of occupancy because he did not like something about it. That seems just sheer prudence.

Mr. MILHOLLIN. That is very reasonable. But I do not think we are a quirky inspector, or ever will be. Maybe some of the other witnesses would like to respond.

Mr. SOLARZ. Let me come back to what we have given up—

POLITICAL FACTOR IN PLUTONIUM ECONOMY

Mr. LEVENTHAL. Let me just comment on your question, if I could. I think your question assumes that the Japanese will turn to other sources of uranium in order to pursue a plutonium economy, if we turn them down on this agreement. I do not think we can concede that, at this point, because you have to factor in the political impact that would have domestically, in Japan. It would indicate that there is controversy over plutonium. The Japanese industry bends over backwards to persuade its people that nothing it does is dangerous. If the United States were to say, "hey, we cannot go along with this because we are very uncomfortable with your pursuing a plutonium economy," if that is the message that gets across, I think that has to have an impact.

NON-U.S. SOURCES OF ENRICHED URANIUM

Mr. SOLARZ. My impression is they already get enriched uranium from other countries. They do not all get it from the United States now.

Mr. LEVENTHAL. They stockpile a little bit of French uranium.

Mr. SOLARZ. Under a chart which your fellow critic has put together here, before the end of the century 24 percent of their enriched uranium, if I understand this correctly, will come from non-U.S. sources—which is a not insubstantial amount. So they are already moving in that direction.

But none of you have answered the question that I posed, which is if they are going to go in the direction of a plutonium economy and you had to make a choice between the new agreement or the

kind of agreements you would expect the Soviets, the French, or the European consortium to negotiate, what would you prefer?

SIGNIFICANCE OF PROGRAMMATIC CONTROL TO JAPANESE

Mr. KEARNEY. Let me try and just start out with one thing that we have not talked about. Looking at the technology of getting from here to there. Plutonium is best used in fast breeder reactors. Plutonium is not something that you dig out of the ground. It comes from irradiation of U238. Plutonium is produced in any type of reactor using uranium.

The sequence of going from here to a fast breeder economy is, number one, you have to have sufficient plutonium to do development and experimental work. Part of this development is fuel fabrication because plutonium is an irradiated fuel so you have to have remote control. You also have a different type of cladding on the plutonium fuel that is used in a fast breeder reactor than you do in the thermal reactors, so there is a lot of work to get from here to there.

The first important step is to reprocess the fuel. Then after that to work with the fuel and eventually work into a demonstration breeder plant, and finally a commercial plant. It takes time.

Now it seems to me, and I cannot speak for the Japanese, but it seems to me that if I were the Japanese I would prefer a programmatic review or control so that I knew that once I started I could go all the way out to where I wanted to get. If that were not available, I think I might go to work with others than the United States so I would have access to reprocessing and I would have access to that plutonium that was developed.

NEW AGREEMENT VS. AGREEMENTS WITH THIRD COUNTRIES

Mr. SOLARZ. The bottom line concern here, I gather, is the possibility that some of this plutonium could be stolen by terrorists or by employees who are in the pay of terrorists. I suppose there is a secondary concern that maybe Japan at some future date might decide to become a nuclear power itself or provide plutonium to some other country that wanted to become a nuclear power. That is the bottom line concern.

With respect to the possibility that something like that could happen, would it be less likely to happen in a plutonium economy governed by the new agreement, or in a plutonium economy governed by agreements with France, the Soviet Union, or the European consortium? Can you answer that, anybody?

Mr. MILHOLLIN. I will try again. I would like to see that plutonium economy occur either under the proposed agreement with the conditions I suggest on page 12, or the existing agreement.

Mr. SOLARZ. That I understand. I am asking you a hypothetical. Sometimes we have to make Hobson's choices. If the choice was between the new agreement as it is negotiated, and the kinds of agreements the Soviets, French, or Europeans seem to negotiate, which would make you least uncomfortable?

Mr. MILHOLLIN. I would have to know what the other countries have agreed to.

For example, the Soviets managed to impose conditions on India that we could not impose on India. So it just depends on what happens with Japan's other suppliers. That is something that none of us knows.

SUSPENSION RIGHTS

Mr. LEVENTHAL. If I could attempt to answer in two ways. One is basically what Gary just said. You would have to know what is in the other agreements.

But assuming that the other agreements are as permissive as this agreement would be, in a sense giving them programmatic approval with no real suspension rights and no real way to affect the details of the program later on, then it does not matter.

Mr. SOLARZ. You keep saying that there are no suspension rights. I have read the agreement. I have had it explained to me by the administration. There are very clearly suspension rights in there. Your assertion, I must say is flatly false, and I do not think it enhances the credibility of your argument.

Now you might say that given the conditions in there it would be politically difficult to invoke the suspension rights.

Mr. LEVENTHAL. That is what I'm saying.

Mr. SOLARZ. That is rather different than saying there are no suspension rights. There are suspension rights. It says so point blank in the agreement that there are suspension rights. I will not read it now because I know you are familiar with it.

Frankly, I listen to you describe the agreement, and I listen to the administration describe it, it is like the Japanese film "Rashomon." It is the same event but it is portrayed in two completely different ways.

Mr. LEVENTHAL. Can I just inject one thing there, Mr. Chairman?

Mr. SOLARZ. Yes.

CONSEQUENCES OF BREACH OF AGREEMENT

Mr. LEVENTHAL. I think the question is, can we reasonably expect to exercise those suspension rights without running the risk of being held in breach by the Japanese. If we cannot, then can we reasonably expect to exercise those rights?

Mr. SOLARZ. Let me pursue that. That is a somewhat fairer formulation of the question than your initial comments that there are no suspension rights, because there clearly are.

But in any case, under this agreement if the Japanese are about to open one of these facilities and we believe that the safeguard procedures and the physical protection arrangements do not meet the requirements contained in the basic agreement, we have the right to suspend in whole or in part our cooperation.

Now I gather you are saying that under those circumstances the Japanese might come back and say, "This is unfair. We believe that the arrangements do comply with the basic agreement, and therefore, your suspension is in breach of the agreement." Is that what you are saying?

Mr. LEVENTHAL. Something to that effect, yes.

Mr. SOLARZ. Now what happens at that point? Supposing we say, "You have not carried out the agreement because you have not im-

plemented it in the way you said you would and because of non-proliferation or national security concerns on our part, we have to tell you that if you proceed we suspend the agreement." Then they come back and say, "Okay, you are now in breach of the agreement."

What happens then?

Mr. LEVENTHAL. There would be a discussion of whether this was, indeed, a most extreme circumstance of exceptional concern. It would have to be reviewed at the highest level of government. A suspension would be applied only to the minimum extent and for the minimum period of time necessary. There may be agreement on a case by case basis of the activity specified that would be covered. We would consult with each other as to whether the facts of the matter warrant suspension. And we would have to consider carefully the economic effects of such suspension on the disruption of the international nuclear trade and fuel-cycle operations.

I think it would be very hard for us, even with unqualified suspension rights, to suspend an agreement with Japan. With the highly qualified rights contained in this agreement, suspension would be from a practical standpoint, perhaps impossible. I say from a practical standpoint, perhaps impossible.

Mr. SOLARZ. As I understand this, what it means is that if we come to the conclusion that they are implementing the agreement in a way which jeopardizes our non-proliferation or national security concerns, we have the right to suspend the agreement.

You say they may not agree or probably would not agree with our determinations so they can then take the position that we have breached the agreement.

What I am asking you is, at that point what happens? They say we have breached the agreement. We say we have suspended the agreement. What happens next?

Mr. LEVENTHAL. What would happen is that at the highest political level there would be a discussion of all the qualifications on our suspension right and there would be some outcome other than suspension. That is what I would hazard a guess at.

Mr. SOLARZ. But you would agree that if we insist on it we do have the right to suspend if we believe that they have not implemented the agreement in a way that is consistent with our non-proliferation concerns.

Mr. LEVENTHAL. I do not agree with that characterization of it because we do run into the potential problem of being held in breach. Such a possibility would have to be factored into any decision on whether to assert a right to suspend. If held to be in breach, we then are under an obligation to return to them plutonium, and that seems like a very—

Mr. SOLARZ. Do we have any of their plutonium here now?

Mr. LEVENTHAL. The plutonium would be that which would be produced here through the use of Japanese-supplied components.

Mr. SOLARZ. Do we have any plutonium in this country that has been produced with Japanese-supplied components?

Mr. LEVENTHAL. Not at this point. The question is, will the relationship be such that U.S. nuclear power reactors will be using Japanese components that could trigger—

Mr. SOLARZ. Let me ask you this. Will we need to use Japanese-supplied components in order to produce plutonium in the future?

Mr. MILHOLLIN. Nobody knows.

Mr. KEARNEY. No, I would say no, absolutely.

Mr. SOLARZ. So in other words, unless I misunderstand the situation you have described, you have produced a kind of imaginary horrible. You said we cannot suspend because if we suspend they will say we are in breach of the agreement. If they say we are in breach of the agreement, then they are obligated to return all plutonium that they have that has been produced with U.S. components, and we have to return to them all of our plutonium produced with Japanese components. But it turns out that right now we have no plutonium produced with Japanese components and there is no reason to believe that we necessarily will have plutonium produced with Japanese components.

Mr. LEVENTHAL. The second part of your statement I think is not necessarily the case. I believe there are some projections to the effect that there will be incorporated into U.S. nuclear power plants components supplied by Japan, at least over the next 30 years.

Let me say this, Mr. Chairman, I would like the opportunity to supply for the record any references that substantiate that assertion. I believe there are some, but I do not have them——

[The following was subsequently submitted for the record:]

From "Nuclear Power in an Age of Uncertainty,"
(Washington, DC: U.S. Congress, Office of Technology
Assessment, OTA-E 216, February 1984):

"If new reactor orders are delayed for 10 years or more, U.S. firms may find themselves looking to the Japanese, West Germans, or French for joint ventures or licensing arrangements in which the foreign company is an equal, or even dominant, partner. This would be the reverse of the situation in each of these countries early in the history of the nuclear industry." (P. 200)

* * *

From "Effects on the Nuclear Industry of No New-Plant Orders, 1985-2000," by William J. Lanouette (a consultant's study commissioned by the Office of Technology Assessment in connection with its report, "Nuclear Power in an Age of Uncertainty" (cited above):

". . . [T]here is growing evidence that foreign suppliers are willing and able to compete for U.S. component orders, and this may alleviate delay problems caused by limited domestic manufacturing capacity." (P. 11)

"A U.S. nuclear industry that must survive more than two decades without new-plant orders (e.g., 1978 to 2000) can be expected to have only one or two vendors, a like number of architect-engineers, and no more than a few hundred component suppliers -- all increasingly dominated by foreign competitors. Service contracts will still be available from the utilities with operating nuclear plants, but the principal business will evolve to the redesign of some plants to extend their operating lives, decommissioning, and spent-fuel disposal. . . .

"The most confusing aspect of this possible situation is that the utilities with operating nuclear plants would be forced to rely increasingly on foreign suppliers for replacement parts -- or pay for custom-made parts from the remaining domestic manufacturers. As a result, they might have to adopt foreign designs, and to modify their plants accordingly." (P. E12)

"To suppliers who want to remain in the nuclear business, the challenge isn't to sell their products overseas, but to keep imports from dominating U.S. markets that still exist. 'If equipment from overseas becomes standard,' one supplier said, 'we'll never get that business back.' As a hedge against such competition, some suppliers are increasingly affiliating with manufacturers overseas

through patent-sharing or licensee and licensee agreements. 'To my surprise,' one supplier said, 'the product made over there was superior to one we made here -- though it cost a little more.'" (p. 13)

* * *

"A View from the Future: Japanese Nuclear Exports Weaken American Leadership," by Warren H. Donnelly, Senior Specialist with the Congressional Research Service, Geopolitics of Energy, vol. 9, no. 10, October 1987:

"What follows is an effort to write, in advance, a statement on Japanese nuclear exports as they may be seen nearly a decade from now

". . . we discover that the new models offered by our manufacturers were developed in Japan and include major Japanese parts and equipment. The U.S. Nuclear Regulatory Commission already has applications for such imports.

"The hard-won improvements in our balance of trade can suffer from the potential hundreds of millions of dollars involved in these imports, which will preempt thousands of man-years of U.S. employment. Our own nuclear utilities may have to account separately for spent fuel produced in powerplants that incorporate imported Japanese parts and technologies. This derives from the reciprocity provision featured in the U.S.-Japan agreement for nuclear cooperation renegotiated in 1987. . . ."

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Mr. SOLARZ. If this is true, if the American nuclear energy industry would be forced to grind to a halt, if we would have to return, turn over all of our nuclear weapons or a substantial amount of our nuclear arsenal to Japan because we were deemed in breach of the agreement—

Mr. LEVENTHAL. No, no, no.

Mr. SOLARZ. You would have, I suppose, a powerful argument against it. But I do not imagine that is the case.

Mr. LEVENTHAL. I am not suggesting that weapons plutonium would be sent to Japan. It would be plutonium produced in U.S. civilian power reactors from the use of Japanese-supplied components.

Mr. SOLARZ. But right now we have none of that material.

Mr. LEVENTHAL. That is correct.

Mr. SOLARZ. And there is no certainty that we will have it.

Mr. Kearney.

NEW AGREEMENT SAFER THAN THIRD-COUNTRY ARRANGEMENT

Mr. KEARNEY. Let me get back to your second question if I may.

Mr. SOLARZ. Which was that?

Mr. KEARNEY. That was, if you can remember, which is the better option, the new agreement or the Japanese going to the Russians or the French.

As an American citizen, not as a utility executive, I would prefer to see them develop their economy, their plutonium economy under the new agreement rather than the others. I would feel more safe as a citizen.

Mr. SOLARZ. And in your view on that point, if we reject the new agreement and they decide to go for a plutonium economy, and the alternative they face then is going to a plutonium economy under the existing agreement with the United States or on the basis of an agreement with the Soviet Union, France, or the European consortium. What do you think they are most likely to do?

Mr. KEARNEY. I think there would be a tendency to do that.

Mr. SOLARZ. To do what?

Mr. KEARNEY. I think number one they would buy natural uranium from some place other than the United States. In fact they are probably buying it now. Our uranium is probably the highest priced uranium in the world. Secondly, they would have that reprocessed probably by the French. Third, they would be developing their own reprocessing facilities. Fourth, as I pointed out, what the development technology is, they would be developing other facilities.

The other point that I would like to make is, I said as a private citizen I would prefer them to do it under the new agreement. As a utility executive, I would prefer them to do it under the new agreement because then I think it will continue the inter-relationship between the Japanese and American utilities so that at a time when we look again, and I think we will in the United States, to nuclear power for our expansion, we will have the benefit of that technology.

CONSEQUENCES OF ADVANCE PROGRAMMATIC CONSENT

Mr. SOLARZ. The point has been made that the major disadvantage of this agreement is that we lose the case by case right of approval by virtue of giving them advance programmatic consent.

Could you tell me in very specific and concrete terms, and can you give me some examples, of what it is under the existing agreement that they would have to get approval from us for that they will not have to get approval from us for under the new agreement?

Mr. MILHOLLIN. Under the present agreement, they must receive our approval to transfer plutonium that is contained in spent reactor fuel beyond their jurisdiction. So they have to get our consent to send it to France for extraction.

Mr. SOLARZ. Stop right there because you are going to give me a few examples, I assume. Let me take them one by one.

You are talking now about, if I understand it correctly, the transfer of the spent fuel from Japan to Europe and back. And you are saying right now whenever they want to transport that spent fuel they need our approval.

Mr. MILHOLLIN. That is right.

CONDITIONS OF TRANSPORT

Mr. SOLARZ. Now as I understand this agreement the way it has been explained to me, we have developed a series of sort of concepts or understandings about the physical safeguards that will have to be established for the transport of spent fuel to and from Japan. The whole series of things are specified.

As I understand it, with respect to each transport that takes place, they presumably notify us. And if we believe that the arrangements that they are putting in place for the transport of the spent fuel do not meet the criteria spelled out in the agreement, then we have the right to withhold our approval for that transport. Is that not the case?

Mr. MILHOLLIN. That is the administration's position.

Mr. SOLARZ. At least I got that right. So what is wrong with it?

Mr. MILHOLLIN. It is very complicated, and you've got it exactly right.

Mr. SOLARZ. On the face of it it sounds not unpersuasive.

Mr. MILHOLLIN. The way I read the agreement is, and I think everybody reads it that way, is that this new procedure applies to air transport internationally of separated plutonium. If air transport is not used, then we are back to square one.

There is now apparently under consideration the possibility of not using air transport.

Mr. SOLARZ. Wait a second. Let's assume they do use air transport under the new agreement. Is the administration's argument accurate and fair, that under the agreement the Japanese would have to notify us if they are planning to transport a particular shipment of separated plutonium; presumably they would let us know what arrangements they have for the transport. We would have an opportunity to see whether that was in conformity with the arrangements that have been spelled out in the new agreement. If they are not, we then have the right to say this is not in

conformity with the agreement, and unless you change the plan to bring it into conformity with the agreement we will suspend our consent.

Mr. MILHOLLIN. That is the administration's argument. It is not correct.

Mr. SOLARZ. Why?

Mr. MILHOLLIN. What you have just described are the rights we have now under the existing agreement. We have the right now, they must notify us because they have to get our permission to ship it. If we do not like the arrangements, we can say no, you cannot ship it.

SCOPE OF ADVANCE PROGRAMMATIC CONSENT

Under the proposed agreement, Japan gets something more. Japan gets a set of criteria which are spelled out and agreed upon in advance, and if Japan meets those, then they can ship it.

Mr. SOLARZ. Right.

Mr. MILHOLLIN. That is what is in it for Japan. That applies not only to shipment, but it applies to adding new plants to the list. It applies to a whole series of actions that Japan might want to take in the future.

So what is in it for Japan is—

Mr. SOLARZ. I understand exactly what—

Mr. MILHOLLIN [continuing]. That there is a list of criteria.

CIRCUMSTANCES LEADING TO BREACH OF AGREEMENT

Mr. SOLARZ. The point is, if Japan meets those criteria, then presumably there is no problem. The problem will come up in a situation in which they do not meet the criteria.

Mr. MILHOLLIN. Okay. That goes back to your question of what happens if there is suspension. What happens is, if Japan notifies us that they are going to ship the fuel or they are going to add a new plant to the list, they send us a notice. They say "We are going to ship the fuel and we have satisfied criterion X," or "We are going to add a new plant to the list, and we have satisfied criterion Y." They send us a notice.

The agreement says that our response is limited to an acknowledgement that the notice has been received.

Now if we say that you do not meet those criteria and the Japanese say yes we do, which they would say since they sent us the notice, then we are at loggerheads.

Mr. SOLARZ. Wait a second.

Mr. LEVENTHAL. If I could just interject one—

Mr. MILHOLLIN. At that point, no, let me finish. At that point then we would have to declare the agreement breached.

Mr. SOLARZ. Yes. I am glad we are having this colloquy because it is the only way I know to get to the bottom of this thing.

Mr. MILHOLLIN. I am glad we are having it, too.

Mr. SOLARZ. It says here on page 78 of the agreement, of this message of the President, "During the negotiations it was confirmed that the cooperation and appropriate assistance of the government of the U.S. must be secured prior to each shipment in order to fulfill the guidelines."

Mr. MILHOLLIN. That is in the agreement?

Mr. SOLARZ. Yes. This a side letter to Tetsuya Endo, Ministry of Foreign Affairs, signed by Richard Kennedy.

But the point as I understand it, is this, and tell me if you disagree. Under the agreement they spell out a whole series of arrangements for the international transportation of the materials. That includes armed guards, trustworthiness of key personnel, etcetera, etcetera. I do not have to reiterate them here.

They send us a note that says we are planning to transport and the arrangements meet the specifications called for in the agreement.

Will they, as you understand it, tell us how the specifications are met, or will they simply give a one line thing, "We are planning to transport on such and such a date and we are pleased to inform you that all the arrangements, the safeguards are entirely in keeping with the agreement and we have satisfied all the criteria."

Mr. MILHOLLIN. Since the criteria are in the agreement, and since Japan must notify us that they are met, I do not think it matters whether they say it in one sentence or whether they repeat the criteria. What they are telling us is we meet the criteria and we are going to ship.

Mr. SOLARZ. So they tell us they are going to meet the criteria. Presumably we are notified more than 10 minutes or 24 hours in advance. I presume our people will then attempt to determine whether in fact the criteria are met.

Mr. MILHOLLIN. One would hope so, although under the circumstances it could be difficult depending on how much time is available.

DETERMINATION ON COMPLIANCE WITH AGREEMENT

Mr. SOLARZ. I assume that our people will say, "Fine, we're pleased to hear it. Now can you show us how the arrangements comply with the agreement. What specific and precise arrangements have you developed?" Presumably the Japanese will then tell us.

At that point we presumably make a determination that the arrangements are in keeping with the agreement, or they are not. If they are in keeping with the agreement, it goes forward and presumably there are no problems.

But let us assume we decide that it is not in keeping with the agreement. So far, I gather, you would agree with me that we have no difficulty in reaching this point.

Mr. MILHOLLIN. That is right.

Mr. SOLARZ. So our people now have been notified that a shipment is planned and it is in conformity with the agreement. We have undertaken to determine from the Japanese what the precise arrangements are and whether in our judgment they are in keeping with the agreement. Our people have now concluded that they are not in keeping with the agreement.

At that point I assume we would go to the Japanese, I mean this is just common sense, and say, "Fellows, for the following reasons we do not think your plan meets the standards called for in the agreement."

Now at that point they basically can either acknowledge the validity of the criticism and agree to make the necessary changes in their plan, or in effect they can say we just do not accept your analysis. For the following reasons we think it is in compliance with the agreement.

If they agree to make the necessary changes to satisfy us, once again, we have no problem.

Let us assume that they do not. They believe the procedures they have adopted conform with the plan or that the changes we have recommended are impossible or impractical or whatever and they will not do it.

As I understand what the administration is saying, at that point if the Japanese basically say "We are going ahead any way." We have the right to say—

[Inaudible discussion off the record.]

UNQUALIFIED RIGHT OF APPROVAL VS. CRITERIA OPEN TO INTERPRETATION

Mr. SOLARZ. We then, as I am told by those who spend their entire lives studying this thing and can tell you everything you always wanted to know but were afraid to ask about the Japanese nuclear agreement, that this cannot go forward without our cooperation. If they go forward anyway without our cooperation, then we can say you have violated the agreement and we are suspending our cooperation.

Can we do that?

Mr. MILHOLLIN. That is exactly right.

Mr. SOLARZ. So what is wrong with that?

Mr. MILHOLLIN. We would have a disagreement as to whether the agreement has been performed by each side. We are two sovereign nations and the U.S. says you are not performing, and the Japanese say to the U.S. you are not performing.

At that point a problem has come up, and basically the burden is on us to prove to the Japanese that we are being reasonable. Or the agreement is breached, one or the other.

Under the existing agreement, there is no such problem because there are no criteria under the existing agreement to argue about. We have an unqualified right to approve. There is a big difference between that and arguing over criteria.

UNILATERAL RIGHTS OF EACH PARTY TO THE AGREEMENT

Mr. SOLARZ. Well, yes and no. As I understand it, under the agreement we have an unqualified right to interpret the agreement just as the Japanese do.

Mr. MILHOLLIN. That is true.

Mr. SOLARZ. Each side determines for itself whether or not the agreement is being adhered to.

Mr. MILHOLLIN. That is right.

Mr. SOLARZ. And there is no guarantee the other side will accept the interpretation of the other party.

So there is no question that we have the right unilaterally to say you are not living up to the agreement. They have the right unilaterally to say we are living up to the agreement, in which case we

have an impasse. But there is no question that under the agreement if we, as an exercise of our sovereign rights decide they are not living up to the agreement, we have the right to suspend cooperation, just as under the existing agreement we have the sovereign right to withhold consent.

POLITICAL PROBLEMS POSSIBLE UNDER EITHER AGREEMENT

It seems to me, therefore, that the real problem is not so much a legal one, but a political one. Even under the existing agreement if they put a lot of money and effort and what have you into building a facility or something and we withhold our consent, and they believe we withheld it unfairly. They may say, "yes, you have the right to withhold your consent, but by any fair, reasonable, and rational standard, you should not withhold your consent. We have come up with a good system. We care just as much about non-proliferation as you do, maybe more because we have been victimized by nuclear weapons and you have not. Now you are withholding your consent. That has clear political consequences."

How is that any different from this situation here where they develop a plan. We do not like it. We say under the agreement we suspend cooperation. They say you may have the right to suspend cooperation, but we think you are being unfair and it is not right and it is improper and inappropriate and so on and so forth.

Mr. MILHOLLIN. If sovereign states or even individual parties who make contracts, domestically or internationally, had the unqualified right to take extreme positions, then contracts would not mean anything. You could not count on an agreement.

What you come down to is, what is the difference going to be in our political position under the existing agreement and the proposed agreement. I think the existing agreement which gives us an unqualified right of approval puts us in a much stronger political position than the proposed agreement which only gives us the right to argue about criteria.

Mr. SOLARZ. I think you have put your finger on the nub of it. As a practical matter, I am not sure that is the case. The bottom line, it seems to me, is going to be if they have a lot at stake and they feel the arrangements they have developed are adequate or acceptable and we decide they are not, I think the problem is fundamentally the same. They are going to think that what we are doing is unfair and inequitable even if we have a theoretical or legal right to do it, and it will have negative consequences for the bilateral relationship.

I find it hard to believe that if they spend 10 years and a billion dollars building a reprocessing facility, and at the end of those 10 years when they are about ready to open it up we say, "Sorry fellows, the whole thing is flawed or parts of it are flawed. You have to go back to scratch. Under the agreement you have to acknowledge that we have the right to do it because you are not permitted to do anything without our consent." I do not think the Japanese are going to say to us, "Well, you have a point there. De Tocqueville was right, you Americans are very legalistic and we should have read 'Democracy in America' and we did not. It is all our fault."

Mr. MILHOLLIN. I think you have made a very good argument that there is no difference between the agreements when it comes down to disagreements. The proposed—

Mr. SOLARZ. That is the hypothesis.

By the way, I want you to understand something. I put my points this way really to draw you out. I am asking you to challenge.

Mr. MILHOLLIN. I think you have made a good argument that there is very little practical difference between the two agreements. If you postulate the case where there is a really important difference between the two countries, there is going to be the question of breach under the present agreement or the proposed one. The only difference is whether the proposed one gives us or the present one gives us a better political and moral and diplomatic position.

If it is true that they are substantially the same, then what you have done is proved that the present agreement is not broken so it does not need to be fixed. If there were no advantage to Japan because we had the unilateral power, we had reserved it, the unilateral power to suspend this blanket consent right any time we wanted, then Japan is not getting anything out of the new agreement.

JAPANESE SEEK ASSURANCE THROUGH ADVANCE PROGRAMMATIC CONSENT

Mr. SOLARZ. Mr. Milhollin, if I understand it correctly, and please correct me if you think I am wrong, what they are getting is some advance indication of what the Japanese have to do to satisfy us so they are not flying blind. Going back to my analogy of the house, there would be a lot less housing construction in the country if people did not have housing codes to guide them in terms of what standards had to be met to get a certificate of occupancy. If the whole thing was contingent on what it looked like after it was completed and you could not be sure that they would give you the certificate of occupancy, there would be a lot less construction because people would not be willing to risk their money. So that, as I understand it, is what the Japanese get.

What we seem to have done in this agreement is to spell out a whole series of concepts and understandings with respect to safeguards and physical protection which have to be met for us to be satisfied. The Japanese presumably feel that those criteria are reasonable and achievable, and therefore, they get the sense of security that if they put a lot of money into it, and so long as they meet those criteria, they have nothing to worry about. Without that, they have the nagging fear that maybe they will say no.

For example, take Mr. Leventhal. Maybe in their nightmares they envision that 10 years from now he might be Secretary of Energy or head of the Nuclear Regulatory Commission or something, still carrying on with his crusade to prevent the emergence of a plutonium economy. They say, "supposing we get a fellow like that and he does not want a plutonium economy, and he may refuse to give us approval even though we finished the thing and it is good safeguards and stuff, but he is afraid that with a plutonium

economy, dreadful things could happen." And then we are in rich "doo doo."

PHYSICAL PROTECTION OF PLUTONIUM TRANSPORTED BY AIR

Mr. LEVENTHAL. Mr. Chairman, may I respond?

Mr. SOLARZ. I have taken your name in vain. Please.

Mr. LEVENTHAL. Let me make a couple of points here. First of all, cooperation and assistance are not concurrence. All we are in a position to provide is cooperation and assistance.

Second, your line of questioning assumes that all the criteria spelled out in Annex 5 are sufficient. The DoD Physical Protection Report makes note of the fact that a good physical protection arrangement should include consideration of a postulated threat. There is no requirement for consideration of a postulated threat with regard to physical protection for air transport of plutonium.

Let me quote to you a non-classified portion of a DoD—

Mr. SOLARZ. Wait a second—

Mr. LEVENTHAL. If I could, for just one second follow through my line of logic here. Since I am in a crusade I would like to pursue the crusade.

Mr. SOLARZ. Mr. Leventhal.

Mr. LEVENTHAL. I would like to very much, if I could—

Mr. SOLARZ. Presumably you would like your crusade to succeed, and to succeed I am one of the people you have to convince. So it seems to me it is in your interest—

Mr. LEVENTHAL. I want to give you a hypothetical and ask you how the agreement would apply. Okay?

Mr. SOLARZ. I will give you the opportunity to do it, but let me ask you a question on this point which your comment raises in my mind.

Under the existing agreement is it possible for them to ship plutonium by air?

Mr. LEVENTHAL. Under the existing agreement?

Mr. SOLARZ. Yes. Not the new agreement. The existing agreement.

Mr. LEVENTHAL. With the prior consent of the United States, yes.

Mr. SOLARZ. So this new agreement does not give them a right, if I understand it correctly, to ship plutonium by air that they do not already have. They can ship plutonium by air now, but with the existing agreement they would have to get our consent.

EXAMPLE OF LOSS OF CONSENT IN PROPOSED AGREEMENT

Mr. LEVENTHAL. I would like to give you—an example of where we might withhold consent under the existing agreement but could not under the new agreement.

Mr. SOLARZ. That is excellent. That is exactly what I would like to—

Mr. LEVENTHAL. Japan is about to spend about \$125 million for the stretch Boeing 747 400F freighter.

Mr. SOLARZ. Excuse me—

Mr. LEVENTHAL. I really would appreciate it, Mr. Chairman, if I could just finish my—

Mr. SOLARZ. Yes, but I did not hear what you said.

Mr. LEVENTHAL. I am sorry.

Mr. SOLARZ. You are talking to me, not to yourself. I want to hear the example.

Mr. LEVENTHAL. Japan is about to spend \$125 million for the stretch 747 freighter that will permit them to fly this material non-stop.

Mr. SOLARZ. This is a hypothetical.

Mr. LEVENTHAL. This has been announced in the trade press, that this is the plane that will be used and this is the cost of the plane.

There is an unclassified portion of a DoD report entitled Detection and Neutralization of Illegal Drugs and Terrorist Devices, dated October 1987, which includes the following statement:

"In a recent survey of law enforcement officials and authorities on terrorism, 55 percent thought it very likely, and another 29 percent thought it somewhat likely, that by the year 2000 terrorists will employ shoulder-fired, precision guided, surface-to-air missiles to shoot down civilian planes."

So I give you this hypothetical. U.S. intelligence picks up a threat that terrorists, upon take off or landing of the cargo plane, may well have a plan to shoot a shoulder-fired missile to bring the plane down. We bring this to Japan's attention and urge them strongly not to proceed with the flight under those circumstances. Japan disagrees.

Do you believe that we have the right to stop that flight under those circumstances? I do not see how we could stop the flight under those circumstances. We could, under the existing agreement. We could not under the new agreement, if they disagreed and felt that they had taken all necessary precautions and their intelligence assessment was different. And I think that is not such a hypothetical scenario, given the fact that more than half of the law enforcement authorities interviewed by the Department of Defense said that this is a likely contingency by the year 2000.

So, what I am saying in my crusade, Mr. Chairman, is that there are deficiencies in the guidelines; they do not deal with postulated threats, for example, which was a bottom line consideration in the DoD Physical Security Report done pursuant to the Wolpe Amendment. And if we do not have the right, the absolute right, of prior consent, we may get into a situation where things are going to happen that are not in our national interest. This is the problem with the new agreement, as distinguished from the present agreement.

POSSIBLE RESPONSE TO POSTULATED THREAT IN PROPOSED AGREEMENT

Mr. SOLARZ. Let me focus, if I can, on your example for a minute. You have raised an interesting and perhaps very important possibility. It certainly deserves an answer.

I have one possible answer here, but I honestly do not know if it is a satisfactory one. On page 57 of the agreement, Section G, it says something to the effect about how "detailed contingency plans will be established in advance. These plans will identify possible emergency situations and the actions to be taken in such situations by the air crew, the escorts, and the operation center personnel.

Plans will identify the points of contact within and the demarcation of responsibilities among the response authorities of the parties, the transferring government, and the countries en route."

I guess, Mr. Leventhal, the bottom line question with respect to your example is if we believe that such a possibility exists and that satisfactory precautions have not been taken to deal with it, would we be in a position under the terms of the agreement to legitimately withhold our consent?

Mr. LEVENTHAL. That is the question I pose.

Mr. SOLARZ. It is a very good question. I can assure you that an answer will be sought to it from the administration. I do not have the answer right now. If they cannot give a satisfactory answer I would consider this to be a very strong argument, either against the agreement or in favor of some modification of it.

But while you are at it, because this is exactly the kind of thing I think really helps contribute to our consideration of it, can you give us other examples with respect either to transport or to safeguards that under the existing agreement we are in a position to prevent from happening which you believe under the new agreement we would not be able to prevent from happening? Can you concretize your concern?

DIVERSION THREAT IN LARGE BULK HANDLING FACILITY

Mr. LEVENTHAL. The other one that immediately comes to mind has to do with incorporating into the programmatic consent a large bulk-handling facility, such as the planned 800-ton reprocessing plant. I have already discussed in my testimony my concern that the safeguards concepts are just that—concepts. There would have to be negotiations between the United States, Japan, and the IAEA as to what safeguards could be applied and whether, indeed, a plant should even start up if there could be material imbalances amounting to hundreds of kilograms, as the NRC states in its most recent letter to the Committee.

Under the present agreement, we could say no. We do not want to see that facility start up. Under the new agreement, I think we would have a very hard time saying no.

Mr. SOLARZ. I know you have raised this argument before, and it is a very serious argument. The response we both heard from the administration in my office, of course, was that we would say that if the safeguard arrangements that were actually going to be implemented in a new facility in Japan were such that up to 250 kilograms of plutonium could be diverted without being detected, we would say that those safeguard arrangements do not meet the criteria called for in the agreement, and therefore, we were suspending our consent.

NRC USE OF ACCOUNTANCY VERIFICATION GOAL

But since then we have gotten a further answer here from the administration. Forgive me for reading it, but it is very technical and I saw it earlier today for the first time. If I tried to wing it I would get it hopelessly confused. But let me read you what they say here, and perhaps you can respond to it.

They say first:

The NRC has incorrectly employed a formula called the Accountancy Verification Goal. The Accountancy Verification Goal is used for facilities in which the IAEA does accounting measurement by sampling as opposed to more thorough measurement techniques. In those facilities where sampling verification is done, the AVG tells the inspectors how many samples must be taken to get a reliable estimate. An element of deriving AVG is how much of the material being measured is left in the pipes. Yet because random sampling is not used as a measurement technique in large reprocessing facilities, the AVG is not a suitable formula for deriving how much plutonium would be left in the pipes of a reprocessing facility.

The IAEA's practice is to verify all the significant inputs, outputs, and inventories through constant monitoring when reprocessing is going on. One of the techniques to be employed is the near real time accounting which was mentioned during our discussions in Japan.

These are discussions I had.

The near real time accounting is expected to have a high enough sensitivity that it can detect the loss or diversion of eight kilograms within four weeks or less, rather than waiting a longer time which would be the case with other kinds of monitoring.

Second, the IAEA does use quantitative standards in order to evaluate the amount of material unaccounted for, which it counts. But it derives those standards from data about the facility and not from the AVG or other formulas. U.S. technical studies suggest that in fact the maximum amount of unaccounted for plutonium which can be expected in an 800 ton per year facility is actually between 49 and 90 kilograms. Moreover, as improvements in accounting are made, the Japanese are bound by the agreement to employ them.

Third—

And this is the last point:

Just because the maximum amount of unaccounted for plutonium is say 40 kilograms over a year, a diverter cannot be confident that he can sneak out 10 kilograms without being caught, for he has no way of knowing where in the plus or minus 40 kilogram range the deviation between the mathematically expected amount of plutonium, based on how much spent fuel is used, and how much is actually separated out.

For example, if he tries to take out 10 kilograms and the deviation between expected and actual amounts is plus 50 to minus 30, he would be okay because the minus 40 line will not have been breached. But there is a one in eight probability that the deviation will lie between minus 30 and minus 40, in which case a diversion of 10 kilograms will throw the measurement into the minus 40 to minus 50 range. That risk is one of the deterrents to diversion.

Now my Greek is not very good, so I am not sure I understood what I read, but perhaps you did.

SAFEGUARD ARRANGEMENTS TO PROTECT AGAINST DIVERSION

Mr. LEVENTHAL. I think you would want to get the NRC's response to that response, since the administration said the NRC used an inaccurate approach. And I surely would like to ask our own scientific director to look at it.

My general comment is that you do get into almost a numerology situation here. The bottom line question remains, could a skillful operator, either at a high-management level or even at the plant worker level, figure out a way to overcome the system. I am not sure I know the answer to that. But I do know that if one weapon's quantity could be removed from the plant, and that is less than the amount cited in the administration's own response, we are in deep "doo doo."

Mr. SOLARZ. Let me ask you this. None of us presumably would like to see a plutonium facility in Japan in which the safeguard arrangements were such that large amount of plutonium could be

taken out and diverted, and particularly without our knowing about it.

How would you feel if we put into a resolution of approval a condition which in effect said that we would not give consent to any facility governed by this agreement unless we were satisfied that the safeguard arrangements which were actually being implemented were such as to give us a high degree of confidence that substantial amounts of plutonium could not be diverted without our knowing about it.

Mr. LEVENTHAL. I think that is basically in the right direction. It could use some refinement perhaps to have this done on the basis of technical means exclusively.

Mr. SOLARZ. I am talking conceptually, now.

NEED FOR SUFFICIENT TECHNICAL SAFEGUARDS

Mr. LEVENTHAL. But this gets to the timely warning consideration, whether timely warning is a technical determination or a political one.

This type of a condition would be important to have, but it would have to be based, I think, on accountancy verification principles alone, or at least in terms of a facility attachment, so that the technical safeguards are sufficient to do what you just said you would be doing.

Mr. SOLARZ. Well I had asked you, I think when we met about a week ago if you could come up with some language along these lines. Have you made any progress?

Mr. LEVENTHAL. Yes, I have been in touch with your staff on that and I think some ideas have gone forward.

[The following was subsequently submitted:]

CONDITIONS FOR A RESOLUTION OF APPROVAL

The following represents an acceptable set of conditions for a resolution of approval. It is intended to be comprehensive and to protect vital U.S. interests with due consideration to political sensitivities with Japan. The format is "modified" or "conditional" programmatic approval rather than original case-by-case. The package utilizes a number of "precedents" and represents a genuine compromise, but there really is no room for additional compromise. The bottom line is to maintain real U.S. control over all plutonium produced with U.S.-supplied fuel and equipment and to ensure that commercial use of this plutonium cannot proceed until such time as effective technical safeguards are in place.

1. Japan is granted a programmatic consent for the transfer of spent fuel to France and the U.K. for storage, reprocessing, and or disposal for the life of the agreement. This arrangement is based on the precedent of the agreements with Sweden and Norway. U.S. prior consent for any subsequent retransfers of separated plutonium to Japan is granted in advance, subject to conditions described in item 3, below.

2. The Tokai Mura reprocessing, conversion and fabrication plants are granted a programmatic consent, subject to review and renewal once every five years. The five-year duration of this and other approvals, below, corresponds to the time-frame used for regular reviews of the Nuclear Non-Proliferation Treaty and allows a reasonable period between U.S. reviews of proliferation and terrorism risks based on current circumstances. This is a more favorable arrangement for Japan than the three-year approvals now in effect for the Tokai Mura reprocessing plant.

3. Any transfers by air of separated plutonium, whether or not they traverse the territorial U.S., must first be certified by the NRC to meet the requirements of the Murkowski Amendment following the preparation of a full Environmental Impact Statement on potential impacts on the U.S. and on the global commons. Once approved, air shipments are approved for five years provided that immediately prior to each flight the U.S. reassesses the postulated threat and does not find cause to delay the flight or to require additional security arrangements.

4. Any subsequent arrangement for sea shipments after the agreement comes into force must be subject to a full Environmental Impact Statement and to the same time frame and threat reassessment by the U.S., as provided in item 3.

5. Before any new plutonium or HEU bulk handling facility or any new advanced thermal or breeder reactor can be added to the list of facilities covered by the programmatic consent, the President must certify "that the demonstrated degree of safeguards effectiveness for the facility meets an accountancy verification goal of one significant quantity at the closing of a material balance for the facility." In that event, the facility is approved for five years, subject to 15-day review by Congress per Sec. 131 of the Atomic Energy Act. If that degree of safeguards effectiveness cannot be achieved by accountancy verification alone, the NRC must certify that an IAEA facility attachment is in place for the application of comprehensive safeguards that, based solely on the technical effectiveness of the safeguards, will provide "timely warning" of a diversion of a significant quantity. If the NRC makes such a finding, the facility is approved for five years, subject to Congressional review per Sec. 131. If the NRC is unable to make such a finding, the facility cannot come into operation without the affirmative approval of Congress.

6. Japan will provide physical security on materials subject to the agreement at least equivalent to that provided for such material under U.S. law and regulations.

7. The rights of the parties to suspend programmatic consent arrangements related to storage, transfer, reprocessing and use of special nuclear materials shall be complete and unqualified, without regard to limitations contained in Article III of the implementing agreement.

8. Japan is barred from substituting third-party plutonium for U.S.-controlled plutonium ("flag swapping") for use in its program, or from selling U.S.-controlled plutonium to a third party for any form of compensation other than enrichment services equivalent to the energy value of the plutonium.

9. Any future nuclear agreement negotiated by the U.S. with another nation or group of nations that provides "significantly greater practical advantages" than those provided in the agreement with Japan cannot come into force without affirmative Congressional approval.

10. It is stipulated that the agreement with Japan does not represent a precedent for negotiation of other U.S. nuclear-cooperation agreements.

Mr. SOLARZ. Mr. Milhollin.

Mr. MILHOLLIN. If you look at page 12 of my testimony you will see that what you have just expressed is pretty close to Condition 3. That is, it would provide that we do not give advance approvals to facilities unless when they are brought into the list of approved facilities there is an assurance that the material unaccounted for will not exceed some number. I think the best source for that number would be a neutral observer like the Nuclear Regulatory Commission.

QUANTIFYING SAFE LEVEL FOR UNACCOUNTED MATERIAL

Mr. SOLARZ. Assuming we went this route, do you think it would be desirable to put the specified number in the resolution?

Mr. MILHOLLIN. Yes, I do. Because the important thing about the agreement is that it decides all these questions now.

Mr. SOLARZ. What do you think the number should be?

Mr. MILHOLLIN. You are asking me a question that is hard to answer. I think if it is more than a few critical masses, more than a few bombs' worth, that we ought to worry a lot.

ASSESSING THREAT OF PLUTONIUM DIVERSION

Mr. SOLARZ. Let me go to a related but somewhat different aspect of this, and that has to do with physical protection versus timely warning.

Frankly, I am much more concerned about the physical protection than the timely warning. I guess they are both desirable.

For example, if I were the manager of a bank I would be more interested in preventing money from being stolen from the bank than arrangements to detect the fact that it had been stolen after the money had already left the bank. Obviously you would like to have both, but the key thing is to prevent the bank from being looted. Let me ask you to focus on that.

If this agreement is adopted, what would you judge the prospects that a terrorist could break into the facility and steal the plutonium or that a facility operator could divert the plutonium, or that some other facility employee could divert the plutonium? How realistic is this?

Mr. MILHOLLIN. I was a consultant to the Pentagon in the preparation of its report when the five agencies filed their reports to Congress.

The important thing about the present agreement is that through the consent right it gives you a chance to talk to people before problems come up. So if it becomes possible to have better physical security arrangements, there is a mechanism for getting Japan's attention on that subject in the existing agreement.

The proposed agreement, for everything except transport, refers you to the international guideline. That, in my opinion, is not adequate.

EXISTING AGREEMENT EXCEEDS INTERNATIONAL SAFEGUARD STANDARDS

Mr. SOLARZ. As you understand it, what are the implications of the new agreement for the physical safeguards that would be estab-

lished in these new facilities compared to the arrangements in the existing agreement with regard to physical safeguards? Is there any difference?

Mr. MILHOLLIN. There is no difference for storage and use that I can see. But the existing arrangement gives us an opportunity to force Japan, and I hate to use the word force but there it is, force Japan in the future to improve its system under the existing agreement because we have the unqualified right of consent. Whereas under the proposed agreement what we have done is we have agreed that the international guideline is okay. So if we want to tell Japan five years from now that it looks as if the threat has changed, the guideline is no longer good enough, there are more terrorists, they are better armed, and the Japanese arrangements do not satisfy us, then there is really no mechanism for forcing Japan to deal with us on that problem and get it solved before a difficulty arises.

Mr. SOLARZ. Are you at all familiar with the kind of physical safeguards they are planning to establish in new facilities?

Mr. MILHOLLIN. I would be surprised if they are public. Most of those are classified. There may be criteria, but—

Mr. SOLARZ. In the agreement, the only reference to this is that they have to meet these physical safeguard standards of the IAEA?

Mr. MILHOLLIN. That is right. There is an international guideline put out by the IAEA and the existing and proposed agreements both refer to that.

TIMELY WARNING

Mr. SOLARZ. Let me ask you about timely warning. As I understand it, the benefit of timely warning is presumably most relevant in the circumstances where a nation which has a reprocessing facility decides that it wants to make nuclear weapons, perhaps on the sly. So if you have timely warning, the theory as I understand it and please correct me if I am wrong, is that diplomacy has a chance to work.

Mr. MILHOLLIN. That is correct.

Mr. SOLARZ. And you can attempt through persuasion and pressure to get them to refrain from joining the nuclear club, is that correct?

Mr. MILHOLLIN. That is the accepted view, yes. That is right.

Mr. SOLARZ. Does timely warning provide any benefits with respect to the problem of terrorists, that is, non-state organization snatching the materials, the PLO, the Japanese Red Army, the Bader-Meinhoff Gang, any one of the other groups that engage in terrorism?

Mr. MILHOLLIN. The answer is yes, but it is complicated, I am afraid. Because of the timely warning requirement, the IAEA promises to deliver timely detection. They promise to detect missing material within the time it would take to make that material into a weapon.

Now if the IAEA has to meet that goal, that means the IAEA is going to impose upon the holders of plutonium an accounting system which allows IAEA to succeed. That helps you detect it ear-

lier. But if your question is does it prevent it from being stolen physically, the answer is no.

ASSESSING THE TERRORIST THREAT

Mr. SOLARZ. No, what I am trying to get at is this. In the case of Japan, first of all, I cannot envision any circumstances in which Japan is likely to decide to become a nuclear weapons state. And if it does, it seems to me it is only in the kind of world in which the whole nuclear non-proliferation regime has broken down.

Mr. MILHOLLIN. I agree.

Mr. SOLARZ. At that point, it is no longer a critically relevant concern.

Mr. MILHOLLIN. We'll be in "deep doo doo" as the Vice President says. That is right.

Mr. SOLARZ. In very "deep doo doo."

So the real problem we face with respect to Japan is not the problem of a subsequent Japanese government deciding to become a nuclear weapons state. The real threat, to the extent we face a threat, lies in the extent to which you have all of this plutonium which could somehow or other be snatched or stolen by a terrorist group.

Mr. MILHOLLIN. Or embezzled by employees.

Mr. SOLARZ. Yes. Presumably for—

Mr. MILHOLLIN. For the benefit of someone.

Mr. SOLARZ. Yes, you do not use it for fillings in your teeth. I assume that if terrorists consider how to obtain plutonium for the purpose of making a nuclear weapon they must consider the possibility of bribing or persuading one of the employees or a group of employees or facility to help them out.

Let's assume they can do that. Let's assume somehow or other they can get some people to cooperate. And let's assume further, that they are successful in getting the stuff out in weapons grade quantities.

TERRORIST WEAPON-BUILDING CAPABILITY

So now the horror of horrors has occurred. We now have a group that has this stuff. At this point how easy or difficult is it to transform the kind of plutonium they would have in these Japanese facilities into an actual weapon?

Mr. LEVENTHAL. Could I address that?

Mr. SOLARZ. Sure.

Mr. LEVENTHAL. We had a study done on that very subject. It was part of our International Task Force on Prevention of Nuclear Terrorism. We did commission a study by five former weapons designers from Los Alamos, including a former chief of weapons design, Carson Mark.

The conclusion was that a terrorist organization would need to recruit perhaps three or four technical people, none of whom need have weapons experience but who are skilled in what needs to be done to build a bomb, and that includes metallurgy, electronics, explosives and such. They could convert the oxide form of plutonium into the metallic form, which is the preferred form for a crude device, a relatively simple device using relatively little material,

and that device would have a high probability of exploding with a yield in excess of 1,000 tons of TNT, a kiloton, and a lower probability of yielding as much as 10 kilotons. A fizzle would be perhaps equivalent to 100 tons of high explosive. In other words, a World War II variety bomb.

Mr. SOLARZ. So if they get the plutonium out presumably it is possible to convert it to a weapon if they can find the people to do it, and money talks and there may be people who are willing, unfortunately, to do it.

APPLICABILITY OF TIMELY WARNING

I have two questions. First, as I understand it, the concept of timely warning which is in the law, is explicitly restricted to the activities of the state, not private parties. In other words, it is supposedly designed to deal with the possibility of the government of the country in which the facility is located deciding to become a nuclear power.

Mr. LEVENTHAL. My response to that would be an embezzlement scheme by a plant employee that was not detected on a timely basis by the national or the international safeguards arrangements would fit under that timely warning criterion. I do not have the language in front of me, but it is timely warning of a diversion, or words to that effect.

Mr. SOLARZ. What it says in the law is that "Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear weapon state could transform the diverted material into a nuclear explosive device."

In other words, it is designed to deal explicitly with the possibility of the state becoming a nuclear power, not with the possibility of a terrorist group securing the plutonium for terrorist purposes.

Mr. MILHOLLIN. Could I respond to that?

Mr. SOLARZ. Sure.

Mr. LEVENTHAL. There is a hypothetical scenario of a sub-national diversion, whereby the material would end up in the hands of Libya or another non-nuclear weapons state, for say, one example. We do know that Quadaffi is—

Mr. SOLARZ. Well let me say that, even if a technical reading of this would mean that the law is not applicable to a situation in which Quadaffi sends out a terrorist group to snatch the plutonium for Libya's purposes, obviously that should be a source of concern. I would hope if that day ever comes our response does not have to await the adjudication of the Supreme Court to determine whether the law is applicable.

UTILITY OF TIMELY WARNING WITH RESPECT TO TERRORIST DIVERSION

But what I am trying to get at is, if it is a terrorist group that gets it, how can diplomacy work? I am not sure what the benefits of timely warning are, even assuming you can get timely warning, if the diversion is not for state purposes but for the acquisition of a nuclear weapon by a terrorist group. By definition, diplomacy does

not work with terrorist groups. Indeed, presumably the terrorist group wants it either for an act of sort of cataclysmic revenge, or they want it for the purposes of blackmail, and they will be only too happy to let the world know that they have it, once they have it.

Mr. MILHOLLIN. I think you have to focus on the capability of the accounting system and not who is going to use the material. The accounting system is designed to protect everybody. In Japan it seems to me that the main benefit of the accounting system is to protect the Japanese themselves, because as you said just a minute ago, the likelihood of a diversion by Japan is much smaller than the likelihood that a non-authorized person is going to take it.

Mr. SOLARZ. Mr. Milhollin, maybe I did not make myself clear. If we agree that we do not have to be particularly concerned about Japan becoming a nuclear weapons state, the problem is that private individuals could get this for their own purposes. Then it seems to me that the main concern is that the physical protections be such that we have the highest confidence that nobody is going to be able to get the stuff out of the plant. But if they do get it out of the plant anyway, it is not clear to me what advantages we have if we have timely warning of the fact that some of the stuff has been diverted. By that time, the horse is out of the barn. It is too late.

In other words, if you said to me this agreement is faulty because the physical safeguards that will be implemented may not be sufficient to prevent the theft of plutonium, and if that turns out to be the case, *ipso facto*, I think it is a bad agreement.

One might come to the conclusion that the physical safeguards are very good, very tough, and that it is almost inconceivable that there would be a diversion, but that nevertheless the agreement should be rejected because we cannot be sure it will give us timely warning. Regarding the terrorist scenario, I do not see what benefits timely warning produces. The absence of timely warning would not seem like a persuasive argument for rejecting the agreement. On the other hand, if you could show the physical safeguards were not adequate, that to me would be a persuasive argument for rejecting the agreement.

Can you respond to that?

JAPANESE PHYSICAL PROTECTION STANDARDS

Mr. MILHOLLIN. In Condition 1 of my suggested modifications, I suggest that Japan use a standard that is as high as we use in the United States to protect material here. I think that is a reasonable request in exchange for programmatic consent for 30 years.

Mr. SOLARZ. I am told that they do now. But your concern I suppose would be that maybe they will not 30 years from now.

Mr. MILHOLLIN. The standard they follow is much weaker than the standard we follow.

Mr. SOLARZ. In what respect?

Mr. MILHOLLIN. The international standard that Japan follows does not require armed guards; it does not require protected rooms for armed guards; it does not require physical inhibitions to penetration.

Mr. SOLARZ. They have no armed guards at these facilities?

Mr. MILHOLLIN. At facilities, that is right.

Mr. LEVENTHAL. I can elaborate on that.

Mr. MILHOLLIN. Let's put it this way. The guideline does not require it, and I am not aware that such guards exist, that there are armed guards in Japanese facilities, and I do not believe there are.

Also, our regulations require systems which ensure that a call for help goes out. The international guideline does not.

Mr. LEVENTHAL. Could I elaborate, please?

Mr. SOLARZ. Yes.

Mr. LEVENTHAL. I have a document here that I think you would find interesting. It is a detailed description of physical protection in Japan, written by one of their top experts, Hideo Kuroi, from the Japan Atomic Energy Research Institute, who now is a safeguards and physical protection consultant to the IAEA.

This is an article that appeared in the Journal of the Institute for Nuclear Materials Management, and it is fascinating.

On the question you just raised about armed guards, and by the way, the agreement requires armed escorts for shipments of plutonium to Japan, but interestingly there is no requirement for armed guards in Japan. The reason for that becomes apparent.

I will quote from the article. "As mentioned previously, in Japan all civilians have been prohibited by law for more than 100 years from having fire arms and ammunition. Persons permitted to have fire arms are limited to policemen and government investigators for narcotics, etcetera. Therefore, facility guards cannot have any fire arms and are prohibited from responding directly against offenders."

That is one quote that I think is quite pertinent. Let me just read you one other one if I may, quite briefly.

The article describes physical protection in terms of the culture of Japan, and the author points out that Japan has been an island nation and has never been successfully invaded. As a consequence he says, quote, "Traditionally, the Japanese have found the idea that security should cost money incomprehensible. To the Japanese, security has been like water, free of charge to all."

He continues. "This historical and geographic background gave the Japanese the attitude that steps taken for the sake of security ought not to cost anything because any devices or measures of security are not necessary and therefore are not worth paying for. However, too much of a good thing is as bad as too little. Excessive security," and in this case he means the security of Japan against invaders, "has turned the Japanese into a cloistered people who panic when faced with crisis of even minor security. Taking into consideration modern internationalization covering the whole world in general, Japan cannot continue to stay in a cloistered environment. The real challenge for Japan has been to enlighten the people on the necessity of physical protection, while the national characteristic has always made us more inclined to be domestically oriented and reactive rather than proactive."

I would like, if I could, to submit this for the record. I think it is an authoritative article, and it points out very simply that the United States and Japan have different attitudes toward physical protection. This is clearly reflected in the terms of the agreement.

Mr. SOLARZ. Without objection, it will be included in the record.¹

I must say just on a cursory hearing of this analysis, the author's sense of history is somewhat deficient. If I recall correctly, Japan lost part of its territory to the Soviet Union at the end of the 2nd World War when the Red Army invaded, occupied, and possessed the northern islands, and the continued occupation of those islands by the Soviet Union is a significant source of tension between Japan and the Soviet Union. So if his analysis is as accurate as his historical observations that Japan has never been invaded, I have some reservations about it. But I will take a closer look at it.

QUANTITY OF PLUTONIUM NEEDED TO MAKE WEAPON

Let me just ask you one or two other questions and we will conclude. You have been very gracious in staying as long as you have.

Am I correct that you need roughly eight kilograms of plutonium to make a rudimentary weapon?

Mr. MILHOLLIN. The Nagasaki bomb in 1945 used 6.1 kilograms. The reflected critical mass of plutonium is four kilograms. Now people do it with less than four. But you would have to speculate if you are thinking about a first generation terrorist bomb, how much would be used.

Mr. SOLARZ. Give me a minimum figure.

Mr. MILHOLLIN. If somebody walked out of here with three kilograms of plutonium and didn't like me very much, I would be worried about it.

Mr. KEARNEY. Is that weapons or reactor grade?

Mr. LEVENTHAL. But, I think, if you are talking about reactor grade plutonium, you want to speak in terms of about—

Mr. SOLARZ. The kind of facilities that Japan would have under this agreement.

Mr. KEARNEY. That is reactor grade.

Mr. LEVENTHAL. Yes. I would use the IAEA significant quantity, which is eight kilograms.

Mr. SOLARZ. How large is eight kilograms? In what form does it come? Is it a solid, a liquid?

Mr. LEVENTHAL. In a civilian fuel facility the plutonium is usually in oxide form. It comes out of the processing plant in liquid nitrate form and then it is converted into an oxide powder.

Mr. SOLARZ. What does that mean? A powder?

Mr. LEVENTHAL. A powder.

Mr. SOLARZ. So it is a powder?

Mr. LEVENTHAL. It is a powder.

Mr. SOLARZ. Could you give me a sense of what you could get eight kilograms in? Would you get it into a cup? Would you get it into this pitcher?

Mr. MILHOLLIN. A grapefruit, a metallic grapefruit would do it for a bomb.

Mr. LEVENTHAL. Heavy metal.

Mr. MILHOLLIN. Metal the size of a grapefruit.

Mr. SOLARZ. A metal the size of a grapefruit.

Mr. MILHOLLIN. A grapefruit or smaller, yes.

¹ The article referred to appears in app. 23.

Mr. SOLARZ. But you say it is a powder.

Mr. MILHOLLIN. But you do not normally make the bomb with the powder.

Mr. SOLARZ. No, I mean if you are taking it out of the plant. You want to smuggle the material out. That is what I am getting at.

Mr. LEVENTHAL. It would not necessarily all go out at the same time, but if it did it would be something that could conceivably be concealed, and there are different diversion path scenarios that the IAEA and other organizations go through.

Mr. SOLARZ. So what they would be taking out would be a powder.

Mr. LEVENTHAL. Yes, from that sort of a facility.

Mr. SOLARZ. And they do not, presumably, have to take out the total amount that is necessary all at once.

Mr. LEVENTHAL. Right.

Mr. SOLARZ. It could be done over a period of days, weeks, months, or whatever. Is this material such that in order to avoid the death or disease of the person who takes it out that it has to be in a certain kind of container? You couldn't just pick it up in your hands and walk out with it.

LOW-LEVEL WASTE STREAM AS DIVERSION PATH

Mr. LEVENTHAL. It would have to be in a sealed container, because if it is inhaled it is a deadly toxin. But it does not give off deeply penetrating radiation. If it were in a sealed container you would not have to worry about gamma radiation to the extent that you would be in jeopardy. It is an alpha emitter, primarily, although there is some gamma and that could be detected by devices.

However, one of the basic diversion paths that has been explored is the so-called low level waste stream, which is the least secured stream within a plant. If someone tossed a quantity of plutonium in a sealed package into the barrel that ordinary low level waste goes in, it is conceivable that it could escape detection, since it does not give off deeply penetrating radiation.

In fact, this is one of the possible scenarios for what is alleged to have happened in Germany in the course of the nuclear waste scandal there. It is conceivable that if plutonium actually was sneaked out of a plant it might well have been through the low level waste stream.

Mr. SOLARZ. Would it be possible for you to submit to us a number of scenarios in which people might attempt to steal plutonium from the kind of facility they are building in Japan so that we could then ask the administration what assurances we have that if we approve this agreement, the kind of physical protections the Japanese will have at these facilities will make it virtually impossible for this scenario to be effectively carried out?

Mr. LEVENTHAL. I would be pleased to do that. I would simply respond though, that the low level waste stream is one that should be of real concern. I would think the authoritative agencies, such as ACDA and the NRC and the Department of Energy probably have explored this in some detail and are in the best position to reply authoritatively.

U.S. CONTROL UNDER PRESENT VERSUS PROPOSED AGREEMENT

Mr. SOLARZ. At the beginning, I think Dr. Wolfe was making the point that he thought one of the reasons the new agreement was better than the old agreement was that it brought non-U.S. supplied materials under the purview of the agreement, whereas right now they are not. And if your analysis is correct, Mr. Milhollin, and they are going to have close to 24, 25 percent non-U.S. supplied materials by the end of the century, that would seem to be a significant benefit.

Mr. MILHOLLIN. The non-U.S. number in my table would not necessarily be material that has gone through a U.S. facility or a facility that used a U.S. component. So the proposed agreement would not catch at all under its purview. That is the first point.

The second point is that by giving a programmatic consent to use all the material in advance, it does not really matter very much how much of it is under the agreement or not. That is, you can argue that it is nice to have more material under the agreement, but if there is not going to be any leverage over it, then it is not a very great benefit.

Mr. SOLARZ. This really comes down to the point we were discussing before, and that is the extent to which the agreement is written in a way which as a practical matter gives us the capacity to say we are suspending the agreement if they do not adopt the kind of safeguards and physical protections which we deem necessary.

Mr. MILHOLLIN. That is exactly right.

Mr. SOLARZ. I gather your feeling was that it is much more difficult because under such circumstances they would claim that they were living up to the agreement. We would say they are not living up to the agreement, and therefore, it would be more difficult for us to say no, compared to the present agreement where you claim we have an undisputed right to say no for whatever reason we choose, and therefore, even if the Japanese think we are acting unfairly, we clearly have the right to do so.

Mr. MILHOLLIN. I guess I would say that I hope you will focus on at least one thing. That is under the present agreement we can take action through our consent rights before problems come up. The important thing about contracts is how they are performed and not how they are breached. The benefit we get under the present agreement is that during its performance we have a lever which allows us to talk to the Japanese continuously about improvements. I think that is a lot more important than any right anybody is going to have if it is breached.

Mr. SOLARZ. But I would assume in the nature of this agreement we will be in fairly constant communication and contact with them. We are supposed to participate in the formulation of these plans. Isn't it in Japan's interest to have us working with them precisely in order to avoid a worst case scenario?

Mr. MILHOLLIN. Sure it is.

Mr. SOLARZ. Because it will be small solace to them if we suspend the agreement after they have put in a lot of money and effort and everything into it, simply because they can argue that we're incorrectly interpreting the agreement. They want to avoid that. The best way to avoid it is to have us on board throughout the process.

RIGHTS VERSUS INFLUENCE

Mr. MILHOLLIN. That is right. The question is, are you happier being the lawyer for the United States under the proposed agreement or under the present agreement, and I am much happier being a lawyer for the United States under the present agreement because I think with the rights, you are necessarily in a better position to talk about whatever you want to talk about than you are with simply influence and criteria that you can argue over.

Mr. SOLARZ. Even if the new agreement is not as good as the old agreement and therefore as the attorney you would prefer the old agreement, it still leaves open the question of whether or not the Japanese would go ahead outside of the framework of the existing agreement if we rejected the new agreement.

Mr. MILHOLLIN. As I said, I do not think it matters which agreement there is with respect to whether Japan is going to have a plutonium economy. I think that is independent. The other factors are more important than either agreement in making that decision for Japan.

VALUE OF SAFEGUARD CONCEPTS IN NEW AGREEMENT

Mr. SOLARZ. Do you have any fault to find with the safeguard and physical protection concepts enumerated in the agreement?

Mr. MILHOLLIN. I think that if we did not have any agreement at all with Japan they would be better than nothing. But compared to the present agreement, I think they are much less powerful.

Mr. SOLARZ. Why?

Mr. MILHOLLIN. I am afraid I am going to have to repeat myself. Because of our unqualified right to hold up their whole program unless they agree with our views.

Mr. SOLARZ. I meant something else. I gather we spell out in the agreement the various criteria for safeguards and physical protection. Do you disagree with those concepts? Do you feel they do not go far enough? Are you basically saying they are fine insofar as they go, but since we do not know how they are going to be implemented, it is possible they may be implemented inappropriately.

VAGUE NATURE OF PROSPECTIVE CRITERIA

Mr. MILHOLLIN. That is right.

I would like to just read a couple of things from the agreement. The agreement says—the note on plutonium extraction says—that “New and improved techniques may be introduced.” This is new accounting techniques. “But only to the extent that undue interference and plant operation is avoided.”

It also says that “the new plants will be designed and operated to facilitate safeguards,” that is accounting, but only “as far as practicable.” These concepts are worded as goals. They are worded vaguely as things that are desirable. Because they have to be prospective, they are vague. You cannot spell out now all of the criteria which would be appropriate 10 years from now when you know more about the technology. It just stands to reason.

So what I think is that we are signing on to something that is too ill defined, and if we do sign on to it and there is a proposal to approve this agreement, it ought to have a number of conditions.

SUPPORT FOR PRESENT AGREEMENT

Mr. SOLARZ. If we were to adopt your conditions, would you prefer the new agreement with your conditions or no new agreement at all?

Mr. MILHOLLIN. I would prefer the old agreement.

Mr. SOLARZ. But Japan may not find the old agreement satisfactory.

If we adopted your conditions, you would recommend that the Congress reject the agreement even with your conditions?

Mr. MILHOLLIN. I realize it would be politic for me to say it would be great if you accept my conditions. But my honest answer is that if I have to represent the United States in negotiations with Japan, I would much prefer to have the old agreement because I think it is much stronger. But if I cannot have that, then I think I need the conditions.

SUPPORT FOR PROPOSED AGREEMENT

Mr. SOLARZ. Mr. Kearney, did you want to say something?

Mr. KEARNEY. I think I would just go back to what I originally said. That is I think if you make a judgment about the new agreement versus the Japanese going elsewhere, I think that this nation would be better off with the new agreement

Mr. SOLARZ. To which Mr. Milhollin says that from his point of view it does not make a difference. Given the nature of the new agreement, whether they go somewhere else or not you say is irrelevant.

Mr. KEARNEY. I disagree with that. I think that if the Japanese with their energy dependence or lack of energy independence is going to go to the fast breeder economy at some time, I think it is a strong possibility that they would say if we cannot do it under the new agreement which we think gives us the certainty to be able to do it, then they may go elsewhere.

Mr. SOLARZ. And your point is that if they are going to build a fast breeder reactor and go into a plutonium economy, even in terms of our non-proliferation concerns we are better off having them do it under the new agreement than going with someone else.

Mr. KEARNEY. Yes, sir.

POLITICAL CONSIDERATIONS AND NON-PROLIFERATION CONCERNs

Mr. SOLARZ. What do you think, Mr. Leventhal?

Mr. LEVENTHAL. I realize at this advanced stage, after six years of negotiations and with a lot of political capital invested, the most desirable political outcome for both nations may be to go with the new agreement. But, I feel strongly, to do that you would have to condition the programmatic consent upon certain conditions, certain requirements that would have to be met along the lines of what you spoke of before.

At your request I have put some thought to that and have submitted some conditions which—

Mr. SOLARZ. If such conditions were put into a resolution of approval and if you then had to choose, assuming for the purposes of discussion Japan is going to go the plutonium economy route, you would rather have them do it with the U.S. under an agreement

with the conditions built in, or would you rather have them do it with other countries, or would you say it is irrelevant from a non-proliferation point of view?

Mr. LEVENTHAL. I would prefer that a good relationship be maintained between the United States and Japan in this field. I do believe it is a good relationship as of now and that we are being pressed very hard by the Japanese to make a major concession here.

I think there is room for compromise between a 30 year programmatic approval and the original case by case approach, and that is what I have spelled out in my submission to you.

THANKING THE WITNESSES

Mr. SOLARZ. You have all been extraordinarily gracious in giving up so much of your time. There weren't many cameras here, there wasn't much press. But that should not be understood as a commentary on the significance of what we have been talking about.

I think we all recognize, as one of you said many hours ago, that the decisions we make now can have awesome consequences for our posterity, the future of the nation and maybe the world. I think it is a tribute to all of you that you were prepared to take so much of your time to share your thoughts, your concerns, your hopes, and your fears, and your suggestions with the Committee and the Congress so that we can have the benefit of your thinking as we attempt to deal with this issue. It is obviously extraordinarily complex.

If I was a little bit sharp at times it was really only to kind of draw you out a little bit more in the search for a better understanding of this problem.

I am particularly grateful for your concrete suggestions about how we can attempt to improve this within the framework of the realities within which we have to function. I am sure we will be in touch with you further as we move forward here.

Obviously it would be most desirable if we can find ways of improving the agreement in a fashion that is acceptable to the Japanese and also to the administration, because that would make the incorporation of these improvements more acceptable all the way around. It may not be possible, in which case we would have to make a judgment about the particular significance or merit or any particular recommendation.

But I do want to thank you very much, and I am delighted we were able to conclude the hearing before the Japanese finish constructing their new reprocessing facility.

The hearing is adjourned.

[Whereupon, at 6:57 p.m., the hearing was adjourned.]

APPENDIX 1

PREPARED STATEMENT OF HON. DON BONKER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

In addition to my concerns over the relaxation of non-proliferation controls under this agreement, I have very strong reservations about the possibility of air transportation of plutonium across our nation.

Basically, there are two ways to transport the reprocessed plutonium from Europe back to Japan—by sea or by air. Seaborne transportation reduces the safety and environmental risks, but could make these shipments more vulnerable to terrorist attack. Airborne transportation may reduce the risk of terrorism, but could increase the safety and environmental hazards. In 1984, when Japan shipped 189 kilograms of reprocessed fuel from Europe by sea, the voyage took 75 days.

I am deeply troubled by the prospect of air transportation of plutonium without the most rigorous safeguards. Recently, a prototype of the plutonium transportation containers failed a simulated air crash test. While the Nuclear Regulatory Commission is responsible for the safe operation of nuclear plants and the safe transportation of nuclear materials within the United States, the NRC was excluded from these negotiations.

As I read this agreement, it does not even require prior approval by the United States Government before these flights begin.

The State of Alaska has filed suit to block these flights, and the Government of Canada has raised serious objections as well. If both Canada and Alaska succeed in blocking these flights, it is entirely possible that we could have three planes per month refueling in Washington State, each carrying over 300 pounds of deadly plutonium.

Air shipment of plutonium raises obvious safety and environmental questions, yet the Department of Energy has refused to conduct a full Environmental Impact Statement as required by law.

Let's be clear on what we're talking about here: Plutonium oxide is one of the most toxic substances known to man. As a powder, it is easily airborne, and even a minute amount can cause lung cancer if inhaled. The Agreement calls for two flights in 1990, each carrying roughly 110 pounds of plutonium. By 1992, the flights will increase to three per month, each carrying roughly 330 pounds. Over the 30-year life of this Agreement, over 25 tons of plutonium could be transported through our state.

Congress has 90 working days in which to review these issues, then approve or disapprove the Agreement. It's obvious that many of us in Congress have serious concerns about this Agreement, and there may be strong sentiment to send our negotiators back to Japan to hammer out an agreement with stronger non-proliferation and transportation provisions. At the very least, I believe Congress should impose strict safety and environmental conditions, before giving this Agreement even conditional approval.

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APPENDIX 2

PREPARED STATEMENT OF HON. TOBY ROTH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN

Mr. CHAIRMAN. Let me just say that I fully support the United States-Japan Nuclear Cooperation Agreement which President Reagan signed in Tokyo last November.

I believe that the Agreement will further U.S. non-proliferation objectives and provide more effective U.S. control and influence.

As described by Dr. Wolfe, failure to adopt this Agreement will create pressures for the Japanese to turn to non-U.S. sources of supply.

Certainly we are sensitive to the safety and environmental concerns which have been raised here. But I am confident that those issues can be resolved in the near future.

APPENDIX 3**PREPARED STATEMENT OF HON. MARILYN LLOYD, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF TENNESSEE**

Mr. Chairman. I recommend that the Congress support the Administration's proposed agreement with Japan because it is the type of "glue" which binds partners in a real alliance of sovereign nations. I am distressed to see that an agreement which is both consistent with U.S. nonproliferation goals and also recognizes the energy needs and sovereignty of a close ally should be opposed by anyone in the Congress who believes in sound nuclear commerce and wishes to prevent the spread of nuclear weapons technology.

I would like to remind the Subcommittee of the painful history of U.S. nonproliferation policy. The sad facts of the matter are that the Nuclear Nonproliferation Act of 1978 which was based on a policy of denial resulted chiefly in a "proliferation of suppliers" of both nuclear materials and nuclear technology. It has compromised for over a decade our ability to promote nuclear nonproliferation. It has caused other nations to seek technology elsewhere than from the United States so that our leverage in nuclear affairs has been greatly reduced. Yet, some of today's opponents of this agreement with Japan appear to be convinced that we can, nevertheless, unilaterally control worldwide nuclear technology transfer.

I found the Spanish in a quiet rage in 1981 in the "aftershock" of the implementation of the Carter nonproliferation policy. In fact, Spanish officials were then being criticized for exchanging one unavailable source of supply, i.e., OPEC, for another i.e., U.S. nuclear technology and materials. The Spanish said that the U.S. forcing them to renegotiate contracts effectively amounted to a retroactive restructuring of their nuclear program and drove them to the Soviet Union and other suppliers.

Earlier this year, I visited Brazil and Argentina to discuss nuclear issues. These are South America's two most nuclear-capable countries, formerly dependent on U.S. nuclear capability and goodwill, but now virtually detached from our technology and, unfortunately, from our influence.

In Brazil the officials in charge of nuclear development policy both for civilian and military use, would not even meet with our visiting delegation despite a special plea by the Brazilian Ambassador to the United States. We had to be content to meet with an official from the government utility to discuss the problems with their Westinghouse pressurized water reactor. We are still harvesting the bitter fruits of our bankrupt nonproliferation approach of the 1977-1980 period.

I was also surprised by the fact that the Reagan Administration had not recovered much "nuclear ground" in Argentina. Since the Administration has the right to waive provisions of the NNPA in the best interest of the U.S., I would have expected that that option might have been used in the past 7 years to begin to rebuild the bridge of renewed cooperation and influence. In Argentina we had discussions with top nuclear energy officials and although they don't expect the U.S. to change things overnight, they have not recovered from our unilateral insults of the late 1970's. Argentina is now a major second-tier supplier of nuclear technology as attested to by their recent sales of research reactors and negotiations with third-world nations on the export of a 360 Megawatt reactor of indigenous design. I would hope we can have at least a constructive dialogue with them in the future. The area of safeguards certainly offers room for discussion and they are interested in cooperation in nuclear science as well.

There are no unilateral surprises in the proposed cooperative agreement; since the NNPA fabric is now well understood. The proposed

U.S./Japan agreement places the Japanese nuclear program under the regime of nonproliferation controls that otherwise would not apply to most of their technology and nuclear material utilization. In this regard, it is a most important document that encourages nuclear commerce with the United States. More importantly, it expands U.S. involvement in safeguarding and controlling the use of plutonium in Japan. It, thus, fosters our nonproliferation goals instead of driving Japan further away from constructive United States influence.

It is most important to note that this agreement is made applicable to all U.S.-origin materials, even materials shipped prior to the passage of the NNPA which are not now subject to controls. It gives the United States the unilateral right to suspend its consent to any activity relative to such materials. The U.S. need only find that there is a significant increase in the risk of nuclear proliferation which may result from such activity or that such activity constitutes a threat to national security. Thus, U.S. control over the nuclear commerce and the promotion of nuclear nonproliferation is enhanced. This is not a hollow claim. Japan is required to provide the U.S. with information concerning the use of these materials so that an independent assessment of any such increased risk to nuclear proliferation can be made by the United States.

Therefore, the agreement accomplishes all of the goals of the Nuclear Nonproliferation Act while specifically retaining U.S. rights to unilaterally suspend consent to the use of nuclear materials should such use result in a significant increase in the risk of proliferation

or a threat to national security.

The United States does not have the monopolistic luxury of treating other developed and developing nations as second class citizens with regard to the use of nuclear technology. It does so at the clear risk of diminishing its influence over nuclear nonproliferation even further and ultimately isolating itself. The subject agreement submitted by the Executive Branch promotes the U.S. goals of nuclear nonproliferation and encourages an improved trade relationship between the United States and Japan. In my view, the agreement represents an opportunity to promote our national security by reducing nuclear proliferation threats posed by uncontrolled commerce in nuclear materials. Additionally, the agreement can serve as a benchmark to promote international security and we can assure the world that the highest standards can be applied in nuclear commerce.

I would remind my colleagues that even President Carter realized the limitations of an inflexible interpretation of the NNPA late in his Administration. He asked for Congressional approval of the Tarapur agreement under a request for waiver of the NNPA "in the best interests of the United States". Are we, eight years later, going to strike down an agreement that is consistent with the NNPA on the twisted premise that treating a close ally in bad faith serves real nonproliferation goals.

The Japan agreement should be given our resounding approval.

APPENDIX 4

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE PROPOSED NEW AGREEMENT FOR PEACEFUL NUCLEAR COOPERATION BETWEEN THE UNITED STATES AND JAPAN, U.S. DEPARTMENT OF ENERGY

U.S. DEPARTMENT OF ENERGY
Office of International Affairs
and Energy Emergencies

AGENCY: Department of Energy

Action: Finding of No Significant Impact (FONSI) for
The Proposed New Agreement for Peaceful Nuclear
Cooperation Between the United States and Japan
and an Associated Subsequent Arrangement for the
Return of Recovered Plutonium from EURATOM and Japan

Summary: The Department of Energy (DOE) has prepared an Environmental Assessment (EA) (DOE/EA-00336) for the proposed new Agreement for Peaceful Nuclear Cooperation Between the United States and Japan and an associated "subsequent arrangement" for the return of recovered plutonium from EURATOM to Japan.

The proposed action is to enter into the new Agreement pursuant to Section 123 of the Atomic Energy Act as amended, and an associated "Subsequent Arrangement" which would implement a provision of the proposed Agreement in which the U.S. undertakes to give its approval, subject to specified conditions, to the transfer of separated plutonium from EURATOM to Japan. One of the conditions for this approval is that the recovered plutonium must be shipped by air pursuant to various measures designed to assure its security and safety. This would include shipments of

plutonium via a "polar route or other route selected to avoid areas of natural disaster or civil disorder".

The environmental consequences of the proposed action are limited to those associated with air transport of plutonium oxide from Europe to Japan, and are predicted to be minor. The only radiological dose under normal conditions will be to the transport crew, including the air crew, any escort force on board, and those on the ground during refueling operations. The annual radiation dose is a small fraction of that associated with air transport of all radioactive materials in the United States.

The radiological risk from a major transport accident involving a crash of the plane followed by a fire is also very small. The annual radiological risk is estimated to range from 1.1×10^{-6} person-rem to 3.2×10^{-6} person-rem. The estimated number of adverse health effects from inhalation of plutonium as a result of such an accident ranges from 2×10^{-10} to 6×10^{-10} per year, and extremely small value compared to the normal incidence of cancer in the general population or the hazard from accidental death due to transportation.

The non-radiological impacts of the proposed action will also be negligible given the low number of air shipments per year required to implement the proposed action and the temporal nature of these impacts.

Three alternatives were also considered. The environmental consequences of each would be similar to those for the proposed action.

Based on the findings of this EA, the Department of Energy (DOE) has determined that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, an environmental impact statement is not required.

The Finding of No Significant Impact is being made available to the public. The Environmental Assessment, which is classified, will be made available when the Agreement for Cooperation is submitted to Congress pursuant to Section 123 of the AEA. For further information on the proposed action or for copies of documents contact:

Peter N. Brush, IE-13
Office of Nuclear Nonproliferation
Policy
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

For further information on the NEPA process for the proposed action contact:

Carol Borgstrom, EH-25
Office of NEPA Project Assistance
Office of the Assistant Secretary
Environment, Safety and Health
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

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SUPPLEMENTARY INFORMATION:

The Department of Energy has prepared an Environmental Assessment (EA) (DOE/EA-0336) for a proposed new Agreement for Cooperation with Japan Concerning the Peaceful Uses of Nuclear Energy Pursuant to Section 123 of the Atomic Energy Act, as amended (AEA), and an associated "Subsequent Arrangement" pursuant to Section 131 of the AEA. Together these actions will provide the framework for the return from EURATOM to Japan of plutonium recovered from spent fuel reprocessing for Japan in France or the United Kingdom. This Agreement has been negotiated in accordance with the mandate of Section 404(a) of the Nuclear Non-Proliferation Act of 1978 (NNPA).

The proposed "Subsequent Arrangement" within the meaning of Section 131 of the AEA, would be concluded under an existing agreement for peaceful nuclear cooperation with the European Atomic Energy Community (EURATOM) and will implement a provision of the proposed agreement in Japan in which the U.S. undertook to give its approval, subject to specified conditions to the transfer of separated plutonium from EURATOM to Japan. One of the conditions for approval is that the recovered plutonium must be shipped by air pursuant to various measures designed to assure its security and safety. This would include shipments of plutonium via a "polar route or other routes selected to avoid areas of natural disaster or civil disorder."

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This Environmental Assessment has been prepared to assess the potential environmental impacts of air shipments of plutonium over U.S. territory under the proposed new Agreement with Japan and associated subsequent arrangement with EURATOM. Where applicable it also considers the likely environmental effects of such shipments on the global commons.

This Assessment includes a discussion of the quantities of plutonium that could be shipped, the likely number of shipments that would be involved in a given period, the nature of the conditions that will have to be met before any such air shipments will be approved by the United States and the alternatives to authorizing air shipments of the subject plutonium from EURATOM back to Japan including their environmental implications.

The Alternatives to the proposed action considered include:

Taking no action on the proposed Agreement for Cooperation and associated "Subsequent Arrangement" with EURATOM;

Concluding an Agreement for Cooperation not involving advance long-term U.S. consent to the return of U.S. origin plutonium from Europe to Japan (such shipments would continue to be approved case-by-case);

The use of transportation modes or transportation criteria other than those contemplated in the new Agreement and the

- 6 -

associated "Subsequent Arrangement";

The environmental consequences of the alternatives were analyzed and found to be similar to those for the proposed action.

The environmental consequences of the proposed action are limited to those associated with air transport of plutonium oxide from Europe to Japan. The environmental impacts are predicted to be minor. The only radiological dose under normal conditions will be to the transport crew, including the air crew, any escort force on board, and those on the ground during refueling operations. The annual radiation dose is estimated to range between 0.73 to 2.19 person-rem, dependent on the number of shipments (the lower value corresponds to 12 shipments per year and the upper value corresponds to a maximum of 36 shipments per year). This value is a small fraction of that associated with air transport of all radioactive materials in the United States.

The radiological risk from a major transport accident involving a crash of the plane followed by a fire is also very small. The annual radiological risk (expressed as the product of the probability of the accident occurring and the consequences of the accident expressed as the 50-year committed effective dose equivalent to 10 individuals located 500 m downwind from the crash site) is estimated to range from 1.1×10^{-6} person-rem (for 12 shipments per year), to 3.2×10^{-6} person-rem (for a maximum of 36 shipments per year). The estimated number of

- / -

adverse health effects from inhalation of plutonium as a result of such an accident ranges from 2×10^{-10} per year, to 6×10^{-10} , an extremely small value compared to the normal incidence of cancer in the general population or the hazard from accidental death due to transportation.

With respect to the consequences of an accident on the global commons, these are expected to be the same or similar to those described for a flight transiting or landing in the U.S.

The non-radiological impacts of the proposed action (e.g., degradation of air quality due to the use of aviation fuel, increased noise levels, etc.) will also be negligible given the low number of air shipments per year required to implement the proposed action and the temporal nature of these impacts.

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DETERMINATION

Based on the findings of this EA, the Department of Energy (DOE) has determined that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, an environmental impact statement is not required.

Issued in Washington, D.C. Sept. 11, 1987



Mary L. Walker
Assistant Secretary
Environment, Safety and Health

APPENDIX 5

**LETTER FROM NRC CHAIRMAN LANDO ZECH TO THE HON. TOM BEVILL,
CHAIRMAN, SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
COMMITTEE ON APPROPRIATIONS, NOVEMBER 30, 1987, ON PLU-
TONIUM TRANSPORT**

November 30, 1987

The Honorable Tom Bevill, Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

The Senate has adopted an amendment proposed by Senator Murkowski to H.R. 2700, the Energy and Water Development Appropriation Bill. The amendment would prohibit the transport of plutonium by air from a foreign nation to any foreign nation through the territory or air space of the United States unless transported in a package that had been certified safe after testing by the Nuclear Regulatory Commission (NRC). The amendment requires that the NRC, in addition to meeting all other applicable law, shall conduct two tests prior to certification: (1) "an actual crash test of a cargo aircraft traveling at maximum cruising speed, appropriately loaded with sample full scale packages containing test material," and (2) "an actual drop test from maximum cruising altitude of a sample full scale package containing test material."

The NRC is opposed to this amendment for two basic reasons: (1) the qualification test criteria used by the NRC already assure a high degree of protection for public health and safety, and (2) conducting such a test would be costly and could be potentially dangerous.

Public Law 94-79, enacted on August 9, 1975, placed the following restriction on the Nuclear Regulatory Commission:

"The Nuclear Regulatory Commission shall not license any shipments by air transport of plutonium in any form, whether exports, imports, or domestic shipments; provided, however, that any plutonium in any form contained in a medical device designed for individual human application is not subject to this restriction. This restriction shall be in force until the Nuclear Regulatory Commission has certified to the Joint Committee on Atomic Energy of the Congress that a safe container has been developed and tested which will not rupture under crash and blast-testing equivalent to the crash and explosion of a high-flying aircraft."

As a result of Public Law 94-79, the NRC established a certification program to: (1) evaluate the conditions which could be produced in severe aircraft accidents, (2) develop qualification criteria prescribing tests and acceptance standards for packages used to transport plutonium by air, and (3) develop and test a plutonium package design to demonstrate its ability to meet the qualification criteria. Enclosed is a summary discussion of the qualification criteria with NUREG-0360, "Qualification Criteria to Certify a Package for Air Transport of Plutonium."

The NRC considered the possibility of conducting a full-scale aircraft crash test in connection with its program to certify the Model PAT-1 package in 1978, but abandoned the idea for several reasons which still prevail: (1) the engineering tests specified in the qualification criteria provided a high degree of assurance that packages could withstand aircraft accidents, (2) a single crash test would not be representative of all the aircraft accident conditions which could arise and thus the data from such a test would be of limited technical use, (3) there were concerns that the safety of the pilot and the public could be jeopardized in conducting the test, and (4) the relatively high cost of performing the test was not commensurate with the value of the expected results. Moreover, to our best knowledge, the type of test specified in Senator Murkowski's amendment, crashing a large jet aircraft at maximum cruise speed, has never been conducted. We believe that extensive studies would be needed to determine if such a test was feasible and could be conducted safely.

The cost for the NRC to conduct a full-scale aircraft crash test would likely be a multi-million dollar effort. Considering the limited amount of technical data that could be expected to result from a single test, we do not believe the cost and staff effort required to perform an aircraft test is justified.

In summary, we believe that a full-scale aircraft crash test is unnecessary because of the high degree of protection to public health and safety provided by the existing NRC qualification criteria.

Sincerely,

Lando W. Zech Jr.
Lando W. Zech, Jr.

Enclosure:
Summary Discussion of
Qualification Criteria

cc: Rep. John T. Myers

ENCLOSURESUMMARY DISCUSSION OF QUALIFICATION CRITERIA

The qualification criteria developed by the NRC for plutonium package certification are contained in NUREG-0360, "Qualification Criteria to Certify a Package for Air Transport of Plutonium." Because of the nature and wording of Public Law 94-79, the criteria are very stringent and are intended to provide a high degree of assurance that plutonium packages can withstand virtually all aircraft accidents. The criteria address the requirements of Public Law 94-79 that testing be equivalent to the crash and explosion of a high-flying aircraft by prescribing physical tests which simulate the conditions produced in severe aircraft accidents. The requirement of Public Law 94-79 for the container not to rupture is addressed in the criteria by specifying post-test acceptance standards equivalent to those of the International Atomic Energy Agency. In addition to physical tests and acceptance standards, the criteria also specify various engineering assessments to be made on plutonium package designs and require that certain operational controls be observed in transport.

The physical tests prescribed in the criteria clearly and conservatively encompass a reasonable upper limit of severity for accidents occurring during take-off, landing, or ground operations with minimal reliance being placed upon factors which could mitigate damage done to cargo. Considering the conservatism inherent in the qualification criteria for protecting against take-off and landing accidents, and the numerous factors present in an accident situation which could mitigate package damage, the criteria also assure a high-degree of protection against accidents which occur in other phases of flight. This includes accidents of extreme severity such as mid-air collisions and high speed crashes.

Before the NRC certified the Model PAT-1 package to Congress on August 4, 1978, the qualification criteria received independent reviews by both the Commission's Advisory Committee on Reactor Safeguards and a special committee established by the National Academy of Sciences. The results of the review performed by the National Academy of Sciences are reported in NUREG/CR-0428, "Review of Criteria for Packaging Plutonium for Transport by Air." The committee's conclusion was as follows:

"The committee is confident that the qualification criteria described or referenced in this report will result in a packaged container that will not rupture in the crash and

explosion of a high-flying aircraft. Each of the engineering tests called for in the qualification criteria is at or near the extreme limit for the particular type of abuse it simulates. By conducting the tests sequentially a single package is subjected to a substantial amount of stress and damage. An actual crash of an aircraft is not likely to subject the package to a similar or greater amount of damage than the qualification tests prescribed in the Commission's qualification criteria."

In view of the stringent engineering tests and conservative acceptance standards specified in the qualification criteria, the NRC does not believe that it is necessary to conduct an actual aircraft crash test in order to assure the safety of plutonium air transport packages. The qualification criteria specify that a series of physical tests be performed on full-scale sample packages. The tests include an impact test at 422 feet per second, a 70,000 pound crush test, a puncture test, a ripping/tearing test where a steel beam is dropped on the cask two times from a height of 150 feet, and a 60 minute fire test using aviation fuel. Each test (e.g., impact, crush, puncture, ripping/tearing, fire, etc.) is conducted at or near the extreme limit for the particular type of abuse being examined. The tests are performed in sequence so that the total damage suffered by a package is the sum of the damaging effects of each individual test. It is highly improbable that in any one, or even in several, full-scale aircraft crash tests that all of these conditions could be represented.

APPENDIX 6

**LETTER FROM MEMBERS OF THE COMMITTEE ON FOREIGN AFFAIRS,
DECEMBER 21, 1985, TO PRESIDENT REAGAN, AND RESPONSE THERE-
TO, JANUARY 29, 1988, TOGETHER WITH ATTACHMENTS**

December 21, 1987

President Ronald W. Reagan
The White House
Washington, D.C. 20500

Dear Mr. President:

In accordance with the provisions of Section 123b. of the Atomic Energy Act of 1954, as amended, 42 U.S.C. S2153(b) (the "Act"), we are writing to advise you that we, as members of the House Foreign Affairs Committee, have concluded that the proposed Agreement for Cooperation between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy, submitted to the Congress on November 9, 1987 (the "Agreement"), is not consistent with Section 123 of the Act. We respectfully request that you withdraw and renegotiate the Agreement to bring it into conformity with U.S. law. If the Agreement is not renegotiated, then it must be resubmitted to the Congress with a waiver of statutory requirements, in accordance with Section 123a. of the Act, and must await affirmative action by Congress through enactment of the joint resolution of approval.

In submitting the Agreement to Congress, your Administration expressed the conclusion that the Agreement "meets all statutory requirements." We must respectfully disagree with this conclusion. The proposed Agreement would provide for thirty-year advance consent of extraction, transport and widespread commercial use of plutonium by Japan--activities which, as the Administration itself states, are "unprecedented in...nature and scope...." In our judgement, Section 123 of the Act unqualifiedly requires that the United States retain prior approval rights in its agreements for cooperation over the transfer and reprocessing of nuclear material. While the Administration asserts that these requirements are met, the Implementing Agreement exercises in Article 1 the consent rights provisions on a one-time basis for the life of the Agreement, a proposal totally incompatible with the provisions of the Act.

We also have serious reservations about the finding that the Agreement is not inimical to the common defense and security--inasmuch as this determination was made arbitrarily in the face of serious, written objections from both the Department of Defense and the Nuclear Regulatory Commission. We also find fault with the Administration's interpretation of the Act's requirements with regard to the "timely warning" criterion. Congress intended in the Nuclear Nonproliferation Act for timely warning to be something more than a mere restatement of the general test of "inimicality" which the Act provides. Rather, Congress intended timely

warning to be a technically-based criterion, judged in light of the workability of safeguards. Since the Administration has not made such a determination, we do not believe that the exercise of consent rights in the Agreement is consistent with the requirements of Section 131b.(2) of the Act. Consequently, the safeguards criteria of Section 123 of the Act are not met.

We are deeply concerned about the major policy implication of the precedents which would be established by entry into force of this Agreement. Testimony taken by the Committee indicates that the U.S. is preparing to give blanket authorization for the next 30 years to air-shipment of several hundred kilograms of weapons-usable plutonium each month over and through U.S. territory. Before embarking on such a perilous course--which could seriously jeopardize our nonproliferation interest while posing a grave environmental risk--we wish to consult with the Administration very closely. It is therefore our purpose in this letter to stop the "ninety day clock," and to begin a good faith dialogue with all parties on how the fundamental deficiencies in the Agreement might be addressed.

We have reached these judgments on the basis of the Committee's investigations, as well as its lengthy hearing conducted on December 16, 1987. Accordingly, we conclude that the Agreement must either be renegotiated, or, at the minimum, resubmitted with a waiver of the appropriate provisions of Section 123 of the Act.

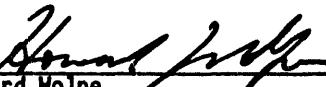
Sincerely,



Mel Levine



Don Bonker



Howard Wolpe



Benjamin Gilman

James McClure Clarke
James McClure Clarke

Geo. W. Crockett, Jr.
Geo. W. Crockett, Jr.

Edward Feighan
Edward F. Feighan

Howard L. Berman
Howard L. Berman

Mervyn Dymally
Mervyn M. Dymally

Morris K. Udall
Morris K. Udall

James H. Bilbray
James H. Bilbray

Robert G. Torricelli
Robert G. Torricelli

Donald E. Lukens
Donald E. Lukens

Dan Burton
Dan Burton

Robert K. Bonman
Robert K. Bonman

Lawrence J. Smith
Lawrence J. Smith

Gerry E. Studds
Gerry E. Studds

Sam Gejdenson
Sam Gejdenson

Gary L. Ackerman
Gary L. Ackerman

Ted Weiss
Ted Weiss

Chester G. Atkins
Chester G. Atkins

Wayne Owens
Wayne Owens

John Miller
John Miller

THE WHITE HOUSE
WASHINGTON

RECEIVED
COMMITTEE ON FOREIGN AFFAIRS
80 JUN 30 1988:41

January 29, 1988

Dear Mr. Chairman:

I am writing in response to your letter of December 21 concerning the proposed Agreement of Cooperation Between the United States and Japan Concerning the Peaceful Uses of Nuclear Energy that I submitted to the Congress for its review on November 9.

In my letter of transmittal I stated that the proposed agreement meets with all applicable requirements of the Atomic Energy Act for peaceful nuclear cooperation. For this reason, I submitted it to the Congress without exempting it from any requirement contained in Section 123a. of that Act.

Upon receipt of your letter advising me of your view that the agreement is not consistent with Section 123 of the Atomic Energy Act, and recommending that it either be renegotiated or resubmitted with an exemption, I directed the legal offices of the responsible Executive branch agencies to examine thoroughly your views and concerns. These agencies have now completed their review and have advised me of their unanimous conclusion that the proposed agreement meets all statutory requirements. I am enclosing for your information an inter-agency paper analyzing the legal issues and setting forth the basis for this conclusion. (Tab 1)

Prior to submitting the proposed agreement to the Congress, I determined that its performance would promote and not be inimical to the common defense and security. I continue to believe that to be the case.

I understand that some Members of the Congress may have additional concerns that international transport of plutonium pursuant to the proposed agreement could have an adverse impact on the U.S. environment, or that the agreement would decrease the ability of the Congress to monitor U.S. nuclear cooperation with Japan.

I would like to assure you that the proposed agreement neither requires nor authorizes Japan to transport plutonium over or through U.S. territory. Any decision on a particular transport route will be made later, when a transportation plan, which the agreement requires prior to each shipment, is prepared. The United States must be a willing participant in each such plan; without U.S. participation, no transportation of plutonium involving U.S. territory will be possible.

The agreement contemplated that a polar route (not necessarily passing over the Alaskan mainland) using a dedicated cargo aircraft would have obvious advantages from a safety and physical protection standpoint. Nevertheless, I have asked the Department of Defense to study the feasibility of a number of alternative transportation modes, including military air-lift and sea transport, as well as alternative routes. Based on its preliminary analysis, the Department of Defense has determined that there are possible routes utilizing U.S. military facilities in the Aleutians for refueling that would not require overflights of mainland Alaska, Canada, or any other country between the country of origin and Japan. With regard to shipment by sea, its review has determined that civilian shipment, given a military escort, would provide a level of physical security equivalent to that afforded by civilian air transport with ground refueling or civilian air transport with midair refueling. It is recognized, of course, if a U.S. military escort is used, there could be added costs and a detraction from readiness. The results of this study will be made available to the Congress.

As the Committee is aware, the Department of Energy has prepared and made public an Environmental Assessment, taking account of the National Environmental Policy Act (NEPA), concerning the potential for environmental impacts arising from possible air transport under the agreement and the associated "subsequent arrangement" with the European Atomic Energy Community. Based on the results of this Environmental Assessment, and in view of the fact that no such shipments could transmit the United States except in casks certified by the Nuclear Regulatory Commission to be secure even in severe accidents, the Departments of Energy and State have each made findings that the agreement would not have a significant environmental impact. Nevertheless, the Executive branch will undertake additional environmental review in connection with later stages in the process leading to actual plutonium

shipment. Specifically, Executive branch agencies that are to provide cooperation or assistance in plutonium transportation activities under any transportation plan established pursuant to the agreement will ensure that such cooperation or assistance is undertaken in full compliance with NEPA and with the Murkowski Amendment. In addition, we are prepared to assist the Nuclear Regulatory Commission in the preparation of any Environmental Impact Statement it may prepare pursuant to the Murkowski Amendment in connection with the certification of a plutonium transport cask.

As for future congressional oversight, the proposed agreement requires Japan to provide us with a complete, detailed accounting of its activities under the agreement. I will ensure that Executive branch agencies in turn keep the Congress fully and currently informed of these activities.

I appreciate the serious nature of the Committee's concerns. I am convinced, however, that a close reading of the proposed agreement will serve to put any legal or national security concerns to rest, and that other concerns can be resolved by steps that will not require changes in the agreement itself.

I have declared many times that nuclear non-proliferation is a fundamental national security and foreign policy goal of the United States. The proposed agreement with Japan substantially improves U.S. non-proliferation controls as compared with those in the existing agreement. Indeed, it sets a new standard for rigorous non-proliferation conditions and controls in U.S. agreements for cooperation. At the same time, by affirming the U.S. intention to be a reliable nuclear trading partner under these enhanced conditions and controls, it will help to ensure the continuation and growth of U.S. nuclear exports to Japan -- exports that could amount to \$1 billion or more each year in the coming decade.

I believe that this agreement is critical to the U.S. national interest, and I again urge that the Congress give it favorable consideration.

Sincerely,



The Honorable Dante B. Fascell
Chairman
Committee on Foreign Affairs
House of Representatives
Washington, D.C. 20515

**Review of Congressional Legal Concerns About Agreement
for Peaceful Nuclear Cooperation with Japan**

SUMMARY

The legal offices of the Departments of State, Defense, and Energy and of the Arms Control and Disarmament Agency have reviewed the Proposed Agreement Between the United States and Japan Concerning Peaceful Uses of Nuclear Energy in light of the views of the Senate Foreign Relations Committee, reflected in a letter of December 17, 1987, to the President, and the views of some members of the House Foreign Affairs Committee, reflected in a letter of December 21, 1987, to the President. It is our unanimous conclusion that the proposed Agreement meets all statutory requirements. No agency advises that the Agreement needs to be submitted to Congress with an exemption or requires renegotiation to conform with legal requirements. (The Chairman of the Nuclear Regulatory Commission (NRC) testified before the House Foreign Affairs Committee that he did not disagree with the Executive branch judgment that the proposed Agreement meets all requirements of law.)

ANALYSIS

Letters have been received from the Senate Foreign Relations Committee (SFRC) and 23 members of the House Foreign Affairs Committee (HFAC) advising the President that the Proposed Agreement Between the United States and Japan Concerning Peaceful Uses of Nuclear Energy (the Japan Agreement) does not meet United States statutory requirements and therefore must be either renegotiated or resubmitted to Congress with a presidential exemption requiring a joint resolution of approval. The letters express four concerns: (1) the appropriateness of a long-term exercise of United States consent rights; (2) the adequacy of the basis for the presidential determination that the Agreement will promote the common defense and security; (3) the reliance on non-technical considerations in the Administration's assessment of the "timely warning" factor; and (4) both letters state that the safeguards criteria of Section 123 of the Atomic Energy Act are not met by the Agreement. The SFRC letter, but not the letter from members of the HFAC, also expresses the view that Section 123's physical security criterion is not met.

1. Programmatic Consent. The central congressional concern is that the long-term exercise of United States consent rights in an agreement for cooperation is incompatible with Section 123 of the Atomic Energy Act (42 U.S.C. 2153). This view is not shared by any Executive department or agency, as reflected in the attached written responses to an inquiry from the General Accounting Office in 1985. Those responses show that the Atomic Energy Act expressly contemplates approvals long in advance of an activity, and that such approvals may be contained in an agreement for cooperation.

The Atomic Energy Act does not use the phrase "case-by-case" nor does it limit the scope or duration of United States approvals, so long as such approvals are based upon the required statutory findings. For example, Section 131a.(3) of the Atomic Energy Act (42 U.S.C. 2160(a)(3)) provides:

"The United States will give timely consideration to all requests for prior approval, when required by this Act, for the reprocessing of material proposed to be exported, ...".

This subsection allows the United States to consider and grant consent to reprocessing in advance of the export of any material ("material proposed to be exported"). Thus, the provision makes clear that consent to reprocessing (a right that is required as a condition of export under Section 127 of the Atomic Energy Act (42 U.S.C. 2156)) may be granted a considerable time in advance of the time when reprocessing may be necessary. Often, in the normal course of reactor operation, material exported from the United States would not be reprocessed for as long as nine years.

There is clear precedent for such advance long-term consents covering large quantities of material to be contained in agreements for cooperation. The President has submitted to Congress three agreements for cooperation with this feature (Sweden- H.Doc. 98-163; Norway- H.Doc. 98-164; and Finland-H.Doc. 99-71). Congress did not exercise its prerogative to block entry into force of any of these agreements, two of which are now binding international obligations of the United States. (The Finnish Agreement awaits completion of certain technical preparations by the Finnish Government.) Included among the United States approvals contained in the two agreements is advance consent to retransfers of unlimited quantities of spent nuclear fuel for reprocessing for 30 years, subject to a United States right of suspension on national security or non-proliferation grounds.

There is also precedent for advance long-term approvals for the specific activity of reprocessing in Japan. Approvals for such programs at the Tokai-Mura facility have been submitted for congressional review and entered into force. These approvals have extended over multiple-year periods and covered large quantities of U.S. origin nuclear material subject to the current U.S.-Japan Agreement. See, e.g. T.I.A.S. 10294 (October 30, 1981) (U.S. approval of reprocessing at Tokai-Mura for three years at the facility's design capacity of 210 tonnes per annum); "U.S. Nuclear Fuel Retransfer policy: Requests by Japan and Switzerland", Hearings Before the Subcommittee on International Economic Policy and Trade of the House Committee on Foreign Affairs, 97th Cong. 1st sess. (Oct. 29 and Nov. 4, 1981). The Tokai-Mura approvals are legally indistinguishable from the

Agreement, except that they were subject to less congressional review since they were not included in an agreement for cooperation.

Each of the consents provided in the new Japan Agreement has been evaluated to ensure it meets all the substantive and procedural requirements for agreements for cooperation under Section 123 of the Atomic Energy Act and for subsequent arrangements under Section 131 of the Act. Thus, even if it is assumed that consent rights may only be exercised as "subsequent arrangements," the approvals contained in the Japan Agreement satisfy the requirements for subsequent arrangements. This is described in detail in the "Analysis of Consents and Approvals Agreed Upon in Conjunction with the Proposed New Agreement" submitted to Congress with the Agreement (pp. 304-308, H.Doc. 100-128).

In sum, therefore, we conclude that the law (Sections 123, 127 and 131 of the Atomic Energy Act) authorizes and does not preclude the United States from granting long-term approvals for peaceful nuclear activities by cooperating partners under defined conditions, and that such approvals may be contained in new or amended agreements for cooperation submitted to Congress pursuant to Section 123 without an exemption. Whether the particular approvals contained in an agreement for cooperation satisfy legal requirements depends, as is true for approvals granted outside an agreement, upon the specific features of the agreement and compliance with the requirements for interagency and congressional review. In this case, approvals are given on the basis that, *inter alia*, Japan has made effective and comprehensive non-proliferation commitments; reprocessing or plutonium use must take place in facilities subject to safeguards acceptable to the United States, and under adequate physical security; Japan must provide the United States with a complete accounting of all plutonium subject to the Agreement on a regular basis; and, the United States may suspend its consent in whole or in part at any time to prevent a significant increase in risk of nuclear proliferation or in the threat to its national security. In our judgment the inclusion of long-term approvals in the Agreement on this basis is not incompatible with Sections 123 and 131 of the Atomic Energy Act.

2. National Security. The President has approved and authorized the execution of the proposed Agreement for Cooperation with Japan and has made the required statutory determination that the performance of the Agreement "will promote, and will not constitute an unreasonable risk to, the common defense and security." See Section 123b. of the Atomic

Energy Act; p. 201, H.Doc. 100-128. The congressional letters express "serious reservations" about the President's judgment and assert that it "was made arbitrarily."

As the documents provided to Congress demonstrate, the President's judgment was made only after serious examination of all pertinent concerns, including a Non-Proliferation Assessment Statement prepared by the Arms Control and Disarmament Agency pursuant to statute (pps. 203-256, H.Doc 100-128; Section 123a. of the Atomic Energy Act), a recommendation and analysis from the Secretaries of State and Energy pursuant to statute (pps. 257-282, H.Doc. 100-128; Section 123a. of the Atomic Energy Act), and consideration of the views of the NRC which were provided to the President as required by statute (pp. 447-145, H.Doc. 100-128; Section 123a. of the Atomic Energy Act). The Atomic Energy Act (Section 123b.) requires the President to make a judgment on the national security implications of proposed agreements for peaceful nuclear cooperation. Even if some were to argue that a different judgment should have been made in this case, there clearly was an adequate basis for the President's decision. The President therefore did not exceed his legal authority in determining that the Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security.

The congressional letters state that the President gave insufficient weight to "serious written objections from both the Department of Defense and the Nuclear Regulatory Commission" in making his determination. Insofar as the NRC is concerned, its letter to the President of July 27, 1987 (pp. 447-48, H.Doc. 100-128) stated that the Commission did not believe it to be in the national security interest to agree to a provision in which failure of the United States to implement the Japan Agreement in good faith "may be left to an arbitral tribunal." Prior to the President's decision, the Commission was informed that the Agreement does not commit the United States to arbitration without United States consent (pps. 450-51, H.Doc. 100-128), and the Commission testified before the HFAC on December 16, 1987, that the Executive branch's clarification resolved its concerns on this point. The President also had the benefit of Defense Department views expressed during interagency deliberations regarding the Agreement. The Department of Defense had conveyed these views to the Departments of State and Energy, and they were addressed in-depth. The issues raised by the Department of Defense have been resolved satisfactorily with regard to the U.S.-Japan Agreement. The Department of Defense fully supports the proposed Agreement and believes it protects U.S. security interests.

3. "Timely Warning". The congressional letters state that their signatories find fault with the Administration's assessment of the "timely warning" element in Section 131b.(2) of the Atomic Energy Act and assert that this factor is intended to be exclusively a "technically-based criterion". The SFRC letter states that the criterion is to be judged in light of the "workability of safeguards and physical security measures." The letter from HFAC members refers only to safeguards.

Sections 131b.(2) and (3) of the Atomic Energy Act require that the Secretary of Energy, of subsequent arrangements for reprocessing or retransfer of plutonium, must reach the judgment that the proposed activities will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. In making such determinations, the statute requires that foremost consideration be given to "whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear weapon state could transform the diverted material into a nuclear explosive device."

Neither the legislative history of the Atomic Energy Act nor the language of the Act itself specifies that the consideration of "timely warning" is limited to technical factors, or that the only relevant considerations relate to safeguards and/or physical security. Similarly, neither the Act nor its history requires a specific finding of "timely warning" in the assessment of whether proposed activities would pose a significant increase in the risk of proliferation. Accordingly, it is appropriate when addressing "timely warning" to take into consideration those factors that, in a particular situation, will increase or decrease the interval between the time that the United States receives indications that a diversion has occurred or is intended and the time that the material could be assembled into a nuclear explosive device. Warning may come either before or after diversion, and the United States may become aware of the possibility of a diversion by many means, some technical (such as a safeguards violation) and some non-technical (such as a renunciation of the Nuclear Non-Proliferation Treaty). The view that "timely warning" can be provided by both technical and non-technical factors together was formally conveyed to the General Accounting Office by the Departments of State, Defense, and Energy and the Arms Control and Disarmament Agency in 1985 (see attachment as stated).

On this basis, for a number of years the Department of Energy has been submitting to Congress lengthy analyses of its review of the "timely warning" factor. The subsequent arrangements at issue have included approvals for reprocessing and the retransfer of plutonium similar to those provided for in the Agreement with Japan. As required by statute, the Department of Energy's analyses and determinations have been submitted to Congress for at least fifteen continuous session days before the subsequent arrangements have been entered into. In no case has Congress taken legislative action to preclude entry into such a subsequent arrangement.

For the activities permitted under the Japan Agreement, the Department of Energy has set forth a lengthy review of the "timely warning" factor in the Analysis of the Consents and Approvals in the Agreement (pps. 369-386, H.Doc. 100-128). That analysis discusses a number of indicators that could be expected of a diversion for explosives purposes, based upon safeguards violations, nuclear explosives activities themselves, political shifts, and information available through economic and trade relationships, particularly in the nuclear field. As indicated in the Analysis, these factors all give evidence that the United States would have timely warning as envisioned in Section 131b.(2). The Analysis also evaluates other factors pertinent to proliferation risk, including Japan's over-all position on nuclear weapons, and the close and stable security relationship between the United States and Japan. Taking all these factors into account, the Analysis supports the statutory judgment that the proposed Japanese activities when carried out in accordance with the terms and conditions of the Agreement will not give rise to a significant increase in the risk of proliferation. The inclusion of a unilateral United States right of suspension in Article 3(2) of the Implementing Agreement means that these United States approvals need only apply so long as this judgment about proliferation risk is supported by the facts. We believe, therefore, that "timely warning" has been given appropriate consideration in making the proliferation risk judgment called for by Section 131b. of the Atomic Energy Act.

4. Safeguards (and Physical Security) Criteria. The congressional letters finally state that the safeguards criteria of section 123 of the Atomic Energy Act are not met. The SFRC letter, but not the letter from HFAC members, also states that the physical security criteria of the Act are not met. In our judgment, Articles 2(2)(a), 7, 9, and 16(3) of the Japan Agreement fulfill both those statutory requirements, as discussed in the Arms Control and Disarmament Agency's Nuclear Proliferation Assessment Statement (pps. 214-230, H.Doc.

100-128). No Executive department or agency has disagreed, and at the hearing before the HFAC on the Agreement on December 16, 1987, the Chairman of the NRC testified that he did not disagree with the Executive branch view that the Agreement meets all statutory requirements.

As described in the Arms Control and Disarmament Agency's Nuclear Proliferation Assessment Statement (pp. 214-230, H.Doc. 100-128), the controls and guarantees in the existing agreement with Japan have been expanded in the proposed Agreement to include each of the provisions called for in Section 123a. of the Atomic Energy Act. These controls and guarantees include: safeguards on transferred items and nuclear material derived from their use (Article 9(1)(a) of the Agreement); International Atomic Energy Agency safeguards on all Japan's nuclear activities (Art. 2(2)(a)); a peaceful, non-explosive use guarantee (Art. 8(2)); a United States right of return (Art. 12(1)); United States consent rights over retransfers (Art. 4); a guarantee of adequate physical security (Art. 7); United States consent rights over reprocessing, alteration, and enrichment (Art. 5 and 6); and, a right to approve storage arrangements for sensitive materials (Art. 3). These expanded United States rights will exist in perpetuity (Art. 16(3)) and will apply retroactively to all previously transferred items (Art. 13(2)).

The reference in the two letters to the need for a judgment as to the "workability of safeguards" suggests a specific concern about the Agreement's provisions for inclusion of additional facilities in the approved program after the Agreement enters into force. New facilities may be included in the program for which United States consent is given only after prior notice to the United States (Art. 2(2), Implementing Agreement) and only if:

- (1) the activity carried out at the facility is one accepted by the United States as part of the program (Art. 1(a)(i)-(ii) and Annexes 1 and 2, Implementing Agreement);
- (2) arrangements have been made with the International Atomic Energy Agency for safeguards to be applied in accordance with safeguards practices or concepts that have been deemed adequate by the United States (Art. 2(2)(b), Art. 2(4)(b) and paragraph 4(c) and 5 of the Agreed Minutes, Implementing Agreement) and in accordance with the safeguards requirements established by the International Atomic Energy Agency (Article 9(1)(a), Agreement for Cooperation);

(3) the physical protection standards required by the Agreement will be applied to the facility (Art. 2(2)(a)(iii), Implementing Agreement; Article 7 and Annex B, Agreement for Cooperation);

(4) any plutonium produced at the facility will be located only at that facility or another facility on the agreed program (Art. 1(4), Implementing Agreement);

(5) the United States will be provided a complete accounting on a regular basis of all plutonium used at or produced at the facility (paragraph 9(a) of Agreed Minutes, Implementing Agreement; Note Verbale No. 329/SCNE of Nov. 4, 1987, pps. 169-185, H.Doc. 100-128); and

(6) the addition of the facility to the program will not, in the judgment of the United States, pose a significant increase in the risk of nuclear proliferation or in the threat to United States national security necessitating invocation of the Agreement's suspension right (Art. 3(2), Implementing Agreement).

The Agreement thus in no way provides blanket permission to unknown or unapproved activities or otherwise abandons the required United States controls.

With respect to safeguards in particular, the International Atomic Energy Agency must undertake to apply the safeguards agreed upon by the United States and Japan to any new facility; otherwise United States consent has not been provided for activities at that facility. The Agreement by its terms therefore ensures that if safeguards are "unworkable" (i.e., if "the Agency cannot administer safeguards in accordance with the safeguards concept that has been agreed upon between the parties with respect to a facility," Art. 2(4)(b), Implementing Agreement), the facility may not be included in the approved program. The United States would have to agree to alternative safeguards arrangements before such facilities could benefit from United States consent. This is true even if the facility were only to be added to the program on a provisional basis (Art. 2(4)(b), Implementing Agreement). Accordingly, we believe the Agreement satisfies all relevant safeguards criteria in the Atomic Energy Act, as well as the requirements for physical security.

Conclusion. For the foregoing reasons, we confirm that the proposed Agreement for Cooperation with Japan complies with applicable legal requirements. It is our judgment that it need not be renegotiated or resubmitted to Congress with an exemption in order to satisfy the Atomic Energy Act.

Attachment

as stated



United States Department of State

Washington, D.C. 20520

December 3, 1985

Robert H. Hunter, Esquire
Assistant General Counsel
Office of the General Counsel
United States General Accounting Office
Washington, DC 20548

Ref: B-219816

Dear Mr. Hunter:

I am pleased to respond to your letters of September 27, 1985, to Secretaries Shultz and Herrington and to Director Adelman concerning several provisions of the Nuclear Non-Proliferation Act of 1978.

First, you asked about the legality of providing advance approvals for reprocessing of U.S. origin spent fuel in agreements for cooperation. An analysis supporting the position of the Executive Branch that advance consent arrangements are legally permissible was submitted to the Committee on Foreign Affairs of the House of Representatives and is printed at pages 252-253 of Legislation to Amend the Nuclear Non-Proliferation Act of 1978: Hearings and Markup on H.R. 6032 and H.R. 6318 Before the House Committee on Foreign Affairs and House Subcommittees on International Security and Scientific Affairs and on International Economic Policy and Trade, 97th Cong., 2d Sess. (August 3, 10; September 8, 15; December 14, 1982) (copy attached). We continue to consider this analysis valid. Consequently, we believe that an agreement for cooperation that precludes retransfers or reprocessing unless "the parties agree" and contains advance approvals in an agreed minute meets the requirements of section 123(a)(5) and (7) of the Atomic Energy Act, provided that the necessary statutory findings are made and continue to be met, and does not require a Presidential waiver. This was our view with respect to the agreements with Sweden, Norway and Finland, all of which were submitted to Congress for the requisite review period on that basis.

We believe there are non-proliferation benefits that derive from our carefully developed policy on advance approvals. The policy and its benefits were fully explained by Ambassador Richard T. Kennedy and Deputy Secretary of Energy W. Kenneth Davis at hearings before a Senate subcommittee. This testimony is printed at pages 2-9, 18-52 of Plutonium Use Policy: Hearing

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Before the Subcommittee on Energy, Nuclear Proliferation and Government Processes of the Senate Committee on Governmental Affairs, 97th Cong., 2d Sess. (Sept. 9, 1982).

You also asked questions concerning the specific procedures of section 131(a)(1) of the Atomic Energy Act. Section 131 of the Atomic Energy Act is intended to deal with arrangements entered into at a point later in time than an agreement for cooperation: the arrangements are called "subsequent" and are specified in section 131(a)(1) to be arrangements "under" an agreement for cooperation (rather than "in" such an agreement). Further, section 131(a)(3) contemplates that where an arrangement sets forth terms and conditions for approvals, they will be "set forth in ... [an] agreement for cooperation or in some other international agreement executed by the United States and subject to Congressional review procedures comparable to those set forth in section 123 of this Act."

In view of the foregoing, and taking into account the Congressional interest in having the most effective review of proposed advance consent arrangements, the Executive Branch has developed an approach which in substance meets all the requirements for determinations and procedural steps in both sections 123 and 131. The Administration decided to offer such arrangements only in connection with a new or amended agreement for peaceful nuclear cooperation. This policy was announced by Ambassador Kennedy at the September 9, 1982, Plutonium Use Policy Hearings held by the Subcommittee on Energy, Nuclear Proliferation, and Government Processes of the Senate Committee on Governmental Affairs. The Executive Branch has also decided that a new or amended agreement for cooperation and a related advance consent approval arrangement will be reviewed by the same agencies as would review a proposed subsequent arrangement under section 131 of the Atomic Energy Act. The Secretaries of State and Energy will review any advance consent arrangement involving reprocessing to determine whether the approval will or will not result in a significant increase in the risk of proliferation, as would be required under section 131 of the Act. In making that determination, foremost consideration would be given to whether or not the reprocessing will take place under conditions that ensure timely warning to the United States of any diversion. (Such a determination was made for the recent agreements between the United States and Sweden, Norway and Finland. See H. Doc. No. 98-163 at 48; H. Doc. No. 98-164 at 84; H. Doc. No. 99-71 at 68.) The President will only authorize the agreement and related advance consent arrangement if he has determined in advance in writing that the performance of the proposed agreement under these conditions will promote, and will not constitute an unreasonable risk to, the common defense and security. This legal determination,

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required under 123(b) of the Atomic Energy Act for agreements for cooperation, is more stringent than the determination required under section 131(a)(1) for subsequent arrangements (that the arrangement will not be inimical to the common defense and security). Prior to making this determination, the President will receive a formal ACDA proliferation assessment statement.

An advance consent arrangement submitted in conjunction with an agreement for cooperation will lie before Congress for 90 days of continuous session, will be subject to mandatory hearings, and will be subject to expedited Congressional procedures for consideration of joint resolutions. Thus, the Congress is provided a far more complete opportunity to review the proposed arrangement than would be available under section 131(b)(1), which only provides for a 15 continuous session day review period and does not contain any procedures for expedited Congressional action. Finally, the public notice objectives of section 131(a)(1) are more than met by the publication in the Congressional Record of the Presidential transmittal of proposed agreements for cooperation and by the publication as a House document of any proposed agreement for cooperation, along with all the related documentation.

With respect to the interpretation of section 131(b)(2) of the Atomic Energy Act, the Secretary of Energy, in considering approvals of subsequent arrangements for reprocessing or retransfer of plutonium, must reach the judgment that the activity will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. In making this judgment, foremost consideration is given, as required by sections 131(b)(2) and (3), to "whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear weapon state could transform the diverted material into a nuclear explosive device". In order to reach this proliferation risk judgment, the DOE has established -- along with other interested Departments and Agencies -- detailed procedural steps which are followed in each case. Chief among these is the requirement that DOE prepare an analysis evaluating all of the factors relevant to the case. The factors taken into account in these analyses (which are submitted to Congress) include: the application of IAEA safeguards; the technical capabilities of the recipient country; the country's commitment to non-proliferation, including commitments to forswear acquisition or development of nuclear explosives; and the likelihood that changes in these or other circumstances would provide the U.S. with warning far in advance of the time when the recipient could transform diverted material into an explosive device. In this connection it

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should be emphasized that section 131(b)(2) does not require a separate "determination" regarding timely warning.

Neither the legislative history of the NNPA nor the language of the Act itself specifies that consideration of timely warning is limited to technical factors only.—Political factors may be taken into account in considering warning time, but only where such factors in the particular situation increase or decrease the interval between the time the U.S. receives indications that a diversion has occurred or is intended and the time the material could be assembled into a nuclear explosive device. The timely warning issue in appropriate circumstances includes technical as well as other factors, including political factors. Moreover, the timeliness of warning of diversion clearly involves a number of non-technical judgments, including judgements about the diplomatic relationships and influence that the U.S. has with respect to the country in question.

The concept of a "timely warning" is not found in the IAEA safeguards system. The objective of IAEA safeguards, as defined in NPT-type safeguards agreements, is the "timely detection" of diversion of significant quantities of nuclear material. IAEA safeguards alone can provide the U.S. with "timely warning" in many circumstances, but it is not their stated purpose to do so, nor are they the only means at U.S. disposal in considering "timely warning".

Congress is kept fully informed of Executive Branch consideration of issues under section 131(b). The Secretary of Energy, as required under section 131(b)(1) of the Act, provides a detailed written analysis of subsequent arrangements considered under that sub-section to the House Foreign Affairs Committee and the Senate Foreign Relations Committee. The analysis includes his judgment as to whether the proposed retransfer would result in a "significant increase of the risk of proliferation beyond that which exists at the time approval is requested," and indicates the factors that he has taken into account in forming his judgment. In each such case, foremost consideration is given to the timely warning factor as required by law.

The factors considered in the review of timely warning in the case of Switzerland included: the nature and extent of Swiss nuclear facilities and capabilities; the application of IAEA safeguards; and the extent of Switzerland's non-proliferation commitments and policies as well as Switzerland's stable, democratic system. These were set out and discussed in the Secretary of Energy's report.

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In the case of Japan the factors considered included all of the above, plus Japan's status as a reliable U.S. ally. These were set out and discussed in the Secretary of Energy's report. It will thus be seen that both technical capabilities and political factors were taken into account. The final judgments by the Secretary of Energy that the retransfers would not significantly increase the risk of proliferation were reached by carefully evaluating all relevant factors, timely warning foremost among them. This process was fully set forth in the two reports referred to above.

We hope the foregoing material is of assistance to you in preparing your report.

Sincerely,



Ronald J. Bettauer
Assistant Legal Adviser
for Nuclear Affairs

Attachment:

As stated.

Advance Consent Arrangements Are Legally Permissible

The Department of State considers that providing advance programmatic consent to reprocessing and to retransfers for reprocessing under agreements for cooperation is legally permissible.

Section 131a(3) of the Atomic Energy Act provides:

"The United States will give timely consideration to all requests for prior approval, when required by this Act, for the reprocessing of material proposed to be exported, previously exported and subject to the applicable agreement for cooperation, or special nuclear material produced through the use of such material for a production or utilization facility transferred pursuant to such agreement for cooperation...and additionally, to the maximum extent feasible, will attempt to expedite such consideration when the terms and conditions for such actions are set forth in such agreement for cooperation...."

This subsection allows the United States to consider and grant consent to reprocessing in advance of the export of any material ("material proposed to be exported"). Thus, the provision makes clear that consent to reprocessing may be granted a considerable time in advance of the time when reprocessing may be necessary. Often, in the normal course of reactor operation, material exported from the United States would not be reprocessed for up to nine years.

Section 131a(3) also contains a clause calling for expedited approvals "when the terms and conditions for such actions are set forth in...[an] agreement for cooperation". The Senate report on the NNPRA makes a similar statement (page 10, Senate Report No. 95-467, October 3, 1977). However, neither addresses the scope or duration of U.S. approvals, and thus neither constitutes a limitation on the authority to provide advance programmatic approvals.

Moreover, there is no substantive difference between a commitment in an agreement for cooperation to approve reprocessing or retransfers for reprocessing under specified conditions and actually granting the approval in the agreement subject to the continued existence of those same conditions.



GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE

WASHINGTON, D.C. 20301

4 DEC 1985

Robert H. Hunter, Esq.
Assistant General Counsel
Office of General Counsel
United States General Accounting
Office
Washington, D.C. 20548

Dear Mr. Hunter:

The Secretary has asked me to respond to your letter of September 27, 1985, concerning several provisions of the Nuclear Non-Proliferation Act of 1978. The numbered paragraphs below correspond to the numbered questions in your letter.

"Advance" Approvals

1. We believe that consent for subsequent retransfer or reprocessing may be contained in or attached to an agreement for cooperation, and that such an agreement does not require a Presidential waiver. For such a situation, the Executive Branch has developed an approach which in substance meets all the requirements in both Section 123 and Section 131 for determinations and procedural steps, including the requirement in Section 131(a)(1) for interagency consultation.

2. Yes.

3. The proliferation implications depend upon the specific elements of the proposed transfers, not on whether the approval is contained in or attached to the agreement itself or concluded separately. The most likely reason for including such approval in an agreement, however, is to approve "programmatic" or "generic" arrangements, i.e., arrangements covering indeterminate amounts of material over a long period of time, e.g., for the life of the agreement. The potential proliferation implications of such approvals may be more serious, and are usually much more difficult to discern, than approvals covering specific and limited amounts of material on an individual basis. Depending upon the specific circumstances, it is nonetheless possible that long-term approvals may have positive net benefits for non-proliferation.

Subsequent Arrangements

1. This depends upon the content of the agreement, the terms of the approval, and the procedures followed in submitting the agreement to Congress.

-2-

In both cases, the United States provides consent in advance in certain contingencies and retains its discretion to provide or withhold consent in other contingencies.

There is no legislative history which speaks directly to the issue of what the term or scope of an approval of reprocessing or retransfer for reprocessing may be. It has been suggested that the intent of the NNPA is that such approvals be exercised only on a "case-by-case" basis. The term "case-by-case" does not appear in the statute and has no statutory legal significance. Moreover, this suggestion begs the question of what constitutes a "case" in terms of duration and scope of activities that may be covered by the approval and thus provides no guidance in the application of the law.

As seen from section 131a(3), advance approvals are permissible under the law. Further, there is precedent for advance approval covering programs of reprocessing. Approvals for such programs at the Tokai-Mura facility in Japan were submitted for Congressional review and entered into force. They are legally indistinguishable from the broader programmatic advance consent arrangements the Administration is offering to Japan and EURATOM, contingent on the necessary information being provided and the necessary statutory findings being made. If successfully negotiated, these advance consent arrangements would be submitted for review by Congress as new or amended agreements for cooperation prior to entry into force.

International transactions, both in the nuclear field and in non-nuclear fields, often need to be concluded on a long term basis which specifies the terms under which future retransfers and other transactions are permitted. Indeed, in order to obtain the wide U.S. consent rights required for new or amended agreements for cooperation, the United States will in some cases have to enter into commitments in advance detailing the activities for which U.S. consent is given. The NNPA recognizes this reality.

In sum, the law (sections 123 and 127 of the Atomic Energy Act) requires only that the United States have reprocessing and retransfer approval rights. No provision precludes the United States from granting approvals in advance or for a specified duration or limits the scope of such approvals. In the absence of any such statutory limitations, and in view of the language of section 131a(3), it is clearly lawful for the U.S. Government to provide advance programmatic consent to reprocessing and to retransfers for reprocessing, provided, of course, that the necessary statutory findings are made and continue to be met and the required statutory procedures, including Congressional review, are followed.



GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE

WASHINGTON, D.C. 20301

4 DEC 1985

Robert H. Hunter, Esq.
Assistant General Counsel
Office of General Counsel
United States General Accounting
Office
Washington, D.C. 20548

Dear Mr. Hunter:

The Secretary has asked me to respond to your letter of September 27, 1985, concerning several provisions of the Nuclear Non-Proliferation Act of 1978. The numbered paragraphs below correspond to the numbered questions in your letter.

"Advance" Approvals

1. We believe that consent for subsequent retransfer or reprocessing may be contained in or attached to an agreement for cooperation, and that such an agreement does not require a Presidential waiver. For such a situation, the Executive Branch has developed an approach which in substance meets all the requirements in both Section 123 and Section 131 for determinations and procedural steps, including the requirement in Section 131(a)(1) for interagency consultation.

2. Yes.

3. The proliferation implications depend upon the specific elements of the proposed transfers, not on whether the approval is contained in or attached to the agreement itself or concluded separately. The most likely reason for including such approval in an agreement, however, is to approve "programmatic" or "generic" arrangements, i.e., arrangements covering indeterminate amounts of material over a long period of time, e.g., for the life of the agreement. The potential proliferation implications of such approvals may be more serious, and are usually much more difficult to discern, than approvals covering specific and limited amounts of material on an individual basis. Depending upon the specific circumstances, it is nonetheless possible that long-term approvals may have positive net benefits for non-proliferation.

Subsequent Arrangements

1. This depends upon the content of the agreement, the terms of the approval, and the procedures followed in submitting the agreement to Congress.

2. Where approval is granted in the original agreement, the Executive Branch has developed an approach which in substance meets all the requirements in both Section 123 and Section 131 for determinations and procedural steps, including the requirement in Section 131(a)(1) for interagency consultation.

Timely Warning

1. "Timely warning" has two elements: first, it refers to warning time, i.e., the interval between the time when the U.S. receives indications that a diversion has occurred or is intended and the time when the material could be assembled into an explosive device; and, second, it refers to the timeliness of the warning. With respect to the first element many factors may be considered, e.g.:

- the amount, type, form and location of the materials,
- the facilities available to convert the material to weapons-useable form, and to assemble a device,
- the resources, including scientific and technical resources and personnel, to design, test and manufacture all of the components of a device,
- the existence and frequency of access to relevant material and facilities by safeguards inspectors or other sources of warning and
- the likelihood and timing of warning to the U.S. in the event that a diversion is detected by any source.

The second element -- the timeliness of the warning -- involves both technical and non-technical judgments, including judgments about the diplomatic relationships and influence the U.S. has with the country in question.

2. We regard the warning time element of "timely warning" as primarily technical, but the distinctions between technical and political factors may not always be clearcut. For example, multinational ownership of the facility in which nuclear material is located could increase the probability of early warning of a diversion for reasons which are both technical and political. The important distinction is whether a given factor would provide warning to the U.S. of an actual or intended diversion and when. Political factors may be taken into account in considering warning time but only when such factors in a particular situation

increase or decrease the interval between the time the U.S. receives indications that a diversion has occurred or is intended and the time when the material could be assembled into an explosive device. General considerations such as political stability and current non-proliferation attitudes and policies may serve as indicators of a country's proclivity to acquire nuclear weapons, but they cannot provide specific warning of a diversion of nuclear material, and are not in our view relevant to warning time. Such factors are highly relevant, on the other hand, to determinations concerning increased risk of proliferation.

3. See the two immediately preceding responses. Note that "timely warning" is only one factor (albeit the factor to be given "foremost consideration") in making the determination concerning increased risk of proliferation required by Section 131. Other factors are listed in the Senate Report on the NPPA, and include such factors as whether the recipient is committed to non-proliferation, whether it has a stable government, whether it is militarily secure, etc. These are political factors to be considered in addition to timely warning. It is not possible to give timely warning "foremost consideration" unless it is different from the other factors and considered separately. Any other interpretation would require these political factors to be counted twice.

4. The concept of a "timely warning" is not found in the IAEA safeguards system. The objective of IAEA safeguards, as defined in NPT-type safeguards agreements, is the "timely detection" of diversion of significant quantities of nuclear material. IAEA safeguards alone can provide the U.S. with "timely warning" in certain circumstances, but it is not their stated purpose to do so nor are they the only means at U.S. disposal in considering "timely warning."

5. & 6. The Department of Defense plays only a consultative role in approving retransfers. This question is more appropriately addressed to the Department of Energy and the Department of State.

J. Mendenhall, D.P.
for Chapman B. Cox



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20540

OFFICE OF GENERAL COUNSEL

September 27, 1985

B-219816

The Honorable George P. Shultz
The Secretary of State

Dear Mr. Secretary:

We have received a congressional inquiry requesting our review of several of the provisions of the Nuclear Non-Proliferation Act (NNPA) of 1978. Two major issues were raised. First the legality of providing advance approvals for retransfer for reprocessing of U.S. origin, spent fuel in agreements for cooperation. Second, an interpretation of the test by which the executive branch determines that a proposed retransfer for reprocessing or return of plutonium will not significantly increase the risk of proliferation. We would appreciate receiving the Department's views on these matters.

The first issue concerns the recent execution by the executive branch of three agreements for cooperation with Sweden, Norway, and Finland which contain advance approvals for retransfers for reprocessing of U.S. origin spent fuel as long as the reprocessing is done in Great Britain or France. Section 123 of the Atomic Energy Act (Act) as amended by the NNPA authorizes the President to enter into agreements for cooperation subject to various criteria and restrictions. 42 U.S.C. § 2153. Section 123a lists nine requirements that must be included in an agreement unless specifically waived by the President. 42 U.S.C. § 2153(a). Two of these are relevant to the issue of advance approval. Section 123a(5) of the Act provides that agreements for cooperation shall include a requirement that no material supplied under an agreement and no "material produced through the use of any * * * material transferred pursuant to the agreement, will * * * be transferred * * * beyond the jurisdiction or control of the cooperating party without the consent of the United States." Similarly, section 123a(7) provides:

"* * * no material transferred pursuant to the agreement for cooperation and no material used in or produced through the use of any material, production facility, or utilization facility

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B-219816

transferred pursuant to the agreement for cooperation will be reprocessed, enriched or (in the case of plutonium, uranium 233, or uranium enriched to greater than 20 percent in the isotope 235, or other nuclear materials which have been irradiated) otherwise altered in form or content without the prior approval of the United States. 42 U.S.C. § 2153(a)(7) (emphasis added).

In view of these requirements, do you think that:

1. A Presidential waiver would be required prior to entering into an agreement for cooperation that contained an advance approval?
2. An agreement that specifies that spent nuclear fuel will be transferred or reprocessed only if "the parties agree" and that also incorporate Minutes that provide the advance approval meet the requirement of sections 123(a)(5) and (7)?
3. There are proliferation implications in including advance approval in an agreement?

The Atomic Energy Act as amended by the NNPA also provides specific procedures and standards for reviewing subsequent arrangements such as requests to retransfer reactor fuel for purposes of reprocessing subject to agreements for cooperation. 42 U.S.C. § 2160. Specifically section 131(a)(1) of the Act provides:

"(1) Prior to entering into any proposed subsequent arrangement under an agreement for cooperation * * * the Secretary of Energy shall obtain the concurrence of the Secretary of State and shall consult with the Director, the Commission, and the Secretary of Defense: Provided, That the Secretary of State shall have the leading role in any negotiations of a policy nature pertaining to any proposed subsequent arrangement regarding arrangements for the storage or disposition of irradiated fuel elements or approvals for the transfer, for which prior approval is required under an agreement for cooperation, by a recipient of source or special nuclear material, production or utilization facilities, or nuclear technology. Notice of any proposed subsequent arrangement shall be published in the Federal

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Register, together with the written determination of the Secretary of Energy that such arrangement will not be inimical to the common defense and security, and such proposed subsequent arrangement shall not take effect before fifteen days after publication. Whenever the Director declares that he intends to prepare a Nuclear Proliferation Assessment Statement pursuant to paragraph (2) of this subsection, notice of the proposed subsequent arrangement which is the subject of the Director's declaration shall not be published until after the receipt by the Secretary of Energy of such Statement or the expiration of the time authorized by subsection (c) of this section for the preparation such Statement, whichever occurs first."

Since the Act provides specific procedures for subsequent arrangements, would you comment on whether:

1. An agreement that contains an advance approval circumvents the legislative design of the Act?
2. The requirements of section 131 for reviewing a subsequent arrangement are met when the approval is granted in the original agreement. Specifically address the requirements of consultation with the Secretary of Defense; publication in the Federal Register, advance report to Congress prior to entry into the agreement, and determination of the increased risk of proliferation if the subsequent agreement is entered into.

The second issue concerns the test by which the executive branch determines that a proposed retransfer for reprocessing or return of plutonium will not result in a significant increase of risk of proliferation. The Act as amended provides that in determining whether a proposed subsequent arrangement will result in such a significant increase of risk, "foremost" consideration will be given to whether the United States will receive "timely warning" of a diversion. 42 U.S.C. § 2160(2)(b)(2). There has been much debate over the interpretation of "timely warning." To aid us in our inquiry we would like your comments on:

1. What are the factors that are used in determining "timely warning?"

B-219816

2. Whether the "timely warning" analysis is a technical analysis or a political determination?

3. May political factors be included in the "timely warning" analysis? If so, what is the legal basis for their inclusion and what weight are they given?

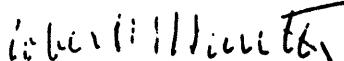
4. How does the "timely warning" analysis relate to the International Atomic Energy Agency's use of "timely detection" assessment?

5. How is Congress informed of the factors and their weight that went into the test of whether a particular retransfer will significantly increase the risk of proliferation? Is there any written record of the determination?

6. What particular factors went into the determination of "timely warning" with respect to the retransfer request of Japan and Switzerland? What weight was each factor given? Was the analysis of "timely warning" on the technical capabilities of each country involved? Did political factors impact on the determination of "timely warning"? How was the final determination that the retransfer would not significantly increase the risk of proliferation reached?

In view of the congressional interest in these issues, we would appreciate your response as soon as possible but no later than October 25, 1985. Any questions may be addressed to Mindi Weisenbloom (275-5544) of this Office. Please advise her of the name and telephone number of your point of contact on this matter.

Sincerely yours,



Robert H. Hunter
Assistant General Counsel

APPENDIX 7

**CORRECTIONS TO LEGAL REVIEW ATTACHED TO PRESIDENT'S LETTER
OF JANUARY 29, 1988, SUBMITTED ON FEBRUARY 5, 1988**

Chief Counsel, Committee on Foreign Affairs
United States House of Representatives

Subject: Corrections to Legal Review Attached to
President's Letter of January 29, 1988 to the
Chairman, Committee on Foreign Affairs, United
States House of Representatives

The following are corrections to the Review of Congressional
Legal Concerns About the Agreement for Peaceful Nuclear
Cooperation with Japan attached to the President's letter of
January 29, 1988 to the Chairman, Committee on Foreign Affairs,
United States House of Representatives:

- On page 3 of the Review, second full paragraph, the sentence beginning "In this case,...", the word "comments" should be "commitments". A corrected page 3 of the Review is at Tab A.
- On page 5 of the Review, second paragraph, the second line, the phrase "...of subsequent arrangements for...", should be "...in order to approve subsequent arrangements for...". A corrected page 5 of the Review is at Tab B.
- The first enclosure to the Review, the letter to Robert H. Hunter, Esquire from Ronald J. Bettauer dated December 3, 1985, includes a two-page attachment entitled, "Advance Consent Arrangements Are Legally Permissible". The second page was inadvertently omitted from the copy sent to the Committee. The omitted page is provided at Tab C.

I would appreciate your assistance in providing these corrections to the Chairman, as well as Committee members and staff.

Robert M. Peuto
cc Paul Schott Stevens
Executive Secretary

Attachments

- | | |
|-------|---|
| Tab A | Corrected Page 3 of the Review |
| Tab B | Corrected Page 5 of the Review |
| Tab C | Omitted Page to First Enclosure of the Review |

Agreement, except that they were subject to less congressional review since they were not included in an agreement for cooperation.

Each of the consents provided in the new Japan Agreement has been evaluated to ensure it meets all the substantive and procedural requirements for agreements for cooperation under Section 123 of the Atomic Energy Act and for subsequent arrangements under Section 131 of the Act. Thus, even if it is assumed that consent rights may only be exercised as "subsequent arrangements," the approvals contained in the Japan Agreement satisfy the requirements for subsequent arrangements. This is described in detail in the "Analysis of Consents and Approvals Agreed Upon in Conjunction with the Proposed New Agreement" submitted to Congress with the Agreement (pp. 304-308, H.Doc. 100-128).

In sum, therefore, we conclude that the law (Sections 123, 127 and 131 of the Atomic Energy Act) authorizes and does not preclude the United States from granting long-term approvals for peaceful nuclear activities by cooperating partners under defined conditions, and that such approvals may be contained in new or amended agreements for cooperation submitted to Congress pursuant to Section 123 without an exemption. Whether the particular approvals contained in an agreement for cooperation satisfy legal requirements depends, as is true for approvals granted outside an agreement, upon the specific features of the agreement and compliance with the requirements for interagency and congressional review. In this case, approvals are given on the basis that, inter alia, Japan has made effective and comprehensive non-proliferation commitments; reprocessing or plutonium use must take place in facilities subject to safeguards acceptable to the United States, and under adequate physical security; Japan must provide the United States with a complete accounting of all plutonium subject to the Agreement on a regular basis; and, the United States may suspend its consent in whole or in part at any time to prevent a significant increase in risk of nuclear proliferation or in the threat to its national security. In our judgment the inclusion of long-term approvals in the Agreement on this basis is not incompatible with Sections 123 and 131 of the Atomic Energy Act.

2. National Security. The President has approved and authorized the execution of the proposed Agreement for Cooperation with Japan and has made the required statutory determination that the performance of the Agreement "will promote, and will not constitute an unreasonable risk to, the common defense and security." See Section 123b. of the Atomic

3. "Timely Warning". The congressional letters state that their signatories find fault with the Administration's assessment of the "timely warning" element in Section 131b.(2) of the Atomic Energy Act and assert that this factor is intended to be exclusively a "technically-based criterion". The SFRC letter states that the criterion is to be judged in light of the "workability of safeguards and physical security measures." The letter from HFAC members refers only to safeguards.

Sections 131b.(2) and (3) of the Atomic Energy Act require that the Secretary of Energy, in order to approve subsequent arrangements for reprocessing or retransfer of plutonium, must reach the judgment that the proposed activities will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. In making such determinations, the statute requires that foremost consideration be given to "whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear weapon state could transform the diverted material into a nuclear explosive device."

Neither the legislative history of the Atomic Energy Act nor the language of the Act itself specifies that the consideration of "timely warning" is limited to technical factors, or that the only relevant considerations relate to safeguards and/or physical security. Similarly, neither the Act nor its history requires a specific finding of "timely warning" in the assessment of whether proposed activities would pose a significant increase in the risk of proliferation. Accordingly, it is appropriate when addressing "timely warning" to take into consideration those factors that, in a particular situation, will increase or decrease the interval between the time that the United States receives indications that a diversion has occurred or is intended and the time that the material could be assembled into a nuclear explosive device. Warning may come either before or after diversion, and the United States may become aware of the possibility of a diversion by many means, some technical (such as a safeguards violation) and some non-technical (such as a renunciation of the Nuclear Non-Proliferation Treaty). The view that "timely warning" can be provided by both technical and non-technical factors together was formally conveyed to the General Accounting Office by the Departments of State, Defense, and Energy and the Arms Control and Disarmament Agency in 1985 (see attachment as stated).

-2-

In both cases, the United States provides consent in advance in certain contingencies and retains its discretion to provide or withhold consent in other contingencies.

There is no legislative history which speaks directly to the issue of what the term or scope of an approval of reprocessing or retransfer for reprocessing may be. It has been suggested that the intent of the NNPA is that such approvals be exercised only on a "case-by-case" basis. The term "case-by-case" does not appear in the statute and has no statutory legal significance. Moreover, this suggestion begs the question of what constitutes a "case" in terms of duration and scope of activities that may be covered by the approval and thus provides no guidance in the application of the law.

As seen from section 131a(3), advance approvals are permissible under the law. Further, there is precedent for advance approval covering programs of reprocessing. Approvals for such programs at the Tokai-Mura facility in Japan were submitted for Congressional review and entered into force. They are legally indistinguishable from the broader programmatic advance consent arrangements the Administration is offering to Japan and EURATOM, contingent on the necessary information being provided and the necessary statutory findings being made. If successfully negotiated, these advance consent arrangements would be submitted for review by Congress as new or amended agreements for cooperation prior to entry into force.

International transactions, both in the nuclear field and in non-nuclear fields, often need to be concluded on a long term basis which specifies the terms under which future retransfers and other transactions are permitted. Indeed, in order to obtain the wide U.S. consent rights required for new or amended agreements for cooperation, the United States will in some cases have to enter into commitments in advance detailing the activities for which U.S. consent is given. The NNPA recognizes this reality.

In sum, the law (sections 123 and 127 of the Atomic Energy Act) requires only that the United States have reprocessing and retransfer approval rights. No provision precludes the United States from granting approvals in advance or for a specified duration or limits the scope of such approvals. In the absence of any such statutory limitations, and in view of the language of section 131a(3), it is clearly lawful for the U.S. Government to provide advance programmatic consent to reprocessing and to retransfers for reprocessing, provided, of course, that the necessary statutory findings are made and continue to be met and the required statutory procedures, including Congressional review, are followed.

APPENDIX 8

**STATE DEPARTMENT REVIEW OF U.S. CONSENT RIGHTS UNDER
PROPOSED VS. EXISTING AGREEMENT**

Basis for US Consent for Use of US-Origin
Existing and Future Facilities
in New US-Japan Peaceful Nuclear
Cooperation Agreement

Under the proposed US agreement with Japan on peaceful nuclear cooperation, US gives its advance, long-term consent to the reprocessing of nuclear material subject to the agreement and to the use of recovered plutonium based on a determination that these activities will not result in a significant increase in the risk of proliferation and will not be inimical to the common defense and security and subject to a US right of suspension if these determinations no longer apply. The inclusion of existing and future facilities is based on the following factors.

<u>Existing Facilities</u>	<u>Future Facilities</u>
1. US-Japanese security alliance	Same
2. Effective Japanese non-proliferation commitments	Same
3. Acceptable Japanese non-proliferation behavior including compliance with agreement, safeguards agreements and export behavior	Same
4. Japanese commitments on adequate physical protection	Same
5. Effective implementation of physical protection measures	Same
6. Japanese commitments to effective safeguards	Same
7. US knowledge of safeguards approach used by the IAEA at existing facilities	Effective safeguards must be applied. This requirement may be satisfied in one of following ways:

- a) applicable safeguards are being applied to Japanese facilities already approved; or
- b) assurance that safeguards arrangement with the IAEA is in accordance with agreed safeguards concept, and evidence to support assurance; or
- c) provisional safeguards determined to be adequate by the US.

8. US-fall-back safeguards right if IAEA is not or will not apply safeguards	Same
9. Knowledge through consultations and general IAEA safeguards approach of actual implementation of safeguards	Same
10. Continuous consultation on safeguards and physical protection	Same
11. Reporting on Japanese program and provision of information on location, stocks and flows of plutonium at each facility	Same
12. Any plutonium concerned must stay at agreed facilities unless US agrees to further transfers.	Same

- | | |
|--|------|
| 13. Right to suspend consent
if US determines a
significant increase of
proliferation risk or
threat to its national
security | Same |
| 14. US right to suspend all
cooperation and to
require return if Japan
breaches agreement for
cooperation or any
safeguards agreement or
detonates a nuclear
explosive device | Same |

US-Japan Peaceful Cooperation Agreement

	<u>Existing Agreement</u> (1968, as amended 1972 and 1973)	<u>New Agreement</u>
1. IAEA safeguards on US exports	Yes	Yes
2. IAEA safeguards on all Japanese activities as a condition of US exports	No	Yes
3. Peaceful Use assurance for US exports	No use of transferred items or special nuclear material produced through their use for atomic weapons or research on or develop- ment of atomic weapons or any other military purpose.	Also covers nuclear material used in transferred items. Precludes all nuclear explosives: Explicit recognition of no difference between nuclear weapons and nuclear explosive devices for all pur- poses under agreement.
4. Fallback U.S. safeguards if IAEA not applying safeguards	Yes	Yes
5. US consent right on storage of weapons usable materials	Applies only to facilities for storage of nuclear material "not required for atomic energy programs in Japan" and only when IAEA is not applying safeguards.	US has right of approval over all storage facilities for weapons usable materials.

- 2 -

	<u>Existing Agreement</u>	<u>New Agreement</u>
6. US consent right on reprocessing	Only for US supplied material for Japanese facilities. US right limited to determining whether safeguards pursuant to the agreement may be effectively applied.	Also covers special nuclear material used in or through the use of U.S. supplied moderator material, nuclear material, or equipment. No limit on factors U.S. may consider.
7. US consent right on alteration in form or content of special fissionable material	Same as for reprocessing but only applicable to irradiated fuel received from US.	Covers US-supplied plutonium, U-233, HEU and irradiated nuclear material, and such material used in or produced through the use of US-supplied moderator material, nuclear material or equipment. No limit on factors US may consider.
8. US consent right on enrichment	No	Yes (20% or above)
9. Physical Protection assurance	No	Yes
10. US right of return	Basic right applies only to US-supplied special nuclear material, if Japan terminates the applicable IAEA safeguards agreement and only after Japan has been given sufficient notice to arrange for alternative source of power. A broader return right may only apply when IAEA is not applying safeguards and US is applying fall-back safeguards.	Applies to all US-supplied items and special nuclear material produced through their use. Applies if Japan terminates or violates any IAEA safeguards agreement, detonates a device or does not comply with the agreement or an arbitral decision under the agreement.

- 3 -

	<u>Existing Agreement</u>	<u>New Agreement</u>
11. US consent right on retransfers	Applies explicitly only to US-supplied items; and not to special nuclear material produced through US supplied material (although Japan has interpreted agreement to cover produced material).	Applies explicitly to both U.S.-supplied items and special nuclear material produced through U.S.-supplied moderator material, nuclear material, or equipment.
12. Perpetuity of consent rights and guarantees if agreement is suspended or terminated for any reason	Silent. This is unilateral US interpretation.	Explicitly establishes perpetuity for all relevant consent rights and guarantees.
13. Consultation and exchanges of information on safeguards and physical protection	Silent	Seven separate provisions for consultations including mandatory consultations on safeguards and physical protection.
14. Tracking and accounting of nuclear material subject to the agreement	Silent, except when US is applying fall-back safeguards.	Extensive reporting on nuclear materials, including stocks and flows of plutonium.
15. Definition of safeguards requirements for Pu facilities	US and Japan must determine jointly for Japanese facilities that safeguards may be applied effectively to reprocessing facilities and facilities for alteration in form or content.	Separate safeguards requirements for reprocessing, Pu storage, Pu conversion, fuel fabrication facilities and reactors.

- 4 -

Existing AgreementNew Agreement

16. Right to suspend
consent for
reprocessing and
use of plutonium

Silent. Subsequent
arrangements have not
been subject to right
of revocation.

Unilateral right to
suspend consent
in whole or in part
at any time if US
determines
continuation of
consent poses
significant in-
creased proliferation
risk or national
security threat.

Conditions for Including Future Facilities
within US Long Term Consent Arrangement

Future facilities, such as reprocessing plants, may be added to the Japanese program covered by long term, advance consent given by the United States under the proposed US-Japan Agreement for Peaceful Nuclear Cooperation if and only if the following conditions are met:

- 1) Japan must provide the United States with detailed information concerning the facility (Article 2(2)(a)(i) and (ii) of the Implementing Agreement);
- 2) the physical protection measures required by the Agreement must be applied to the facility (Article 2(2)(a)(iii), Implementing Agreement);
- 3) a safeguards facility attachment or arrangement for ad hoc inspection must have been agreed upon with the International Atomic Energy Agency (IAEA) (Article 2(2)(a)(iii) of the Implementing Agreement);
- 4) these safeguards must either be in accordance with a) safeguards which the United States has already accepted for a similar facility in Japan, Article 2(a) (iii) of the Implementing Agreement and Article 2 (b)(ii) or b) a safeguards concept agreed to by the United States or c) provisional safeguards agreed to by the United States (Article 2 (2)(b), Article 2 (4)(b) and paragraph 5 of the Agreed Minutes of the Implementing Agreement);
- 5) Japan must provide the United States with a description of the key elements of the safeguards arrangement to enable the US to confirm that it is in conformity with the agreed safeguards concept (Article 2(2)(b), and paragraph 5 of the Agreed Minutes to the Implementing Agreement);
- 6) all plutonium produced at the facility must remain at the facility or at other facilities approved by the US. (Article 1(4) of the Implementing Agreement); and
- 7) all activities and inventories of plutonium of the facility must be reported regularly to the US. (Paragraph 1(a) of the Agreed Minute of the Implementing Agreement and Note 329/SCNE).

As with all approvals, the United States may suspend its consent in whole or in part to prevent a significant increase in the risk of nuclear proliferation or in the threat to its national security.

APPENDIX 9

**LETTER FROM NRC CHAIRMAN ZECH TO SENATOR JOHN GLENN AND
ATTACHMENTS THERETO ON NRC VIEWS CONCERNING THE PROPOSED
U.S.-JAPAN AGREEMENT FOR NUCLEAR COOPERATION, JANUARY 11,
1988**

CHAIRMAN

January 11, 1988

The Honorable John Glenn, Chairman
Committee on Governmental Affairs
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

In response to your letter of November 19, 1987, I am enclosing the NRC Rebuttal to State/DOE/ACDA Comments on NRC views concerning the proposed U.S./Japan Agreement for Nuclear Cooperation. Also enclosed is a copy of the Commission's letter to the State Department commenting on procedures State used in negotiating the Agreement.

Your letter also requested copies of all relevant documents that set forth and formed the basis of the Commission's recommendations concerning the agreement. In response to this request, I am enclosing two documents, SECY-87-134A and SECY-87-134B. We have identified several more documents relevant to your request. These documents contain classified information provided by other agencies. In accordance with the third-agency rule, the Commission has asked the Executive Branch for permission to release these documents to Congress but has not yet received a response. We will keep you informed of the status of our request.

Sincerely,

Lando W. Zech Jr.
Lando W. Zech, Jr.

Enclosures:

1. NRC Rebuttal to State/DOE/ACDA Comments
2. Letter to State, 7/27/87, with enclosure
Letter to the President, 7/27/87
3. SECY-87-134A, 6/15/87
4. SECY-87-134B, 7/2/87

cc: Senator William V. Roth, Jr.
Senate Committee on Foreign Relations
House Committee on Foreign Affairs

NRC Rebuttal to State/DOE/ACDA
Comments on NRC Views

The Commission appreciates the extensive comments provided by State, DOE, and ACDA on the concerns raised in our July 27, 1987 letter to the President. Many of these comments provide new information regarding our stated concerns. Our rebuttal to the State, DOE, and ACDA comments on our views are as follows:

Comments Nos. 1 and 2: Safeguards for Future Japanese Plutonium Facilities

State, DOE, and ACDA views support the NRC position that safeguards approaches for future Japanese plutonium facilities are not yet developed, tested or ready for implementation. As such, it is difficult to assure the effective performance of such new approaches. The Commission is not insisting that the safeguards measures for new facilities be fully developed as a condition for granting long term, programmatic approval for use of U.S. controlled plutonium in Japan. NRC's basic objection is that at the present time not enough is known about future IAEA safeguarding capabilities in the large plutonium facilities envisioned by Japan. We recognize that the IAEA will do its best to safeguard these facilities. However, we have concerns that based on current international safeguards as applied to an 800 ton per year reprocessing facility, 200-300 kilograms of plutonium could remain unaccounted for each year. Also we question whether an exchange of notes prior to operation (not construction) of such a facility is all that is needed to give the U.S. confidence that all material under its control remains in peaceful, safeguarded use. The Commission does not presume that a U.S. approval

decision should be delayed until after future plants are constructed. Rather, the Commission is suggesting that such decisions should be made on a case-by-case basis, based on the design of the facility and taking into account more timely information on available safeguards technology.

In summary, technical constraints may make it impossible for the IAEA to achieve its current degree of safeguards effectiveness in Japan's proposed new large bulk-handling plutonium facilities. This does not necessarily mean that the new safeguards measures yet to be developed for these new facilities will be inadequate. However, the Commission believes that the U.S. Government should not commit itself, as the proposed Agreement does, to giving programmatic approval for these facilities when extensive effort is still required to develop acceptable safeguards measures.

Comment No. 3 Further Renegotiation of the Agreement

The Commission agrees with the Department of State that entering into a new agreement for cooperation with Japan at an early date is important. Nonetheless, because the current agreement does not expire until 2003, there is time to negotiate an agreement that would satisfy NRC's concerns.

Comment No. 4 Return of Plutonium to Japan

On another matter, the Atomic Energy Act requires that the United States retain the right to require that foreign countries return plutonium produced through the use of U.S. transferred nuclear material or complete

nuclear facilities. The proposed agreement appears to go beyond legal requirements contained in the Atomic Energy Act in that it makes this requirement reciprocal and refers not only to nuclear material and complete nuclear facilities, but also to components. The Commission does not support the provision in the agreement giving Japan the right to require the U.S. to return any plutonium produced in U.S. facilities that use Japanese components. The Commission questions the nonproliferation policy rationale of a provision whereby a nuclear weapons state would return plutonium to a non-nuclear weapons state. The Commission believes that this could be unwise, even if the particular circumstances under which this might take place are extremely unlikely. Accordingly, this proposed agreement, in extending reciprocal return rights to Japan, goes beyond legal requirements and might not be prudent.

Comments Nos. 5 and 6: Suspension Rights in Agreement

The Commission welcomes the Executive Branch's additional assurances in their comments that the provision for arbitration is not mandatory and that U.S. suspension rights will continue to be subject to a unilateral U.S. determination. This resolves our concerns.

However, when considering bases for suspension of an agreement, the Commission believes consideration of Japan's economic issues or impacts should be subordinate to consideration of U.S. national security and nonproliferation issues. We do not know if this is the intent of the Executive Branch. Additionally, with regard to the possible precedent set by this agreement in tying suspensions to economic considerations, the U.S. may have difficulty

arguing that one non-nuclear weapon state's economic interests are appropriate in an agreement, but a second non-nuclear weapon state's are not.

Comment No. 7: Tracking Components

The Executive Branch comments still do not rule out the possibility of placing Japanese component exports to the U.S. under the terms of the proposed Agreement, thereby imposing complicated and expensive regulatory burdens on the U.S. and on the private sector. There is no statutory (NNPA) requirement to place component exports under the terms of an Agreement for Cooperation. The Executive Branch emphasizes in its comments the importance of the nonproliferation benefits with respect to U.S. component exports to Japan, and implies that this justifies the imposition of the reciprocal regulatory burden on the U.S. The Commission questions these judgments, particularly in the absence of any statutory requirement for the imposition of any tracking or reporting burdens with respect to U.S. component exports to Japan. More generally, the Commission is concerned that the Executive Branch appears to have lost sight of the basic commitment the U.S. made several years ago to forego bilateral "safeguards" inspection and reporting rights in favor of multilateral IAEA safeguards arrangements. Instead, we now have before us an extremely complicated agreement with one of our closest allies which imposes significant and expensive bilateral tracking and reporting requirements vis-a-vis the U.S. and Japan in addition to maintaining the existing IAEA safeguards regime. The Commission questions whether this is a proper allocation of our limited nonproliferation resources.

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Enclosure 2



CHAIRMAN

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20585

July 27, 1987

The Honorable Richard T. Kennedy
Ambassador at Large
U. S. Department of State
Washington, D. C. 20520

Dear Ambassador Kennedy:

Enclosed for transmittal to the President are the comments of the Nuclear Regulatory Commission (NRC) on the proposed Agreement for Nuclear Cooperation Between the United States and Japan Concerning Peaceful Uses of Nuclear Energy.

There is one matter which we would like to draw to your attention. The Commission is concerned about its exclusion from essentially all aspects of the negotiations on this Agreement. Our concern arises particularly in this case where the implementation of key provisions of the proposed Agreement is the direct responsibility of the NRC. We believe that many of the concerns expressed in our letter to the President could have been addressed during the Agreement negotiations. In order to assure that the consultation requirements of Section 123 of the Atomic Energy Act are meaningfully satisfied, NRC must be fully informed during the course of future negotiations with other countries and be consulted prior to formally proposing draft Agreements to other countries.

I look forward to establishing mutually agreeable arrangements for fuller NRC consultation on such proposed Agreements.

Sincerely,

Lando W. Zech Jr.
Lando W. Zech Jr.

Enclosure:
As Stated

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D C 20585

July 27, 1987

CHAIRMAN

The President
The White House
Washington, D. C. 20500

Dear Mr. President:

The Nuclear Regulatory Commission (NRC) has reviewed the proposed Agreement for Cooperation Between the United States and Japan Concerning the Peaceful Uses of Nuclear Energy and provides the following comments.

The Commission recognizes the importance attached to the relationship between the United States and Japan and has no reason to question Japan's non-proliferation credentials. Japan is an important ally and a country with which we have had long standing nuclear cooperation with for many years. We are also aware of the need to establish and maintain the United States as a reliable trading partner. However, without modification, the Commission cannot recommend that you approve the new Agreement. In reaching this recommendation the Commission takes note of the fact that the existing Agreement will not expire until the year 2003.

The Commission cannot support the provisions for advance approval for plutonium use in future Japanese plutonium facilities. The proposed safeguards measures for these facilities have not been fully developed or routinely utilized and may not provide an effective level of safeguards when implemented. At the large plutonium plants that Japan plans to operate, this could result in safeguards material accounting uncertainties of hundreds of kilograms of plutonium. As a result, the Commission recommends the inclusion of advance consent provisions similar to those now in the existing Agreement with Japan.

The Commission cannot support the provision which would give Japan the right to require the United States to return any plutonium produced in United States facilities that use Japanese equipment or components. Under the terms of the new Agreement, if the Government of Japan perceives that the

The President

-2-

United States has failed to implement the terms of agreement in good faith, determination of such failure may be left to an arbitral tribunal. The Commission does not believe it is in the United States national security interest to agree to such a provision. In addition, the suspension rights in the proposed Agreement appear to require more consultation ... between both parties to the Agreement on matters such as economic impact of suspension than is generally required in similar agreements with other countries, thus creating an unwarranted precedent with a non-nuclear weapons state.

The proposed Agreement provides for the tracking and reporting of Japanese origin components and the plutonium produced using these components. The Commission believes the non-proliferation benefits to be gained from such tracking and reporting may not be sufficient to justify the requirement being placed on the United States nuclear industry and the United States Government, particularly in light of the fact that such component tracking and reporting provisions are not required by the Nuclear Non-Proliferation Act of 1978. In addition, until the Administrative Arrangements for the recordkeeping, tagging and reporting requirements associated with control of component imports into the United States are specified and justified, the Commission will be unable to establish the necessary regulations.

The Commission is concerned over the process that resulted in this Agreement and has sent a letter to the Department of State to express our concerns.

I hope our comments will be helpful in your consideration of the final proposed Agreement.

Sincerely,

Lando W. Zech Jr.
Lando W. Zech, Jr.

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Enclosure 3



POLICY ISSUE

June 15, 1987

(Information)

SECY-87-134A

For: The Commissioners

From: Victor Stello, Jr.
Executive Director for Operations

(U) Subject: US/JAPAN AGREEMENT FOR COOPERATION

Reference: SECY 87-134, US/Japan Agreement for Cooperation, dated June 2, 1987

(U) Purpose: To provide additional EDO views and comments on the subject agreement and proposed letters to the President and Secretary of State on the US/Japan Agreement.

(U) Discussion: On June 2, 1987, Harold R. Denton, Director, GPA forwarded to the Commission an analysis of the subject Agreement (SECY 87-134). In SECY 87-134, Mr. Denton noted that the EDO was continuing to review the Agreement and would provide additional views to the Commission.

(C) The staff has identified four issues which I believe should be highlighted to the President for his consideration of the final US/Japan Agreement. These issues are:

1. Advisability and rationale for giving Japan, a nonnuclear weapon state, the right to require the U.S. to return plutonium produced in U.S. facilities that used Japanese equipment or components if the U.S. fails to implement fully the Agreement;
2. Adequacy of safeguards measures for timely detection of diversion of plutonium at large scale plutonium facilities;
3. Inability of the NRC to estimate the impact and costs of implementing the Agreement and the intent of NRC to pass along implementing costs of the Agreement to the U.S. nuclear industry to the extent possible; and
4. The applicability of the Agreement to persons and entities who are not NRC licensees.

Declassified on: January 7, 1988

By Authority: Declassification of Prop

By: E.G. Ten Eyck, DD, SGS & Transporta

CONTACT: tion

E. W. Brach, NWSS

42-74194

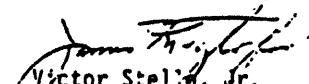
Japanese
Agree-
ment

SECY-87-134A	100-100000-100000-100000
Original Policy Issues Determination Report	
Date: 7/7/87	
Prepared by: [Redacted]	
E. G. Ten Eyck, Deputy Director	
DPA, SGS and Transportation	

The Commissioners

- 2 -

- (U) Subject to the Commissions views on the above matters, you may wish to revise the proposed letters to the President and the Secretary of State (reference Enclosures 4 and 5 of SECY 87-134). The EDO and staff are prepared to discuss these issues and proposed letters should the Commission desire.



Victor Stellings, Jr.
Executive Director
for Operations

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Enclosure 4

July 2, 1987

SECY-87-134B**POLICY ISSUE**

(Notation Vote)

For: The Commission

From: Harold R. Denton, Director *HR Denton*
Office of Governmental and Public Affairs

Subject: US/JAPAN AGREEMENT FOR COOPERATION

Reference: US/Japan Agreement for Cooperation (SECY 87-134 and 134A)

Purpose: To provide, for Commission consideration, a revised proposed letter to the President with NRC views on the US/Japan Agreement and a proposed letter to the Secretary of State.

Discussion: As a result of Commission meetings with the Executive Branch on the proposed US/Japan Agreement for Cooperation, the Commission requested that the staff revise the proposed letter to the President. The revised proposed letter is enclosed for Commission consideration (Enclosure 1). Also enclosed for consideration is a proposed letter to the Secretary of State which expresses Commission concern over its exclusion from the Agreement negotiations (Enclosure 2).

The EDO concurs in the revised proposed letters. OGC has no legal objection.

Declassify on January 7, 1988
by Marvin B. Peterson, AD for International Secu
MRB

Enclosure:
 1. Proposed GPA ltr to the President
 2. Proposed ltr to the Secretary of State

Contact: Carol Eberhard, IP
49-24725

NATIONAL SECURITY INFORMATION

Authoritative copy to be maintained

Classification: Proposed Japanese Agreement
Declassify: 01/07/88
Prepared by: [Redacted]
Approved by: [Redacted] 01/07/88
Comments: [Redacted]
Dated: [Redacted] 01/07/88
Source: [Redacted] Dtr. IP/GPA
Notes: [Redacted]

- 2 -

Commissioners' comments or consent should be provided directly to the Office of the Secretary by c.o.b. Friday, July 17, 1987.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Friday, July 10, 1987, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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GPA
EDO
SECY

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ENCLOSURE 1

DRAFT

Dear Mr. President:

The Nuclear Regulatory Commission has completed its review of the proposed Agreement for Cooperation between the U.S. and Japan concerning the Peaceful Uses of Nuclear Energy. As a general comment, while we prefer the provisions of the existing Agreement with Japan, which require prior U.S. approval of plutonium use in new large Japanese nuclear facilities, we are aware that other broader issues are involved in the new Agreement, such as establishing and maintaining the U.S. as a reliable nuclear trading partner. We would also like to draw your attention to several specific issues which we feel are worthy of your careful consideration before deciding whether to give final approval to the proposed Agreement.

The safeguards arrangements proposed in the concept papers for future Japanese plutonium facilities are central to the Executive Branch's conclusion that the proposed Agreement and its accompanying subsequent arrangements will meet the statutory requirements of the Atomic Energy Act. The Commission has concerns that the proposed safeguards measures, which have not been fully developed or routinely utilized, may not provide an effective level of safeguards when implemented at a large plutonium facility. Conceivably, at the large plutonium plants that Japan plans to operate, this could result in safeguards material accounting uncertainties of hundreds of kilograms of plutonium. Accordingly, the Commission strongly recommends that the U.S. and Japan accelerate the development and demonstration of new international safeguards measures to overcome the major technical safeguarding constraints for facilities that use large quantities of separated plutonium.

The President

- 2 -

Under the terms of the Agreement, if the U.S. fails to implement the Agreement in good faith, the determination of which may be left to an arbitral tribunal, then Japan would have the right to require the U.S. to return any plutonium produced in U.S. facilities that used Japanese equipment or components. The Commission questions whether it is in the U.S. national security interest to agree to such a provision.

The Commission notes that the suspension rights which appear in the proposed Agreement appear to require more consultation between both parties to the Agreement on matters such as economic impact of suspension than is generally true in previous agreements with other countries. The Commission is aware that past actions by the U.S. may have induced Japan to seek to establish a high threshold in this Agreement in order for Japan to be assured of continued, reliable nuclear commerce with the U.S.

The proposed Agreement includes provisions for the tracking and reporting of components and the plutonium produced therefrom. We question whether the nonproliferation benefits to be gained from such tracking and reporting are sufficient to justify the requirement being placed on the U.S. nuclear industry and the U. S. Government, particularly in light of the fact that such component tracking and reporting provisions are not required by the Nuclear Non-Proliferation Act of 1978. Further, until the Administrative Arrangements for the recordkeeping, tagging and reporting requirements associated with the

The President

- 3 -

control of component imports into the U.S. are specified and justified, the Commission is unable to establish the necessary regulatory framework to place these requirements on its licensees.

The Commission also understands that the component tracking and reporting provisions of the Agreement, if implemented, may apply to persons and entities who are not NRC licensees, for example, equipment suppliers and vendors. The Commission does not have regulatory responsibility in this area. Therefore, the Executive Branch must take the lead to consult with other government agencies to assure appropriate implementation of any agreed-upon component tracking controls.

The Commission would have preferred to settle the above issues for which it has responsibility during the process of negotiating the Agreement; however, the Commission was excluded from essentially all aspects of the negotiations. To correct the situation for future negotiations of this type, I am writing separately to the Secretary of State.

We trust that our comments will be helpful in your consideration of the final proposed Agreement.

Respectfully,

Lando W. Zech, Jr.
Chairman

The Honorable George P. Shultz
Secretary of State
Washington, D.C. 20520

Dear Mr. Secretary,

Enclosed for transmittal to the President are the comments of the Nuclear Regulatory Commission on the proposed Agreement for Nuclear Cooperation between the U.S. and Japan Concerning Peaceful Uses of Nuclear Energy.

There is one matter which we would like to draw to your attention. The Commission is concerned about its exclusion from essentially all aspects of the negotiations on this Agreement. Our concern arises particularly in this case where the implementation of key provisions of the proposed Agreement is the direct responsibility of the NRC. We believe that many of the concerns expressed in our letter to the President could have been addressed during the Agreement negotiations. In order to assure that the consultation requirements of Section 123 of the Atomic Energy Act are meaningfully satisfied, we request that the Executive Branch keep the NRC fully informed during the course of future negotiations with other countries and consult with NRC prior to proposing drafts of Agreements formally to other countries. The NRC is particularly interested in those agreements with major nuclear partners where provisions of the agreements may directly impact areas of NRC's responsibility.

I look forward to establishing mutually agreeable arrangements for fuller NRC consultation on such proposed Agreements.

Sincerely,

Lando W. Zech, Jr.
Chairman

JONES, GLENN, GORE, CHAPMAN
 L. TUPPER ANDREWS, FLORIDA
 SAM REED, COLORADO
 GENE LEVINE, CONNECTICUT
 JEFF BACHRACH, CONNECTICUT
 DAVID FERGUSON, CONNECTICUT
 ROBERT A. MITCHELL, CONNECTICUT
 RICHARD NEWTON, CONNECTICUT
 JAMES A. MITCHELL, MASSACHUSETTS
 ROBERT WILSON, FLORIDA
 WILLIAM V. DETH, ALASKA
 TED STEVENS, ALASKA
 WILLIAM S. COHEN, MAINE
 WARREN S. BUSHMAN, NEW HAMPSHIRE
 JOHN HENKE, PENNSYLVANIA
 PHILIP S. TORBELL, VIRGINIA
 LEONARD WEINER, STAFF DIRECTOR
 JO ANNE BARNHART, SENATE STAFF DIRECTOR

United States Senate

COMMITTEE ON
GOVERNMENTAL AFFAIRS

WASHINGTON, DC 20510-6250

November 19, 1987

The Hon. Lando Zech
 Chairman
 Nuclear Regulatory Commission
 Washington, D.C. 20555

Dear Mr. Chairman:

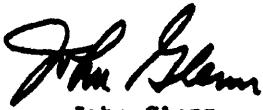
On November 9, 1987 the proposed US-Japan Agreement for Nuclear Cooperation was submitted to Congress for its further review as provided by the Atomic Energy Act. I have read your letter of July 27th to the President expressing the Commission's views on this agreement. In that letter, you identified a number of national security concerns with certain provisions and recommended that the agreement not be approved.

Congress is now facing its statutory responsibility of deciding whether the proposed agreement "will promote, and will not constitute an unreasonable risk to, the common defense and security." Since your letter has identified several areas of concern, I would like to request copies of all relevant documents that set forth and formed the basis of the Commission's recommendations concerning the agreement.

Such material may include the Commission's assessment of the joint State/Energy/ACDA rebuttal of the concerns expressed in your July 27th letter, a copy of the letter that NRC sent to the State Department concerning the process that resulted in this Agreement, and any other information that you believe would clarify NRC's national security concerns.

Thank you very much for your assistance.

Sincerely,



John Glenn

APPENDIX 10

LETTER FROM WILLIAM MCCOLLAM, JR., PRESIDENT, EDISON ELECTRIC INSTITUTE TO PRESIDENT REAGAN, MARCH 2, 1988, IN SUPPORT OF THE PROPOSED AGREEMENT**March 2, 1988**

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

In your letter of January 29, 1988, to Senate Foreign Relations Committee Chairman Pell, you set forth the reasons the proposed new peaceful nuclear cooperation agreement between the United States and Japan will substantially improve U.S. non-proliferation controls and help ensure the continued growth of U.S. nuclear exports to Japan. The Edison Electric Institute (EEI), the national association of investor-owned electric utilities, strongly supports this important agreement which provides a stable and predictable basis for continued collaboration between the two countries in the peaceful applications of nuclear energy. Our member companies operate 96 commercial nuclear plants, which provide over 15 percent of the nation's electricity.

EEI is taking steps to foster a greater understanding that implementation of the new agreement will significantly benefit American electric utilities and their electricity consumers. The new agreement will promote continued collaboration between Japanese and American companies in nuclear safety matters. This agreement will allow continuation of the joint development of new generation of advanced nuclear power reactors to meet the growing energy needs in both countries. Such collaboration spreads the research and development among several cooperating partners, and pools the experience and creativity of American and Japanese companies resulting in strong economic benefits.

Japanese electric utilities annually purchase approximately one third of the Department of Energy's (DOE) total sales of enriched uranium. These Japanese purchases, which could increase over the next decade, make a favorable contribution to the U.S. trade balance with Japan. If the new agreement is not implemented, these Japanese customers could elect to turn to European enrichment

suppliers as a logical step to diversify their source of supply for nuclear fuel. This would leave DOE with substantial fixed enrichment costs and approximately 30 percent less revenue. The obvious result would be far higher enrichment costs to U.S. utilities and, ultimately, higher electricity rates to American consumers.

Despite the many advantages of the new agreement, concerns have been raised in Congress. While your January 29 letter effectively responded to these concerns, EEI believes that additional efforts by the Administration are essential to ensure that Congress fully appreciates the importance of the new agreement.

EEI and its member companies will continue to support the new agreement. Once the new U.S.-Japan Agreement for Cooperation is brought into force, a firm foundation will have been established for peaceful nuclear cooperation between the two countries. Under this new agreement, American and Japanese electric utilities will continue their well-established record of safe and economic production of electricity from nuclear power.

Sincerely yours,



William McCollam, Jr.

WM:fdg

APPENDIX 11

LETTERS FROM THE HON. STEVE COWPER, GOVERNOR OF THE STATE OF ALASKA, TO CHAIRMAN FASCELL, DECEMBER 14, 1985 AND MARCH 1, 1988, EXPRESSING CONCERN OVER ASPECTS OF THE PROPOSED AGREEMENT

December 14, 1987

The Honorable Dante Fascell
Chairman
House Committee on Foreign Affairs
2170 Rayburn House Office Bldg.
Washington, D.C. 20515

Dear Mr. Chairman:

I am writing to express my deep concern about certain elements of the new agreement for peaceful nuclear cooperation between the United States and Japan, which agreement was recently submitted to the Congress by the Reagan Administration.

We do not claim to be experts in nuclear nonproliferation policy or in certain other matters which are proper prerogatives of the federal government. Further, I recognize and support Japan's effort to diversify its sources of energy. However, we have carefully examined the health and safety aspects of the proposed agreement - matters which are appropriately within the state's purview - and believe that the agreement and accompanying environmental assessment demonstrate a disregard for possible detrimental effects on residents of Alaska.

In making this statement, I am aware that the agreement does not specify a particular transportation route or transshipment point within the United States. Yet, the initial reaction of certain Canadian officials, transportation efficiencies, domestic political considerations, and other factors have led us to conclude that Alaska presents the most likely transportation scenario.

For the people of my state, the relevant health and safety implications are clear-cut. Plutonium is the most toxic substance known to man. In our opinion, this fact can not be masked by the types of arithmetic calculations incorporated into the environmental assessment prepared by the Department of Energy.

Further, we believe that the analysis of health and safety considerations contained in the assessment is completely inadequate. For one thing, both the agreement and the assessment were concluded in secrecy. There has been no opportunity for analysis and input by outside experts.

Moreover, even though the agreement raises extremely important health, safety, and security issues, it has not been exposed to the rigors of a process culminating in the preparation of a true environmental impact statement. The environmental assessment's analysis of alternatives and consequences is superficial. Further, even a cursory reading of the assessment, which was prepared long after the agreement was negotiated, indicates that its true purpose is to support the Administration's decision to enter into the agreement rather than to present an objective array of options and possible results.

For these reasons, I directed the initiation of litigation against the federal government to require the preparation of an environmental impact statement which would properly address the health and safety issues raised by the agreement. The Departments of Energy and State succeeded in mootting this effort by submitting the agreement to the President before the judge could rule on our request. Unfortunately, the health, safety, and other issues remain, and in our opinion, the Congress does not now have an adequate analytic foundation upon which to premise its decision to approve or disapprove the agreement.

In these circumstances, I respectfully recommend the following course of action. First, the Congress should require the Administration to prepare a proper environmental impact statement, accompanied by the opportunity for public input, before the agreement and subsequent arrangement are approved or disapproved. (In making this suggestion, I recognize that if Congress does not act affirmatively, these arrangements will be deemed approved after a specified period.)

In our opinion, it is important that a programmatic environmental impact statement be prepared now. Otherwise, approval of the agreement at this juncture will create a momentum which will make it far more difficult for federal officials to make objective decisions later with respect to such specific matters as the selection of transportation routes and the approval of transportation casks. In other words, approval of the agreement now, without adequate analysis of alternatives and consequences, would create

expectations in Europe and Japan that could well bias subsequent decision-making on issues left undecided by the current proposal.

Second, we suggest that the Congress adopt a specific requirement for the preparation of a full environmental impact statement, with public input, at the time when the federal government begins to consider transportation routes and transshipment points across or within the United States. In our opinion, such a requirement already exists. However, there has been much ambiguity on the part of the Departments of State and Energy about how the National Environmental Policy Act may apply, if at all, to downstream decision-making under the agreement.

Third, we recommend that the Congress mandate the preparation of an environmental impact statement for decisions concerning the subsequent approval of a cask to transport plutonium under the agreement. Beyond this, we believe that successful air crash testing of the cask (rather than laboratory simulations alone) should be required as a prerequisite to cask approval. In this regard, past experience indicates that a cask might pass a physical test in a laboratory setting but fail in an air crash designed to approximate real world conditions.

To facilitate the committee's consideration of our suggestions, I have taken the liberty of enclosing statutory language which would accomplish the four objectives described above. I respectfully urge that this language or a variant thereof be enacted into law in connection with Congressional consideration of the agreement. In making this request, I want to note the excellent efforts of Senator Frank Murkowski to incorporate some of these suggestions into other legislation.

The effects on public health and safety of an air crash or mishandling of plutonium oxide are almost too disastrous to describe and cannot be hidden in the bureaucratic prose of the environmental assessment. The negotiation of the proposed agreement and the concomitant analysis of environmental effects have been shrouded in secrecy until recently. We believe that enactment of the measures suggested here would help resolve the clear deficiencies in the current analytic process and would facilitate informed decision-making by the Congress and the executive branch on these matters of extreme importance to the people of my state.

If we can be of further assistance in your consideration of our suggestions, please call me (907) 465-3500 or John W. Katz (202) 624-5858. Thank you for your attention to these matters.

Sincerely,

*John W. Katz for
Steve Cowper
Governor*

Enclosure

cc: Senator Ted Stevens
Senator Frank Murkowski
Congressman Don Young

Identical letters sent to all members of the Committee

(a) Notwithstanding any other provision of law, plutonium in any form may not be transported by aircraft under the New Agreement for Peaceful Nuclear Cooperation between the United States and Japan unless:

1. the Secretary of Energy prepares environmental impact statements under the National Environmental Policy Act which cover a. the new agreement between the United States and Japan b. the Subsequent Arrangement under the U.S.-EURATOM Agreement for Cooperation and c. shipment plans and cask approval which occur pursuant to the New Agreement for Peaceful Nuclear Cooperation between the United States and Japan.

2. such plutonium is transported in a container which the Nuclear Regulatory Commission has certified to Congress as safe in accordance with subsection (b) and all other applicable law including Public Law 94-79 and related regulations.

"(b) The Nuclear Regulatory Commission shall --

"(1) conduct an actual crash test of a cargo aircraft carrying a sample full scale container loaded with test material; -

"(2) conduct an actual drop test from maximum cruising altitude of a sample full scale container loaded with test material;

"(3) certify to the Congress that a safe container for use in the transport of plutonium by aircraft has been developed and tested:

(A) in accordance with paragraphs (1) and (2),

(B) in a way which uses the best practicable means to stimulate actual transport conditions, and

(C) which did not rupture and release its contents into the environment during such tests; and

"(4) evaluate the container certification required by Public Law 94-79 and paragraph (3) in accordance with the National Environmental Policy Act, Public Law 91-190, as amended, and all other applicable law.

"(c)(1) the tests required by subsection (b) shall be designed by the Nuclear Regulatory Commission after public notice and a reasonable opportunity for public comment on the design of such tests.

"(2) The results of all tests under this section shall be available to the public and submitted to the Congress.

"(d) Plutonium in any form contained in a medical device designed for individual human application is not subject to the provisions of this section.

STEVE COWPER
GOVERNOR



STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

March 1, 1988

The Honorable Dante B. Fascell
Chairman
House Committee on Foreign Affairs
2170 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

I am writing to present the views of the State of Alaska on the new agreement for peaceful nuclear cooperation between the United States and Japan.

The State of Alaska is deeply concerned about certain aspects of the proposed agreement. We do not claim to be experts in nuclear nonproliferation policy or in certain other matters which are proper prerogatives of the federal government. Further, the state recognizes and supports Japan's effort to diversify its sources of energy. However, we have carefully examined the health and safety aspects of the proposed agreement - matters which are appropriately within the state's purview - and believe that the agreement and accompanying environmental assessment demonstrate a disregard for possible detrimental effects on residents of Alaska.

We are aware that the agreement does not specify a particular transportation route or transshipment point within the United States. Yet, the initial reaction of certain Canadian officials, transportation efficiencies, domestic political considerations, and other factors have led us to conclude that Alaska may present the most likely transportation scenario. While we are encouraged by recent statements by State Department officials which indicate they are willing to explore other options, we remain concerned that an acceptable alternative has not yet been identified.

For Alaskans, the relevant health and safety implications are clear-cut. Plutonium is the most toxic substance known to man. In our opinion, this fact can not be masked by the types of arithmetic calculations incorporated into the environmental assessment prepared by the Department of Energy.

Further, we believe that the analysis of health and safety considerations contained in the assessment is completely

inadequate. For one thing, both the agreement and the assessment were concluded in secrecy. There has been no opportunity for analysis and input by outside experts.

Moreover, even though the agreement raises extremely important health, safety, and security issues, it has not been exposed to the rigors of a process culminating in the preparation of a true environmental impact statement. The environmental assessment's analysis of alternatives and consequences is superficial. Further, reading of the assessment indicates that its true purpose is to support the Administration's decision to enter into the agreement rather than to present an objective array of options and possible results.

For these reasons, the state initiated litigation against the federal government to require the preparation of an environmental impact statement which would properly address the health and safety issues raised by the agreement. The Departments of Energy and State succeeded in mootting this effort by submitting the agreement to the President before the judge could rule on our request.

Unfortunately, the health, safety, and other issues remain, and in our opinion, the Congress does not now have an adequate analytic foundation upon which to premise its decision to approve or disapprove the agreement. For these reasons, the state has recommended the following course of action.

First, the Congress should require the Administration to prepare a proper environmental impact statement, accompanied by the opportunity for public input, before the agreement and subsequent arrangement are approved or disapproved.

In our opinion, it is important that a programmatic environmental impact statement be prepared now. Otherwise, approval of the agreement at this juncture will create a momentum which will make it far more difficult for federal officials to make objective decisions later with respect to such specific matters as the selection of transportation routes and the approval of transportation casks. In other words, approval of the agreement now, without adequate analysis of alternatives and consequences, would create expectations in Europe and Japan that could well bias subsequent decision-making on issues left undecided by the current proposal.

Second, we suggest that the Congress adopt a specific requirement for the preparation of a full environmental impact statement, with public input, at the time when the federal government begins to consider transportation routes and transshipment points across or within the United States. In our opinion, such a requirement already exists. However,

there has been much ambiguity on the part of the Departments of State and Energy about how the National Environmental Policy Act may apply, if at all, to downstream decision-making under the agreement.

Third, we recommend that the Congress mandate the preparation of an environmental impact statement for decisions concerning the subsequent approval of a cask to transport plutonium under the agreement. Beyond this, we believe that successful air crash testing of the cask (rather than laboratory simulations alone) should be required as a prerequisite to cask approval. In this regard, past experience indicates that a cask might pass a physical test in a laboratory setting but fail in an air crash designed to approximate real world conditions.

We are pleased to note that virtually all of these measures are present in H.R. 3796. H.R. 3509, which would require submittal of the agreement for affirmative Congressional approval, should include a requirement that the Department of Energy prepare a Legislative Environmental Impact Statement for the agreement.

To conclude, the effects on public health and safety of an air crash or the mishandling of plutonium oxide are almost too disastrous to describe and cannot be hidden in the bureaucratic prose of the environmental assessment. The negotiation of the proposed agreement and the concomitant analysis of environmental effects have been shrouded in secrecy until recently. We believe that enactment of the measures suggested here would help resolve the clear deficiencies in the current analytic process and would facilitate informed decision-making by the Congress and the executive branch on these matters of extreme importance to the people of Alaska.

Thank you for this opportunity to present our views on this important matter.

Sincerely,

*John W. Katz for
Steve Cowper
Governor*

Identical letter sent to all Committee Members.

APPENDIX 12

**LETTER TO CHAIRMAN FASCELL FROM EDWARD M. DAVIS, PRESIDENT,
AMERICAN NUCLEAR ENERGY COUNCIL, DECEMBER 10, 1987, IN
SUPPORT OF THE PROPOSED AGREEMENT**

December 10, 1987

The Honorable Dante Fascell
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

A proposed new peaceful nuclear cooperation agreement between the United States and Japan is the subject of a hearing before your committee, scheduled for December 15, 1987. The American Nuclear Energy Council (ANEC) wishes to register its strong support for the new Agreement.

In transmitting the Agreement to Congress, President Reagan noted that the new Agreement "will strengthen the basis for continued close cooperation between the United States and Japan in the peaceful nuclear area and that it will further the non-proliferation and other foreign policy interests of the United States."

The new agreement is vital to maintenance of a close U.S. collaboration with Japan in continually improving the already well-established record in both countries of safe and economic production of electricity from nuclear power. Recent examples of this cooperation include the ongoing collaboration between Japanese utilities and American vendors in developing a new generation of advanced nuclear power reactors. Benefits of this collaboration will be available to American utilities for future orders of nuclear power plants to meet the steadily growing energy needs of this country.

Equally significant are the benefits to American nuclear utilities which flow from continued Japanese consumption of enrichment services provided by the Department of Energy (DOE). Each year, Japanese utilities purchase approximately \$300 million of enrichment services from DOE, which amounts to approximately thirty percent of DOE's annual enrichment sales. Without Japanese support for DOE's enrichment program, DOE's enrichment costs would inevitably be spread among fewer utility customers, resulting in substantially higher nuclear fuel costs to U.S. utilities, which the rate payers would be required to absorb.

However, serious questions will inevitably arise concerning the willingness of the Japanese utilities to continue their purchases of enrichment services from DOE if the new Agreement does not come into force. Without the new Agreement, nuclear fuel enriched by DOE and irradiated in Japanese reactors will continue to be subjected to an undesirable and unpredictable case-by-case U.S. approval process. If these impediments are continued, the Japanese utilities may well elect to purchase an increasing percentage of their future nuclear fuel requirements in Europe, and to accelerate existing plans for an indigenous enrichment facility. The long-term programmatic consent provisions of the new Agreement are consistent with U.S. law and will promote U.S. non-proliferation goals while providing a favorable climate for nuclear commerce between the United States and Japan.

In summary, ANEC urges that the new U.S.-Japan Agreement be allowed to enter into force. Such action will help promote advances in nuclear safety and further development of nuclear technology, which can best be achieved by a pooling of U.S. and Japanese experience and creativity. Moreover, implementation of the new Agreement will promote a continuation of the substantial Japanese purchases of nuclear components, fuel, and services in the United States, thus contributing favorably to a reduction of the U.S. trade imbalance with Japan.

We appreciate your consideration of these views. Please have your staff contact the Council if we can be of any assistance on this matter.

Sincerely,


Edward M. Davis

The American Nuclear Energy Council is a trade association representing the commercial nuclear energy industry, including utilities, manufacturers, architect-engineers, fuel and waste management firms.

APPENDIX 13

LETTER TO CHAIRMAN FASCELL FROM HON. RICHARD PERLE, AMERICAN ENTERPRISE INSTITUTE AND FRANK J. GAFFNEY, JR., HUDSON INSTITUTE, MARCH 2, 1988, EXPRESSING CONCERN OVER THE PROPOSED AGREEMENT

March 2, 1988

Congressman Dante B. Fascell
Chairman
House Committee on Foreign Affairs
2354 Rayburn House Office Building
Washington, DC 20515-0919

Dear Congressman:

As the Congress considers the proposed new U.S.-Japanese Agreement on plutonium, we would like to share our view of that accord and the process by which it was negotiated.

We were the Defense Department officials responsible for non-proliferation matters during the period this agreement was under negotiation and review by the Executive Branch. Our concerns about the agreement were reflected in the Department's official position on the accord, expressed in a memorandum from Secretary Weinberger to the Secretary of State on April 20, 1987. That position reflected our judgment and advice over several years, and nothing that was subsequently done to gloss over our concerns would lead either of us to abandon that position now.

The Defense Department regarded this agreement as seriously flawed. Two aspects were especially troublesome: First, it gives to Japan advance U.S. consent to reprocess and use U.S.-originated plutonium in any Japanese facility it chooses, without restriction as to quantities, purpose or economic justification and for a very long period into the future.

Second, it imposes extraordinary and unprecedented restrictions on the right of the United States to suspend that prior consent should future circumstances warrant such action during the life of the agreement.

In advocating the new accord some proponents have suggested that ill-defined safeguards "concepts" and the right to suspend the agreement are sufficient to protect American interests. As a practical matter, however, the ability to detect a diversion or to respond by withdrawing our approval after it has been abused, cannot substitute for our present right to make a priori

determinations of proliferation risks on a case-by-case basis. Such determinations are not only preferable -- they are required by the Atomic Energy Act. The new accord's failure to permit us to make them is clearly inconsistent with the letter, spirit and intent of the law.

The point is not that we are particularly concerned that Japan may wish to divert weapons grade material to military purposes. It is, rather, the importance we attach to the case-by-case approach to acting on these matters. We believe that the case-by-case approach is fundamental to a policy of discouraging nuclear proliferation. Abandoning it now, as the new agreement would do, even for a close friend like Japan, will expose the government to other such requests. And we will find ourselves faced with diplomatic and political pressure to accord other friends the same treatment we are about to extend to Japan. The case-by-case standard, which is itself a discouragement to the use of plutonium, will soon give way and existing law will have been undermined.

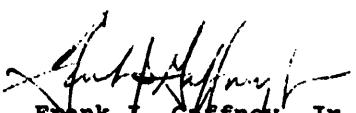
To argue that we now know enough about the circumstances under which future transfers would take place to consider this agreement a reasonable approximation of the case-by-case approach is ludicrous. It is a little like saying that a physician can now write 30 years worth of prescriptions because he can anticipate future illnesses today.

It should be noted that the Defense Department was not permitted to play a meaningful role in the negotiation of this agreement. Defense was, for all intents and purposes, unrepresented on the interagency team that prepared it and kept uninformed about the policies and instructions which guided that team. In our view, had the Department of Defense been able to participate fully in such activities, the strong position that the Department has taken against nuclear proliferation would have helped to shape the accord differently. That, we are quite sure, is why the Department of State went to such lengths to work around us.

Unfortunately, this procedure is standard practice in the State Department's management of non-proliferation matters, a problem about which one of us has testified extensively. State's petty bureaucratic behavior and secrecy with respect to control of the flow of information between responsible U.S. Government departments has effectively prevented informed interagency consideration and constructive criticism of proliferation-related negotiations and activities. While subsidiary to the immediate question of Congressional approval of the accord so produced, this chronic problem merits attention and correction.

In our judgment the issue for the Congress to decide is whether we should dispense with the reasonable and prudent protection against the unexpected that derives from approaching these proliferation issues on a case-by-case basis. Approval of the accord will abandon that approach which is now required by our law, our past policy and by the humble recognition that we cannot see with confidence 30 months, much less thirty years, into the future. We hope the Congress will address this issue squarely by rejecting the new agreement with Japan.

Sincerely,



Frank J. Gaffney, Jr.
Senior Fellow
The Hudson Institute



Richard Perle
Resident Scholar
American Enterprise Institute

APPENDIX 14

"DEFICIENCIES IN THE PROPOSED AGREEMENT FOR NUCLEAR COOPERATION BETWEEN THE UNITED STATES AND JAPAN," NUCLEAR CONTROL INSTITUTE, NOVEMBER 23, 1987

November 23, 1987

DEFICIENCIES IN
THE PROPOSED AGREEMENT FOR NUCLEAR
COOPERATION BETWEEN THE UNITED STATES AND JAPAN

On November 9, 1987, President Reagan submitted to Congress, pursuant to Sections 123b. and d. of the Atomic Energy Act of 1954, 42 U.S.C. §§2153(b), (d) (the "Act"), as amended by the Nuclear Non-Proliferation Act of 1978, Pub.L. No. 95-242, 92 Stat. 120 (March 10, 1978) (the "NNPA"), a proposed Agreement for Cooperation between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy (the "Agreement").

The most dramatic characteristic of the Agreement is its provision, in attached implementing arrangements, for advance, long-term consents and approvals for the conduct of Japanese nuclear activities, which, as the Administration itself states, are "unprecedented in...nature and scope...." U.S. Arms Control and Disarmament Agency, Nuclear Proliferation Assessment Statement, IV-1 (October 1, 1987). In essence, the proposals submitted to the Congress, if approved, would provide a carte blanche for Japan to re-process spent nuclear fuel and utilize the plutonium recovered therefrom in its civilian program, for the

PRESIDENT
Paul L. Leventhal

BOARD OF DIRECTORS

Peter A. Bradford/David Cohen/Rear Admiral Thomas D. Davies, USN (Ret)/Denis A. Hayes/
Julian Koenig/Paul L. Leventhal/Sharon Tanzer Leventhal/Dr. Theodore T. Taylor

indefinite future, without any further constraint imposed by the United States or assurance that effective safeguards will ultimately be applied to highly sensitive nuclear fuel cycle activities.

By exercising in advance, for the life of the Agreement, virtually every reasonably foreseeable consent which might be required by Japan over the Agreement's term, the Administration has essentially rendered the Act's consent rights regime -- the heart of U.S. non-proliferation controls -- a dead letter. Both the Defense Department and the Nuclear Regulatory Commission recognized the Agreement's deficiencies and urged its rejection by the President, to no avail. Only Congress can now block the Agreement's approval and implementation and so vindicate the non-proliferation protections of the Act.

I.

The Effect of the Agreement

Implementation of the Agreement will result in the introduction into commerce for the first time in a non-nuclear weapon state of massive amounts of weapons-usable plutonium. The Agreement is open-ended, both in terms of the quantity of materials which may be introduced into the civilian nuclear fuel cycle in Japan and the technology and facilities upon which the Japanese may rely to produce and utilize such materials. The scope of Agreement is

readily put in perspective by reference to existing stockpiles of plutonium. The United States now has approximately 100 tons of plutonium in its weapons' arsenal. By the year 2000, if the Agreement is fully implemented, Japan could have 85 tons of plutonium in its civilian nuclear programs, and, at the end of the initial 30 year life of the Agreement, Japan could have upwards of 400 tons of separated plutonium. Japan, in short, would be awash in one of the most dangerous substances known to man, both from the standpoint of its toxicity and its suitability for nuclear weapons.

The unprecedented nature of the Agreement is likewise easily understood. Indeed, it goes far beyond articulated U.S. policy and prior cooperation agreements. For example, while the Administration announced a "programmatic approval" policy in June, 1982, programmatic consent was only to be given for "specific, carefully defined programs," and was not to involve "a blanket endorsement of the programs of Japan and EURATOM." See Statement of Richard T. Kennedy in Hearings on Plutonium Use Policy before the Subcommittee on Energy, Nuclear Proliferation and Government Processes of the Senate Committee on Governmental Affairs, 97th Cong., 2d Sess. 3-5 (Sept. 9, 1982) (hereinafter "1982 Senate Hearing"). As Ambassador Kennedy stated, "We will grant advance consent for reprocessing and the use of plutonium only for those facilities and activities which we can determine satisfy the strict criteria contained in the Atomic Energy Act of 1954, as amended." implicitly, under the

articulated policy, approvals were to be given only when the United States could evaluate the risks at concrete, existing facilities. But, under the Agreement, consent is provided not just for reprocessing and plutonium use at existing facilities but for effectively any future facilities in Japan -- facilities not even on the drawing boards today, let alone under consideration -- which the Japanese Government, in its sole discretion, may decide, at any point over the life of the Agreement, to bring within the umbrella of the long-term consent arrangement. It is hard to imagine how this open-ended arrangement can be characterized as covering a "defined" program.

Finally, the Agreement goes far beyond other nuclear cooperation arrangements. It is true that in 1984 agreements for cooperation with Sweden and Norway were approved which included advance, long-term consent for reprocessing. But the reprocessing was limited to defined facilities in nuclear weapon states (France and Great Britain), and no U.S. commitments were made in advance concerning consents for the return of the separated plutonium to Norway and Sweden; requests for such return will be treated on a case-by-case basis. In contrast, under the Agreement, spent fuel may be reprocessed not just in France and Great Britain, but also in Japan, and there is an open-ended approval for the return to and/or utilization of the separated plutonium in Japan's civilian nuclear programs. In short, the Agreement, for the first time, expressly sanctions a full-scale commitment to a

plutonium economy in a non-nuclear weapon state, effectively under whatever terms the Japanese may choose, now or in the future.

II.

Legality of the Agreement's Advance Consent Arrangements

In presenting its case to the Congress, the Administration has provided a 146-page Analysis of the Consents and Approvals in conjunction with the Agreement. Presumably this Analysis is the basis, in part, for the President's conclusion that the Agreement "meets all statutory requirements." The Analysis, however, utterly fails to present a persuasive argument that the Agreement's advance consent arrangements are consistent with the Act.

Sections 123a.(5) and 123a.(7) of the Act unqualifiedly require that the United States retain prior approval rights in its agreements for cooperation over transfers of nuclear material and reprocessing of nuclear material, respectively. The Agreement contains in Articles 4 and 5 provisions purporting to create requirements that special nuclear material will only be transferred or reprocessed "if the parties agree." On their face, these provisions would appear to meet the requirements of the Act. However, through the mechanism of an "Implementing Agreement", which is treated as an integral part of the Agreement itself, the Administration has given away with one hand what it has

purported to preserve with the other: the Implementing Agreement exercises in Article 1 the consent right provisions, on a one-time basis, for the life of the Agreement.

Simply put, the requirements of the Act cannot be met by including the right words in one part of the text of an agreement but then, in another part of the same agreement, rendering those words meaningless. The Act establishes an elaborate, iterative process for U.S. cooperation with other nations, including initial entry into an agreement for cooperation under Section 123, issuance of export licenses under Section 127, and, ultimately, approval of "subsequent arrangements" under Section 131. The language of the Act and its legislative history clearly contemplate that several subsequent actions, including initial transfer of material from the United States and then indication of an intent that a further retransfer to another nation and/or reprocessing are desired, must take place before consent and approval rights are called into play. This iterative process was deliberately designed to allow the United States to have a free hand to pursue its non-proliferation objectives as and if circumstances and/or understandings change. As Senator Glenn, one of the principal sponsors of the NNPA, stated some five years ago, when the Administration unveiled its policy on advance long-term consents:

I believe, when examined closely, the administration's proposal for one-shot, long-term programmatic approvals of reprocessing and plutonium use is contrary to the Nonproliferation Act. Without going into all the details here, the text and legislative history of that

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act make clear that the Congress was fully aware of the longstanding practice of reviewing subsequent arrangements on a case-by-case basis.

One of the principal reforms Congress introduced in the act was to bring this approval process, which had long been handled behind the scenes, into the public arena by requiring each subsequent arrangement to be justified publicly and to lay before Congress for 15 days of continuous session. This congressional oversight mechanism would be crippled if the United States were to grant a long-term generic approval which might last for a period of decades as the administration is apparently proposing.

The NNPA also established a tough standard for reviewing subsequent arrangements based upon a determination that they would not cause a significant increase in the risk of proliferation beyond that which existed at the time the approval was requested.

Given the practice at the time this provision was adopted, it is clear that Congress had in mind an examination of proliferation risk on a relatively frequent basis, with the issue to be evaluated each time a new subsequent arrangement request came forward. The administration's proposal, in contrast, would require the implausible finding that activities involving major quantities of weapons-usable plutonium were not going to increase proliferation risks for a period of up to 30 years. Such an inherently arbitrary determination is totally at odds with the kind of careful, ongoing scrutiny Congress intended for these transactions when it adopted the increased proliferation risk standard.

I also wanted to point out that while the act was being considered on the Senate floor, section 131 with subsequent arrangements was amended repeatedly by myself, Senator Percy, and Senator McClure to streamline the procedures for considering these approvals. As the debates make clear, our purpose was to try to gain the confidence of our trading partners, particularly Japan and the Western European countries, in the predictability of the approval process under the NNPA. These amendments would have been entirely unnecessary if

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these suppliers and retransferors could have bypassed the case-by-case approval process altogether through the mechanism being proposed by the Administration.

1982 Senate Hearing at 10-11. The elimination of the opportunity for subsequent reviews under the Agreement, in short, subverts one the central purposes of Congress in enacting the NNPA. See generally Plaintiffs' Memorandum of Points and Authorities in Support of Motion for Summary Judgment, dated July 5, 1984, in Cranston, et al. v. Reagan, et al., No. 84-1545 (D.D.C.).

III.

Detailed Analysis

The Agreement, together with the Implementing Agreement and various annexes, diplomatic notes, joint statements and the like, presents a daunting array of verbiage. Nonetheless, if the Agreement is put in perspective, it is apparent that there are several elements of the overall package which, when viewed in combination, lead ineluctably to the conclusion that the package as a whole is fatally flawed. All relate in some sense to the nature and effect of the advance consent provisions. They are: (a) the actual provision of advance consent itself; (b) the provision for air transport of plutonium from Western Europe to Japan; (c) the absence of any meaningful, technically based "timely warning" determination in connection with the provision of advance consent; (d) the

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complete exclusion of the Congress and the public from future implementing decisions under the Agreement; (e) the inadequacy of assurances concerning safeguards and physical security to be applied in the future; and (f) the elimination of any meaningful ability on the part of the United States to suspend or terminate these arrangements in light of subsequent developments. Each of these deficiencies is discussed below.

(a) The Agreement Provides For Unprecedented Programmatic Consents.

The Agreement, as previously noted, provides for blanket, life-of-the-Agreement consent on the part of the United States to the reprocessing of spent nuclear fuel and the utilization of recovered plutonium in the Japanese civilian nuclear program. These consents will extend to the year 2018 and perhaps indefinitely beyond that time: unless either party gives notice of termination under Article 16, the Agreement will continue in force after its stated termination date. They permit the reprocessing of nuclear fuel at existing facilities in Japan, the United Kingdom and France and the return of the separated plutonium from these latter two countries to Japan. Further, without any requirement for U.S. approval, new facilities in Japan for reprocessing, conversion, fuel fabrication or other bulk handling purposes may be included under the umbrella arrangement. Under Article 2 of the Implementing Agreement, all that is required

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is "notification" by the Japanese that a facility is to be included under such arrangement. Within 30 days thereafter, the United States must provide its "acknowledgment" of the receipt of this notification. As long as there is an appropriate "statement" by Japan that safeguards are being applied at such facilities, the inclusion is automatic. Finally, in terms of plutonium use, permission is given in Annex 1 to the Implementing Agreement to such use in essentially every existing Japanese reactor, while Japan is given a free hand in the future to add not just new, conventional reactors to the list but also new advanced reactors, such as fast breeder and high temperature gas thermal reactors. Again, all that is required is a simple notification to effectuate this result.

Consent under the Agreement, then, is not limited to a "defined", concrete program. To the contrary, consent is provided for Japan to pursue, with little further constraint from the United States, a plutonium economy of its choosing -- one that is open-ended in terms of the quantities of materials involved and technologies employed. The consent will last at least for the next 30 years, and perhaps longer, without regard to future considerations, including both diversion and terrorism risks. Such an abdication of authority by the United States is wholly contrary to the case-by-case review procedures mandated by the Act and to the spirit of the Act and of the Atoms for Peace Program.

(b) The Agreement Provides For Air Transport Of

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Plutonium In The Absence Of Certified Safe Casks.

An essential part of the Agreement, as noted above, is the provision of consent by the United States for the return of separated plutonium from France and Great Britain to Japan. Annex 5 provides, "Transportation will be carried out by dedicated cargo aircraft from an airport in the United Kingdom or France to an airport in Japan via the polar route or another route selected to avoid areas of natural disaster or civil disorder." Almost certainly transport via a polar route would involve a refueling stop in Alaska, with all the environmental and safety risks to U.S. territory that such a stop might entail. While the Agreement specifies that "any shipments transiting or overflying United States territorial jurisdiction must utilize shipment casks certified by the United States Nuclear Regulatory Commission as meeting the safety and environmental standards codified in United States law and regulations," at present there is no certified safe cask for plutonium air transport. The Administration, moreover, despite litigation instituted by the State of Alaska, has refused to prepare an environmental impact statement under the National Environmental Policy Act of 1969, 42 U.S.C. §4321, et seq., on the risks of air transport. See 52 Fed. Reg. 42134 (November 3, 1987).

Implementation of the Agreement could require biweekly shipments of roughly 500 pounds of plutonium each. Otherwise, the inventory of separated plutonium will continue to

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grow in Western Europe. Thus, one can expect that, if problems arise in cask certification, pressure will mount to relax environmental and safety standards and so permit the Agreement to be implemented, thereby putting U.S. territory directly at risk. Plainly it is unwise to commit prematurely to a single transport mode on a 30 year advance approval basis. Rather, no such commitments can or should be made until the risks of such a mode, and the mechanisms for eliminating and/or mitigating these risks, are fully known.

(c) The Agreement Eliminates "Timely Warning" As A Meaningful Criterion.

Section 131b.(2) of the Act provides that, in approving requests to transfer and reprocess nuclear fuel, the Administration must make a determination that such transfer or reprocessing "will not result in a significant increase of the risk of proliferation", giving "foremost consideration...to whether or not the reprocessing or retransfer will take place under conditions that will insure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." The "timely warning" criterion is a critical element of the Act's non-proliferation regime. See S. Rep. No. 467, 95th Cong., 1st Sess. 10-12 (1977); 124 Cong. Rec. S.1310 (daily ed., Feb. 7, 1978) (Statement of Senator Glenn) ("[T]here is no part of this bill that is of more

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significance for the prevention of nuclear proliferation than the elevation of the 'timely warning' standard to statutory force"). Yet the Administration's approach to "timely warning" makes a mockery of the intent of Congress.

First, whatever the actual components of the timely warning determination, it is patently impossible to predict today what conditions will be 30 years hence. While the Administration claims that risks are slight because of Japan's non-proliferation stance, its defense posture, its economic situation and so forth as they exist today, these claims are plainly insufficient to provide the requisite assurance about risks in the year 2008 or 2118 or beyond. This is precisely why Congress quite rightly intended that reviews of transfer and reprocessing requests should be made on a case-by-case basis in light of immediately foreseeable risks.

Second, while it claims that the timely warning criterion is met, the Administration relies for this conclusion almost exclusively on non-technical, political factors, i.e., Japan's non-proliferation stance, its incentives and disincentives to develop nuclear weaponry, its geopolitical position, etc. The reduction of the timely warning criterion to a political analysis guts its meaning. Indeed, "timely warning" becomes little different than the basic statutory determination of "inimicality" under Section 131. However, statutes must be interpreted to give effect to all their terms, so that no part will be rendered "inopera-

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tive or superfluous," e.g., American Textile Mfgs. Inst. v. Donovan, 452 U.S. 490, 513 (1981), and it is plain that Congress intended for timely warning to be something more than a mere restatement of the inimicality test. Rather, Congress intended timely warning to be a technically based criterion, judged in light of the workability of safeguards. As the former Chairman of the Nuclear Regulatory Commission, Nunzio Palladino, advised the Department of Energy in a letter dated September 13, 1984,

In the Commission's view, the legislative history of the Nuclear Non-proliferation Act of 1978 (NNPA) indicates that Congress intended timely warning to be essentially a technical matter involving such factors as safeguards measures applied to the material and the technical ease of incorporating the material into a nuclear explosive device. Other, non-technical factors were to be considered relevant only in connection with making the overall statutory finding of no significant increase in the risk of proliferation. A close reading of the statutory language in Section 131.b. of the Atomic Energy Act would seem to support the Commissions's interpretation regarding timely warning, particularly since otherwise it would be necessary to consider the same non-technical factors both in connection with the timely warning analysis and in connection with the overall "increase in the risk of proliferation" finding.

The Administration's approach to timely warning to justify the Agreement, which gives primacy to political assurances that diversion will not occur, essentially makes determination of safeguards effectiveness irrelevant. This was not what Congress intended in 1978, and it should not be countenanced today.

(d) The Agreement Excludes Congress And The Public

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From The Nuclear Cooperation Process.

The NNPA was enacted, in part, to give Congress and the public a continuing opportunity to scrutinize the implementation of nuclear cooperation activities. The Agreement, however, effectively removes Congress and the public from all matters related to implementation of U.S. nuclear cooperation with Japan for the indefinite future.

Under the Agreement, there may well be radical, highly sensitive changes in Japan's nuclear program. All matter of future facilities for plutonium handling and use (including both conventional and advanced reactors) may be brought under the umbrella of the advance consent arrangement by the simple "notification" procedure described above. Not only is there no process for U.S. comment to the Japanese on the desirability or acceptability of Japan's notification -- the acknowledgment is expressly "limited to a statement that the notification has been received" -- but there is no requirement whatsoever that Congress or the public be notified or that changes in the nature and scope of Japan's nuclear program and, therefore, changes in the nature and scope of U.S. cooperation with Japan, be subjected to any effective Congressional and public oversight and review. While it can readily be imagined that this state of affairs is welcomed by the nuclear bureaucrats, it cannot be squared with the Act's solicitude for an "open" process of nuclear cooperation.

Contrary to the Administration's approach, Congress intended

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that its own involvement in the process of reviewing subsequent arrangements under agreements for cooperation would be continuing and serious. See, e.g., 123 Cong. Rec. 30295 (Sept. 22, 1977) (Statement of Rep. Zablocki); 124 Cong. Rec. S.1310 (daily ed., Feb. 7, 1978) (Statement of Senator Glenn).

(e) The Agreement Provides Inadequate Safeguards and Physical Security Assurances.

As noted above, when new facilities come under the umbrella of the advance consent arrangement, Article 2 of the Implementing Agreement requires that the notification contain a "statement" concerning the application of safeguards. However, while the Agreement contains elaborate "safeguards concepts" which, in theory, must be met before future facilities, especially plutonium bulk handling facilities and advanced reactors, are included under the terms of the advance consent arrangement, these concepts are little more than a facade. Not only are such concepts abstract and general, but, more important, they are not set out as fixed requirements. Article 3, Paragraph 4(b), of the Implementing Agreement provides that when the International Atomic Energy Agency (the "IAEA") is not able to administer safeguards at a new facility in accordance with the agreed safeguards concept, nonetheless "the parties shall make every effort to insure that this does not delay the operation of the facility." The provision goes on to require the parties to "make every effort to modify, as may be necessary, the

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relevant safeguards concept to enable the Agency [IAEA] to administer safeguards in accordance therewith." The parties, in other words, are essentially obligated to accept whatever level of safeguards the IAEA determines it can implement. It is obviously impossible at this time to determine whether that level of implementation would be adequate, and, therefore, it is apparent that, contrary to the mandate of the Act, there are really no meaningful assurances concerning the effectiveness of safeguards at future facilities.

Finally, although the Agreement purports to meet all physical-protection requirements of Section 123a.(6) of the Act, the Agreement ignores measures that go beyond the minimal specifications of the IAEA voluntary physical-security guidelines (INFCIRC/225/Rev. 1) in only two limited respects: determining the trustworthiness of guards and assuring communication with response forces. The Agreement fails to require that guards and escorts be armed in connection with all plutonium-related activities in Japan or that physical security protection be based on a postulated threat--two shortcomings stressed by the Defense Department in its recent Congressionally mandated review of international physical security standards for significant quantities of special nuclear material during transport and storage outside the United States. Indeed, the Agreement fails to heed two essential warnings contained in the Defense Department report, namely, that "it is prudent that physical security requirements and systems take the capabilities of terrorist organizations, rather than their intentions, as

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their point of reference" and that "[o]pportunities for terrorist acts, including attempts to steal civilian plutonium, will increase substantially as a result of the increased commercial use of plutonium." Department of Defense, Review of International Physical Security Standards As Directed By The Omnibus Diplomatic Security and Antiterrorism Act of 1986 (P.L. 99-399) (1987).

(f) The Agreement Imposes Undue Constraints On The United States' Ability To Suspend Or Terminate The Advance Consent Arrangement.

Lastly, while the Administration contends it has maintained the unilateral authority to suspend the advance consent arrangements and/or terminate the Agreement should conditions warrant, and while suspension and termination clauses are, indeed, contained in the Agreement, the authority embodied in these provisions is more apparent than real. The exercise of discretion by the United States to suspend and/or terminate is so constrained by both the threat of retaliatory action and qualifying phrases that it is a nullity as matter of political reality.

First, the Agreement, under the terms of Article 12, allows Japan, in the event of an alleged breach, to require the return to it of "any material, nuclear material, equipment or components transferred pursuant to this Agreement or of any special fissionable material produced - through the use of such items," necessarily including all plutonium produced in or through equipment provided by Japan

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to the United States. This provision gives Japan leverage to pressure the United States not to invoke suspension and/or termination rights for fear of facing a demand for plutonium return to Japan. Particularly because the U.S. suspension right is, as discussed below, subject to so many qualifiers -- qualifiers which could well be interpreted differently by Japan and the United States -- the leverage is very real: almost any invocation of suspension rights could be challenged by Japan as a breach of U.S. commitments, thereby radically undermining the rights themselves. Such a result is inconsistent with the Congressional intent that U.S. consent rights "be unqualified and set forth in the agreement unambiguously" H.R. Rep. No. 587, 95th Cong., 1st Sess. 13-14 (1977).

Second, the ability to suspend the consent arrangement is enormously qualified in the Implementing Agreement. Article 3, Paragraph 2, provides, for example,

Any decision on such suspension would only be taken in the most extreme circumstances of exceptional concern from a non-proliferation or national security point of view, would be taken at the highest levels of government, and would be applied only to the minimum extent and for the minimum period of time necessary to deal in a manner acceptable to the parties with the exceptional case.

Article 3, Paragraph 3, further provides,

Prior to any suspension the parties shall consult with each other to determine the facts of the matter and to discuss to what extent, if at all, a suspension is necessary. The suspending party shall carefully consider the economic effects of such a suspension and shall seek to the maximum extent possible to avoid the disruption of international nuclear trade

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and the fuel cycle operations under this Implementing Agreement.

And, Paragraph 5 of the Agreed Minutes to the Agreement states, in almost identical terms to those which caused grave concern to Congress when they were included in the 1985 nuclear cooperation agreement between China and the United States,

The said provisions of the Agreement [consent rights, etc.] shall be implemented in such a manner as to avoid hampering, delay or undue interference in the nuclear activities in the two countries and so as to be consistent with prudent management practices required for the economic and safe conduct of their nuclear programs. It is further confirmed that the provisions of the Agreement shall not be utilized for the purpose of seeking commercial or industrial advantages, for the purpose of interfering with the nuclear policy of either party or the commercial or industrial interests of either party or its authorized persons, or for the purpose of hindering the promotion of the peaceful uses of nuclear energy.

Finally, Article 12, Paragraph 4, of the Agreement requires the parties to "carefully consider the economic effects of such actions" prior to taking steps to cease cooperation.

It is painfully obvious that such provisions which, taken as a whole, go well beyond anything in prior U.S. agreements, make it all too easy for the parties to disagree on just what constitutes justifiable suspension and/or termination. Indeed, almost any action by the United States would likely give the Japanese more than sufficient cause to complain the United States was not living up to its commitments. In sum, the Agreement is crafted so as to create qualified and ambiguous rights, rather than clear and

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unrestrained rights, and so as to eliminate any realistic ability on the part of the United States to alter the advance consent arrangement in the future, based upon changing perceptions and realities of proliferation risk. Such a result is inconsistent with the Act.

CONCLUSION

In conclusion, the Agreement is incompatible with both non-proliferation law and sound policy. It sanctions a plutonium economy in Japan for the indefinite future, under virtually whatever parameters Japan may choose, while it preserves few of the essential consent prerogatives of the United States under the Act. The House Committee on Foreign Affairs and/or the Senate Committee on Foreign Relations should therefore, as a matter of first priority, advise the President under Section 123b. of the Act that, in their judgment, the Agreement is not consistent with terms of the Act and request that it be re-negotiated or, failing acceptance of this recommendation, resubmitted with a waiver of statutory requirements under Section 123a. Only such an approach will ensure that Congress has the final say as to whether the Agreement is approved and so be able to uphold and vindicate the policies and requirements of the NNPA.

APPENDIX 15

"STATE V. DEFENSE: A FIGHT FOR NUCLEAR SUPREMACY," BY JOHN H. CUSHMAN, JR., THE NEW YORK TIMES, DECEMBER 24, 1987; "RISING NUCLEAR TRADE STIRS FEAR OF TERRORISM," BY JOHN H. CUSHMAN, JR., THE NEW YORK TIMES, NOVEMBER 5, 1987; "NSC GROUP TO DEBATE UNITED STATES-JAPAN PACT," AUGUST 24, 1987 AND "DEFENSE DEPT. SAID TO BE RECOMMENDING CHANGES IN NEW UNITED STATES-JAPAN NUCLEAR ACCORD," MAY 4, 1987, NUCLEAR FUEL

[From the New York Times, Dec. 24, 1986]

STATE V. DEFENSE: A FIGHT FOR NUCLEAR SUPREMACY

(By John H. Cushman, Jr.)

Washington—Tension between the State Department and the Defense Department on arms control usually arises when the Pentagon hawkishly attacks diplomatic moves to restrain nuclear weapons. The State Department, for its part, is seen as more amenable to limiting nuclear arms.

But that pattern only pertains to the arms race as classically defined, the contest for nuclear supremacy between the United States and the Soviet Union. When it comes to halting the spread of nuclear arms to more nations, experts say, the Pentagon turns strict while the State Department becomes lax.

These differences on nonproliferation have now pitted State and Defense in a bitter power struggle.

The bureaucratic fight is over policies meant to prevent nations without nuclear weapons from obtaining materials and technologies that can be used to make them.

Despite efforts to assert their views on the spread of nuclear materials, Defense Department officials complain that they have been frustrated at every turn by their State Department counterparts.

The fight centers upon Pentagon officials' inability to see internal Government documents written during the drafting of policy, so as to be able to influence decisions. The military would like, for example, to review negotiations with other nations on the uses of nuclear materials.

A PLAN FOR SHARING DATA

The Pentagon thought it had found redress this fall, when Congress enacted a provision in the law allocating funds for military spending that would force State to hand over to Defense most relevant documents on nonproliferation policy. "Upon request," the provision stated, "the Secretary of Defense shall have access to all information regarding nuclear proliferation matters which the Secretary of State or the Secretary of Energy has or is entitled to have, including all communications, materials, documents and records relating to such matters, including cables from U.S. diplomatic missions."

But President Reagan, when he signed the law, bowed to the wishes of the State Department and said in his declaration of signature that "I must consider this section to be advisory." Congress, he said, had no business telling the executive branch how to control national security data internally. "The sharing of appropriate information on nuclear nonproliferation will be resolved through the normal interagency process in the executive branch," the President said.

Since the law was signed Nov. 14, officials say, little has changed to suggest that Defense will be kept more fully informed.

Richard N. Perle, an Assistant Secretary of Defense, outlined in a memorandum to members of Congress this fall exactly what is wrong with the information flow in the eyes of the Pentagon.

He said that in the past four years, Richard T. Kennedy, a State Department Ambassador-at-Large who is in charge of nonproliferation, has shifted the State Department's messages on the subject out of normal channels, putting restrictions on dissemination of the cables. Of 1,000 cables in this period, Mr. Perle complained, his office saw only about 20.

The Defense Department, he said, rarely sees outgoing State cables unless they involve export controls, which the Pentagon must approve by law.

The Defense Department, he said, rarely sees outgoing State cables unless they involve export controls, which the Pentagon must approve by law. And the number of interagency meetings on nonproliferation to which the Defense Department is invited has dropped from four a week to one every two weeks, Mr. Perle said.

The Defense Department, despite making its objections known within the Administration, "has operated increasingly in the blind," Mr. Perle complained. "There has been no progress whatsoever. In fact, the problem has grown steadily worse."

The situation, according to one Congressional aide who works on nonproliferation issues, "puts Ambassador Kennedy in the position of being able to call all the shots and allow no dissent. He can prevent certain viewpoints concerning our nonproliferation policies from being effective." A State Department spokesman said neither the department nor Mr. Kennedy would comment on the matter.

Specialists on these matters agree that the Pentagon is generally more concerned than the State Department about the growing amount of weapons-grade material, especially plutonium in civilian hands.

"I think the Department of Defense has to be concerned about the potential vulnerability of U.S. forces to a terrorist act that might involve stolen plutonium," said Paul Leventhal, director of the Washington-based Nuclear Control Institute, which studies the spread of nuclear materials. "They might not be able to monitor this as closely as they would like."

The Pentagon also must act to insure the safety of nuclear materials in transit between nations, Mr. Leventhal said. And it must judge whether risks of more nations getting the bomb affect its own military plans.

"We see nonproliferation policy as a form of arms control," said a Pentagon aide. "But in this instance it has been almost the exclusive province of Ambassador Kennedy."

Mr. Leventhal said that the non-Communist world's inventory of plutonium, which is produced from spent fuel used in power plants but can be used for nuclear weapons, will exceed "in the next few years" the 200 tons thought to be contained in actual weapons. By the year 2000, his group predicts, there will be twice as much weapon-grade plutonium in civil inventories as in warheads.

In some cases, nuclear fuel and reactors were supplied by the United States under restrictions governing their use. The Defense Department is said to be particularly worried that the State Department might agree, despite these restrictions, to give Japan advance permission to increase its plutonium stockpiles. Mr. Leventhal said the Pentagon would like to know details of current negotiations with Japan on the reprocessing of spent fuel and the separation of plutonium from fuel.

Mr. Perle has told Congress that "in some cases, where Defense Department views have been required on major nuclear agreements that have been negotiated over a period of years, the State Department has released the texts of these agreements and information about them to the Defense Department only days in advance of a White House decision on whether to submit them to Congress—rendering it impossible to renegotiate problem areas."

"Even then, the Defense Department has been unable to see all relevant information," Mr. Perle said in a fact sheet sent to members of Congress in September. "In some cases the State Department has proposed to other countries nuclear arrangements that were opposed by the Defense Department—without the Defense Department's knowledge, because of the special diplomatic channels involved."

VOCIFEROUS DEMANDS

In the case of the agreement being negotiated with Japan, Mr. Perle was recently given an opportunity to review the proposed text, but only after vociferously demanding access to it, he said today.

Mr. Perle says the Administration rejected the binding legislative requirement that information be shared because it thought such a law was an unconstitutional infringement on the executive branch, not because it opposed the idea of sharing data.

But a Congressional aide who helped write the law disagreed calling Mr. Reagan's message an "unconstitutional line item veto" "because it seeks to selectively nullify one aspect of the law. If the State Department does not begin to comply fully with the provision, the aide suggested, Congress might hold hearings and try to block funds for Mr. Kennedy's office to operate.

[From the New York Times, Thursday, Nov. 5, 1987]

RISING NUCLEAR TRADE STIRS FEAR OF TERRORISM

(By John H. Cushman, Jr.)

WASHINGTON.—The risk that terrorists will obtain commercial nuclear materials as they are transported between nations is likely to increase in coming years, according to a review of security measures conducted by the Pentagon.

"Opportunities for terrorist acts, including attempts to steal civil plutonium, will increase substantially as a result of the increased commercial use of plutonium," the Defense Department said in a report delivered without fanfare to Congress last week.

Plutonium, a byproduct of nuclear power plants that is recycled for further use, is also a main material used in nuclear weapons. Because of changes in the design of nuclear power stations around the world, the amount of plutonium used in the world's power reactor is expected to expand greatly, and plutonium separated from nuclear plant wastes is expected to move from nation to nation increasingly.

The United States produces plutonium only at military installations for use in weapons. France and other countries, however, are exploring the feasibility of breeder reactors to produce plutonium commercially to fuel other reactors or for weapons.

International agreements and American law govern the security provisions enforced when plutonium is moved. The Pentagon's report on the adequacy of these safeguards, which was one of several Administration reports requested by Congress, expressed greater concern than reports sent by the State Department and others.

The report, delivered long after its due date as Federal agencies wrangled over the tone of the security assessments, estimated that by the late 1990's as many as 300 shipments of separated plutonium would leave waste reprocessing plants in Europe every year, bound for Europe and Japan.

The reports to Congress came as the United States and Japan today signed a long-term agreement that will allow Japan, for the indefinite future, to use nuclear materials controlled by the United States and stored primarily in Europe. The United States, under agreements governing the use of nuclear materials and technologies, controls about half the nuclear materials likely to be shipped abroad for the remainder of the century.

The agreement with Japan sets forth the terms under which nuclear materials can be shipped from Europe to nuclear facilities in Japan. The shipments will move by air, and it appears likely that aircraft carrying the materials will refuel in Alaska, whose state government is seeking to block transhipment in court for safety reasons.

The agreement with Japan faces a 90-day review in Congress before it takes force.

The Pentagon reported: "If, as anticipated, amounts of separated plutonium in transit and storage increase, there are grounds for concluding that there will be a concomitant increase in the probability of low-level incidents involving this material, and an increased risk of nuclear terrorism involving its diversion or theft and, possibly, its fabrication into an explosive device or its use to create a radiological hazard."

The State Department, in a separate report, concluded that existing international standards for protecting shipments of nuclear materials "are adequate." But the Pentagon repeatedly stated in its report that the adequacy of the current safety standards could not be insured.

[From Nucleonics Week, Aug. 24, 1987]

NSC GROUP TO DEBATE UNITED STATES-JAPAN PACT

A policy review group of the White House National Security Council is expected to debate at a meeting in September whether the president should sign the recently negotiated U.S.-Japan agreement for cooperation, sources said. The Department of Defense and the NRC have said they have reservations about various provisions in the agreement and could not recommend that the president sign the agreement in its present form. The State Department, DOE, and the Arms Control & Disarmament Agency are said to favor going forward with the agreement.

Although DOD's concerns about the agreement, which would, among other things, give Japan long-term, or programmatic, approval to reprocess U.S.-controlled spent fuel and use the resulting plutonium, were expected by the State Department,

NRC's strongly worded letter of opposition was not. NRC's comments are still classified, but sources said the commissioners, rejecting a more mildly worded letter drafted by NRC staff, sided with DOD in expressing concerns about whether the U.S. at all times could be assured of having adequate "timely warning" of a diversion of material under the programmatic approval scheme in the agreement.

NRC was also said to be concerned about the appropriateness of including in an agreement between a weapons state and a nonweapons state a reciprocity provision that would give Japan the same control over the disposition of spent fuel burned in a reactor using Japanese components as the U.S. has over spent fuel burned in a Japanese reactor using U.S. components. NRC was also said to be concerned about the administrative burden the agency would have to assume to keep track of the Japanese components. Similar language is incorporated in the U.S.-Sweden agreement for cooperation, which entered into force in 1984. However, arrangements have apparently been worked out by the U.S. and Sweden under which NRC has so far not been required to set up any detailed administrative procedures to keep track of Swedish components in the U.S.

State Department officials are still confident that the president will sign the agreement, and one predicted that it would be sent to Congress this fall.

Meanwhile, the State Department is said to be still considering whether a full-blown environmental impact statement is required because of a provision in the agreement mandating that shipments of U.S.-controlled Japanese plutonium from Europe to Japan be done by air. Such shipments will likely require a stopover in Alaska. The governor of Alaska has asked State to do an EIS before sending the agreement forward.

State Department officials reportedly have received informal industry inquiries, asking whether the U.S. would consent to shipments of Japanese Pu by sea if the Pu were contained in mixed-oxide fuel. State is said to have responded negatively.

[From Nucleonics Week, May 4, 1987]

DEFENSE DEPT. SAID TO BE RECOMMENDING CHANGES IN NEW UNITED STATES-JAPAN NUCLEAR ACCORD

The U.S. Department of Defense (DOD) is apparently recommending that the President not sign the recently negotiated U.S.-Japan agreement for nuclear cooperation. DOD's comments on the agreement, signed by DOD Secretary Caspar Weinberger and delivered to executive branch agencies to NRC, are classified, so details of DOD's objections are not available. DOD officials also declined to comment on their analysis of the complex 178-page agreement.

However, sources indicated that DOD has a number of concerns about provisions in the agreement, including ones granting Japan long-term, or programmatic, approval to reprocess U.S.-controlled spent fuel and to use the resulting plutonium. DOD is said to have recommended that U.S. negotiators, led by officials from the State Department go back and push for changes in a number of sections of the agreement.

Sources also said that with two former Navy admirals now on the NRC Commission (Chairman Lando Zech and Commissioner Kenneth Carr), NRC is showing more interest than it might have in the past in what DOD has to say. NRC is not expected to submit its comments on the agreement until sometime in late May.

Some administration officials, however, dismissed DOD's concerns. Said one: "They only reflect the philosophy of a few people in DOD who hate plutonium." These officials also predicted that when comments from all the relevant agencies (DOD, NRC, the State Department, DOE, and the Arms Control & Disarmament Agency) are considered by the President and his National Security Council, the decision will be made to sign the agreement and forward it to Congress.

DOD sources, however, said that "the position taken by the secretary of defense reflects the views of all major elements of DOD concerned with the agreement."

APPENDIX 16**PRODUCTION AND PLANNED USE OF PLUTONIUM IN JAPAN'S NUCLEAR POWER REACTORS DURING 30-YEAR BASE PERIOD OF THE PROPOSED U.S.-JAPAN AGREEMENT, MARCH 1, 1988****Summary**

By the end of the year 2017, shortly before the proposed U.S.-Japan Agreement for Cooperation would be subject to renewal, the net quantity of plutonium accumulated by Japan in the discharged fuel of its nuclear power reactors will increase from 153 metric tons at the end of 2000 to between 300 and 400 metric tons. By that time, according to present plans, about 255 metric tons of Japanese-produced plutonium will have been separated in reprocessing plants in Japan and Europe. The announced plans of Japan demand the use of some 130 metric tons of separated plutonium as reactor fuel through the year 2017, mainly in light-water reactors in a commercial program to begin in 1997.

Plutonium Production

How much plutonium will circulate in Japan's commercial nuclear fuel cycle at the end of 2017, shortly before the end of the 30-year period when the pending U.S.-Japan Agreement for Cooperation is set to expire? The answer depends mainly on the

PRESIDENT

Paul L. Leventhal

BOARD OF DIRECTORS

Peter A. Bradford/David Cohen/Rear Admiral Thomas D. Davies, USN (Ret)/Denis A. Hayes/
Julian Koenig/Paul L. Leventhal/Sharon Tanzer Leventhal/Dr. Theodore B. Taylor

realization of Japan's plans to expand its nuclear power generating capacity and to use plutonium as fresh fuel in light-water reactors (LWRs). (See Appendix A.)

By the end of the year 2000, according to recent projections, Japan's nuclear power reactors will have discharged a total of 153 metric tons of plutonium in irradiated spent fuel (See Appendix B.) Also, by that time, about 85 metric tons of the plutonium will have been separated from Japanese-owned spent fuel at reprocessing plants in Europe and Japan. (See David Albright, "Civilian Inventories of Plutonium and Highly Enriched Uranium," in P. Leventhal and Y. Alexander, eds., Preventing Nuclear Terrorism, Lexington Books, 1987, pp. 268, 278.)

From 2000 to the end of 2017, an additional 227 metric tons of plutonium could be discharged from Japanese power reactors, bringing the net accumulated to some 380 metric tons. This is an upper limit which assumes that no separated plutonium is recycled as mixed-oxide (MOX) fuel into light water reactors (LWRs) or advanced reactors and that the 10 Japanese utilities do not switch to high burn-up fuel during this period. (Japanese LWRs are assumed to operate at 70 percent capacity factor. At this capacity factor, a 1000 megawatt-electrical (MWe) LWR discharges about 230 kilograms of plutonium annually using standard low-enriched uranium (LEU) fuel and about 170 kilograms annually using high burn-up fuel.)

However, Japan has already undertaken several pilot projects involving plutonium use in LWRs, in advanced thermal reactors (ATRs) and in fast breeder reactors (FBRs). The country's plans are now to start "commercial use" of MOX fuel in 12 LWRs at the end of 1997. (See Appendix A. Through 2017 and beyond, only limited quantities of plutonium will be used for ATRs and FBRs.) In addition, it is likely that Japanese utilities will adopt high burn-up fuel widely soon after 2002.

If plans for burning MOX fuel go through as currently devised, Japan would accumulate an additional 147 metric tons of plutonium between 2000 and 2017 through the operation of its

commercial fuel cycle. (12 LWRs are assumed to have one-third core each of MOX fuel and two-thirds core of standard burn-up LEU fuel; all other LWRs are assumed to switch to high burn-up fuel at the end of 2005.) Japan would then have a net accumulated inventory of about 300 metric tons of plutonium either in separated form or in stored spent fuel.

Consequently, the amount of plutonium accumulated in Japan's commercial inventory by the end of 2017 could range from 300 to 400 metric tons.

Reprocessing and Plutonium Requirements

The separation of Japanese-produced plutonium after 2000 is expected to continue in domestic and foreign (French and British) reprocessing plants at the rate reached in the late-1990s, about 10 metric tons of plutonium annually. In addition to the small reprocessing plant at Tokai, an 800 metric-ton-per-year reprocessing plant is to start operation at Rokkasho in 1995 and a second large plant is planned for 2010. Then an additional 170 metric tons of plutonium will be separated by the year 2017.

Thus it can be expected that an additional 170 metric tons of plutonium will be separated from Japanese spent fuel between 2000 and 2017. This brings the total amount of Japanese-produced plutonium that will have been separated by the year 2017 to an estimated 255 metric tons.

About 96 metric tons of separated plutonium will be required for the reloads of the 12 MOX-fueled reactors in the planned "commercial use" program in the 20 years between 1997 to 2017. In addition, about 15 metric tons of plutonium will be needed for the initial cores of these reactors, and about 5 metric tons will be needed for the preceding pilot and demonstration projects. At the commercial stage, MOX fuel will have to be fabricated at a rate of about 100 metric tons per year. The ongoing ATR and FBR programs may require some 10 to 15 metric tons of plutonium total through 2017. Thus Japan's current plans for recycle would

**demand a supply of about 130 metric tons of separated through
2017 with the major requirements for plutonium coming from the
commercial program in LWRs beginning in 1997.**

Milton M. Hoenig

Appendix A: Japan's Plans to Use Plutonium

Japan's announced plans to use plutonium fuel in nuclear power reactors will start to be implemented in earnest during 1997, with the loading of plutonium-based mixed-oxide (MOX) fuel into 12 light-water reactors (LWRs). Before that plutonium will be used in pilot-scale programs. The three stages in the light-water reactor program are as follows:

- * An on-going small-scale demonstration program that will end around 1990. It involves the irradiation of six MOX fuel assemblies in one small boiling water reactor (BWR) and one small pressurized water reactor (PWR).
- * A large-scale demonstration program that will end in 1997. It will involve the loading of one-quarter core of MOX fuel, each, into one 800 Megawatt-electrical (MWe) BWR, beginning around 1992, and one pressurized water reactor PWR, beginning around 1994.
- * Commercial use of plutonium that will begin at the end of 1997. It will involve the loading of one-third core of MOX fuel, each, into six 1000 megawatt-electrical (MWe) PWRs and six 1000 MWe BWRs.

In addition, MOX fuel is to be used in Japan's advanced nuclear reactor development programs---the advanced thermal reactor (ATR) and fast breeder reactor (FBR)---which have the following schedules:

- * Ongoing operation of the prototype ATR Fugen (165 MWe) and startup of the demonstration ATR Ohma (606 MWe) in the mid-1990s.
- * Ongoing operation of the experimental FBR Joyo (100 megawatt-thermal), startup of the prototype FBR Monju (280 MWe) in 1992, and startup of a demonstration FBR after the year 2000.

(See Atoms in Japan, June 1986, p. 5ff.; June 1987, p. 4ff.)

Appendix B: Forecast of Japanese Nuclear Power Capacity

Japan's installed nuclear power capacity at the end of 1986 was 24.8 gigawatts-electrical (GWe). The revised Long-Term Energy Plan of the Japan Atomic Energy Commission, published in June 1987, foresees a nuclear power capacity of 53 GWe at the end of 2000 and greater than 100 GWe by the year 2030. These projections, although reduced from earlier forecasts, still may be optimistic.

The projections issued by the Energy Information Administration (EIA) in 1987 for the years through 2010 (DOE/EIA-0438(87)) predict a Japanese nuclear capacity in the year 2000 that ranges from 42 to 48 GWe. The calculations in this paper are based on a model that is consistent with the EIA projections and with longer-term Japanese expectations; the model allows for an exponential increase in Japanese nuclear capacity, with a doubling every 15 years through the year 2000 and a doubling every 30 years thereafter. Projections of EIA and predictions of the model are shown below.

Japan's Nuclear Capacity (GWe)

-----EIA Projections-----

Year	Lower	Upper	Optimistic	Model
1990	26.9	29.3	30.4	29.9
2000	42.1	44.2	48.3	47.4
2010	43.5	52.2	61.0	59.7
2017				70.2
2020				75.2
2030				94.8

APPENDIX 17

[From the International Herald Tribune, Aug. 30, 1985]

WE ARE IGNORING THE PLUTONIUM ISSUE AT OUR PERIL

(By Paul L. Leventhal)

GENEVA.—Delegates of the 180 member nations of the treaty on the nonproliferation of nuclear weapons began meeting here on Tuesday for a month-long review of the accord. But the matter that should be most on their minds is the one that will receive least attention.

Plutonium: the original “manmade” element, the stuff of the first atomic test and of the bomb that destroyed Nagasaki; a waste product of civilian nuclear reactor and now the preferred fuel of the future of the nuclear power industry.

Each year 100,000 pounds (45,000 kilograms) of plutonium are being discharged as waste in the spent fuel of nuclear power plants throughout the world. Industry wants to recover the plutonium and use it to supplement fresh reactor fuel. In this way, supplies of nonexplosive uranium fuel can be conserved and the world's uranium resource extended.

The problem is that plutonium, separated from spent fuel, becomes an explosive. Less than 15 pounds is needed for an atomic bomb.

The amount of explosive plutonium to be brought into existence for use in civil programs are staggering. Within the next decade, explosive plutonium for civilian applications will eclipse the 200 tons that the superpowers now use in weapons. By the year 2000, some 3 million pounds of plutonium will have been produced in spent fuel—the equivalent of about 200,000 nuclear weapons, compared with the 50,000 now deployed by the superpowers—of which nearly a million pounds may be separated into explosive form.

Why all this plutonium? Is it needed? Can it be monitored and controlled down to the relatively few pounds that, if diverted by nations or stolen by terrorists, could be turned into bombs? Similar questions need to be asked regarding the other nuclear explosive material, highly enriched uranium, the stuff of the Hiroshima bomb, which is produced in smaller but significant quantities to fuel many research reactors worldwide.

The questions go to the heart of mankind's need to control the atom or to be controlled and destroyed by it. They should be high on the agenda of the current NPT review conference. Yet, by all indications, they will receive scant attention at a conference preoccupied with protests about unfulfilled treaty commitments by the superpowers to curb their arms race and by nuclear suppliers to provide all the nuclear assistance demanded by treaty states.

There are a number of factors behind this bizarre neglect of the proliferation dangers of explosive plutonium and uranium. The treaty itself is blind to the weapons potential of these materials so long as they are dedicated to peaceful purposes and subject to a system of audits and inspections known as “safeguards” administered by the International Atomic Energy Agency.

The treaty is crafted to prohibit the manufacturer of nuclear devices, not the materials needed to make them explode. By making explosions and the acquisition of explosive devices the basic measure of proliferation, the treaty permits nations to acquire the technology and materials required for bomb-making, short of actual fabrication of devices.

The treaty provides a cloak of legitimacy for “latent” proliferation in the form of stockpiles and known-how that can be rapidly transformed into nuclear arsenals at a time of regional or global crisis. The treaty also contributes to the danger of theft of nuclear explosive materials by terrorists—a danger that increases in proportion to the amounts of materials produced, traded and used.

The impending widespread commercial use of nuclear explosive materials confronts the world with the most momentous decision on the application of atomic energy since the decision to drop, rather than demonstrate the bomb over Japan. It is not too late to avoid the plutonium path.

Most commercial reprocessing of spent fuel has taken place in France and Britain. Although some 60 tons of civilian plutonium have been separated worldwide (including Belgium, West Germany, India, Japan and the United States) more than 90 percent remains in France and Britain. Four-fifths of spent fuel from modern plants remains unprocessed.

The economics of processing and using plutonium is unfavorable in the extreme. Original assumptions that plutonium would be needed to augment scarce supplies of uranium have proved false. The world resource of uranium is projected to be as high as 20 million tons—enough to provide a lifetime supply of fuel for at least 4,000 nuclear power plants compared with about 300 now operating. For plutonium to become economical, uranium would have to increase in price to \$150 a pound, compared with its present price of about \$20.

Of greater concern, the IAEA—long defended by nuclear advocates as having an effective safeguards system—is now widely acknowledged to lack both the technical and the political means to detect and give timely warning of diversions of nationally held explosive nuclear materials. The IAEA was never given the police authority to prevent such diversions, even though the treaty calls for application of IAEA safeguards “with a view to preventing diversion of nuclear energy for peaceful uses.”

On the other hand, the IAEA is authorized by statute, but was never empowered, to assume a task it can handle: taking international custody of “excess” nuclear explosive materials. This includes plutonium in separated form or contained in spent fuel.

It is time that explosive plutonium and uranium were seen for what they are: unnecessary and too dangerous for world commerce. Nuclear power and research reactors can be run efficiently and effectively without them. Continued failure by the public to demand that policymakers constrain those who would make civilian fuels out of atom-bomb materials will lead inevitably to a world in which nuclear explosives and nuclear violence are commonplace. Such a world would be horrible. The NPT conference is the logical place to start the move away from nuclear proliferation.

APPENDIX 18

"WHY RECYCLE PLUTONIUM?", BY DAVID ALBRIGHT AND HAROLD FEIVESON, SCIENCE, VOL. 235, MARCH 27, 1987

Perspective

Why Recycle Plutonium?

DAVID ALBRIGHT AND HAROLD FEIVESON

In 1984, 250 kilograms of plutonium oxide, separated in France from spent fuel from Japanese reactors, was returned to Japan by cargo ship. The ship carried only the plutonium; it made no intermediate stops; it was escorted partway by French and U.S. warships; and it was continuously tracked by satellite by officials in Japan (1).

If the nuclear industries of Europe and Japan continue with their plans to use plutonium in commercial reactors, they will, by the end of the century, have separated and placed into commerce more than 300,000 kilograms of plutonium (2) (Fig. 1). (For comparison, the Nagasaki bomb contained 6 kilograms of plutonium.) The extraordinary security measures applied to the French-Japanese shipment to protect the plutonium from theft and sabotage would need to be made routine on a vast scale.

This prospect derives from the decisions of several major countries, including France, Great Britain, the Federal Republic of Germany, Japan, Belgium, Switzerland, and Italy, to separate chemically the plutonium and uranium from the highly radioactive fission products contained in the spent fuel from their commercial reactors (a procedure called "reprocessing") and to recycle this plutonium and uranium into reactor fuel for breeder reactors and light water reactors. Such recycling differs from the "once-through" fuel cycle in use today in that material usable in weapons is not isolated in the latter process.

Barring a sharp turnaround in current programs, by the year 2000 or even earlier, more than 25,000 kilograms of separated plutonium may be placed in routine commerce annually (Fig. 2). Four countries—France, Great Britain, Germany, and Japan—will together separate most of this plutonium. Much will be separated from domestic fuel, but France and Britain also plan to reprocess fuel from West Germany, Japan, Belgium, Italy, the Netherlands, Spain, and Switzerland. Most of this plutonium, along with the nuclear waste, will eventually be returned to the country of origin.

After reprocessing, separated plutonium oxide will travel by truck, or a combination of truck and ship or plane in shipments across water, to fuel fabrication facilities in France, Great Britain, West Germany, Belgium, and Japan. If, on average, each shipment contains 100 kilograms of plutonium, more than 250 shipments of plutonium oxide annually will be required to transport the plutonium to these facilities. Slightly more than half of these shipments will be transported intracountry; the rest will travel from French and British reprocessing plants to other European countries and Japan.

At the fuel fabrication facilities, approximately two-thirds of the plutonium oxide will be blended with uranium oxide and fabricated into mixed-oxide (MOX) fuel elements and assemblies for light water reactors. Several hundred shipments of MOX fuel will be

required each year to supply reactors in France, Germany, Japan, and elsewhere. The remaining separated plutonium will be fabricated into fuel elements for prototype breeder reactors in Britain, France, Germany, Japan, and Italy, and two Japanese heavy water reactors. The delivery of these fuel elements to the reactors will require an additional 100 shipments per year.

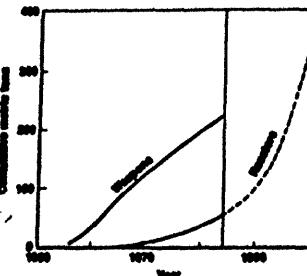
Neither the isotopic composition of the reactor grade plutonium nor its chemical form affords significant protection. Nuclear weapon designers have stated repeatedly that, despite its relatively high content of plutonium-240, reactor grade plutonium can be used directly in nuclear explosives. Similarly, plutonium oxide, the most common form of plutonium that leaves civilian reprocessing plants or that could be retrieved from unirradiated MOX fuels, could be used in nuclear explosives without reduction of the oxide to the metal. To guard against diversion of the material to weapons by terrorists, separated plutonium and fresh MOX fuel will have to be treated as virtually equivalent to weapon-grade plutonium (3). Given the scope of the commerce in separated plutonium, it is clear that stringent protection systems will be required.

Virtually any country engaged in plutonium recycling would have available large quantities of readily accessible fissile material. If a country had produced all the components of nuclear weapons other than the fissile material cores, it could reduce the time between a decision to build nuclear weapons and the achievement, on a potentially large scale, from years to weeks. Such "latent proliferation" would make it easy for governments to hide a nuclear weapons program within an ambitious civilian program.

Reprocessing and recycling are concentrated in countries that have nuclear weapons or support the Non-Proliferation Treaty. However, the emergence of a commercial market in MOX fuels, even if initially restricted to Europe and Japan, would allow other countries, some with dubious commitment to nonproliferation, to gain access to weapons-useable material. The emergence of a plutonium market would also make it extremely awkward for nuclear suppliers in the United States, Europe, and Japan to deny reprocessing and fabrication facilities able to produce such material relatively quickly to other countries.

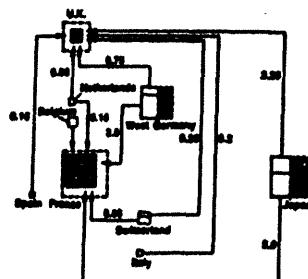
One source of interest in reprocessing has been the view that reprocessing could improve the efficiency of radioactive waste disposal. This, combined with the willingness of France and Great Britain to reprocess foreign fuel, offered a politically attractive way for some countries to postpone dealing with their own waste disposal problems. However, the fission product contents of spent fuel and high-level waste from reprocessing are essentially identical, and the heat outputs per metric ton of original uranium are similar. Although reprocessing would separate much of the plutonium and perhaps some of the actinides from the spent fuel, significant amounts of plutonium and actinides would still end up in the reprocessing wastes. As a result, final disposal of unprocessed spent fuel does not appear to represent a significantly greater

Fig. 1. The growing amount of separated civilian plutonium in non-communist countries intended as fuel in civilian power reactors compared with the amount of plutonium in the nuclear weapons arsenals of the Soviet Union, France, and the United Kingdom at the beginning of 1984.



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Fig. 2. Annual amount of plutonium to be separated from light water reactor spent fuel at the end of the century. Most of the separated plutonium will eventually be sent back to the originating country. A total of about 27 metric tons of plutonium per year is based on projected reprocessing capacities at the end of the century and already negotiated reprocessing contracts. The area of each country's square is proportional to the total plutonium that would be separated annually from spent fuel produced in the country plus, in the case of France and the United Kingdom, sent to it from abroad. The area of each dashed-outlined square or rectangle is proportional to the total plutonium that would be separated in the country's reprocessing plants. The shaded areas are proportional to the plutonium that would be separated from domestic fuel. The arrows represent international transfers of spent fuel to be reprocessed (in terms of contained plutonium).



environmental hazard than disposal of high-level wastes from reprocessing. Three countries with major nuclear programs—the United States, Canada, and Sweden—have decided to place their spent fuel in long-term storage without reprocessing (4, 5).

Although the waste disposal rationale for reprocessing appears to have weakened, a second motivation remains strong—that the energy content of the plutonium contained in the spent fuel must be captured. Until recently, the nuclear industries in the industrialized countries expected that this recycled plutonium would be used for the initial loadings of prototype and commercial plutonium breeder reactors. However, because of greatly reduced demand for electricity, the higher costs of breeder reactors compared to light water reactors, and larger than expected uranium resources, breeder reactor programs worldwide have slowed dramatically.

Breeder programs can thus absorb only a small portion of the plutonium scheduled or planned to be separated in this century. Unless current reprocessing programs are curtailed, there will be a surplus of separated plutonium of at least 100 metric tons by 1995 and 200 metric tons by the year 2000.

As the commercial viability of the breeder reactors and stockpiles of separated plutonium grow, the nuclear industries in Europe and Japan have initiated programs to use plutonium fuels in current light water reactors. Recycling would in practice reduce uranium feed and enrichment requirements by about one-quarter—the savings depending on the price of uranium and enrichment. At current uranium and enrichment prices, fuel cycles that use recycled uranium and plutonium would cost about 1 mill/kWh more than the normal once-through cycle. The price of uranium would have to more than triple from its present value of less than \$83 per kilogram before the savings in uranium costs made up for the extra costs of reprocessing, of plutonium storage, and of MOX fabrication (6). Even if the costs of reprocessing are disregarded, the economic

benefits of plutonium and uranium recycle are marginal or nonexistent.

Despite the poor economics, the nuclear industries in Europe and Japan often cite national energy independence as a reason to push ahead with reprocessing and thermal recycle. This goal draws mainly upon the persistent vulnerability of these areas to oil import disruptions. However, the uranium savings that could be gained by the recycling in light water reactors of all the plutonium and uranium planned for separation in this century would be only about 100,000 metric tons. For most countries, thermal recycling would lessen their dependence on foreign uranium only at the price of an increased dependence on a steady and assured flow of plutonium separated in foreign reprocessing plants. It would also make them dependent on the integrity of international safeguards and physical security arrangements to prevent the theft or diversion of the separated plutonium.

Countries concerned about the security of their uranium supply may, instead, find it cost-effective to reduce the consumption of uranium by higher burnup of reactor fuel or more complete recovery of uranium-235 from natural uranium at enrichment plants. In addition, uranium costs so little per unit energy-equivalent that it can be readily and economically stockpiled to provide a buffer against a supply disruption.

Reprocessing and recycling on the scale now envisioned would create a challenge of nightmarish proportions for those seeking to prevent diversion of plutonium to weapons. The reasons for European and Japanese interest in recycling are complex—for example, interest in Germany and Japan in postponing domestic debates on waste disposal and the drive in France to stay at the forefront of nuclear technology. But there do not appear to be any clear economic motives. Indeed, with the price of uranium low, and expected to remain so for several years at least, recycling appears to be an economically poor proposition.

It may not be too late for the international community to persuade the countries embarking on these critical activities to abandon plans for plutonium recycling and to defer indefinitely commercial reprocessing not devoted directly to research and development on breeder reactors.

REFERENCES AND NOTES

1. S. Specter, *The New Nuclear Nation* (Vintage, New York, 1984), pp. 237–238.
2. D. Albright and H. Feltovics, "Plutonium recycle and the problem of nuclear proliferation" (Research Report 206, Center for Energy and Environmental Studies, Princeton University, April 1986).
3. J. Mark, T. Taylor, E. Byrnes, W. Maranan, J. Wechsler, "Can terrorists build nuclear weapons?" (paper prepared for the International Task Force on Prevention of Nuclear Terrorism, Nuclear Control Institute, Washington, DC, 24 May 1986).
4. Nuclear Energy Agency, *The Economics of the Nuclear Fuel Cycle* (Organization for European Cooperation and Development, Paris, 1985), appendices 2, 8, and 10.
5. "Final report of the project group on alternative breeding" (KWA 21907, Kestrel Nuclear Research Center, Karlsruhe, Federal Republic of Germany, 1984).
6. The critical assumptions are: enrichment costs, \$100 per kilogram separative work unit; uranium-oxide fabrication costs, \$100 per kilogram of uranium (kg-U); MOX fabrication costs, \$760 per kilogram of heavy metal (kg-HM); reprocessing costs including verification, \$750/kg-HM; disposal costs of reprocessing wastes, \$180/kg-HM; and spent fuel disposal costs, \$260/kg-HM. The fuel cycle costs of a light water reactor on a once-through fuel cycle can be approximated by $4.3 + 0.03x$ milliAWh, where x is the price of uranium in dollars per kilogram. The fuel cycle costs for a recycling reactor would be $5.6 + 0.024x$ milliAWh. At a uranium price of \$83/kg-U, recycling would cost about 1 milliAWh more than a once-through system [6, pp. 15 and 60].
7. We wish to acknowledge the contributions of R. Socolow, F. von Hippel, and R. Wilson.

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APPENDIX 19**INTERNATIONAL TASK FORCE ON PREVENTION OF
NUCLEAR TERRORISM****Co-Chairmen:**

Rear Admiral Thomas Davies, USN (Ret.), Former Assistant Director for Non-Proliferation, U.S. Arms Control and Disarmament Agency

Bernard O'Keefe, Chairman, Executive Committee, EG&G, Inc.

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Paul Leventhal, President, Nuclear Control Institute

Members:

Harold Agnew, Former Director, Los Alamos National Laboratory

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Donald De Vito, Director, New York State Emergency Management Office

Bernard Feld, Professor of Physics, Massachusetts Institute of Technology

David Fischer, Former Assistant Director General for External Relations, International Atomic Energy Agency

Victor Gilinsky, Former Commissioner, U.S. Nuclear Regulatory Commission

Reinosuke Hara, Executive Vice President, Seiko Instrument & Electronics, Ltd., Japan

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John Redick, Program Officer, W. Alton Jones Foundation

Mohamed Shaker, Deputy Permanent Representative of Egypt to the United Nations; President, 1985 Review Conference of the Nuclear Non-Proliferation Treaty

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Shuzaburo Takeda, Professor of Engineering, Tokai University, Japan

Kenneth Taylor, Vice President, Government Affairs, Nabisco Brands, Inc.; Former Canadian Ambassador to Iran

Theodore Taylor, Former Deputy Director (Scientific), U.S. Defense Atomic Support Agency

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Stansfield Turner, Former Director of Central Intelligence

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Mason Wilrich, Senior Vice President, Pacific Gas & Electric Company

Bertram Wolfe, Vice President and General Manager, Nuclear Fuel and Special Projects Division, General Electric Company

NEST is an efficient unit for finding stolen or improvised nuclear weapons if the approximate location of the bomb is known. However, NEST is small and has a limited capability for finding well-shielded sources of radiation. In a large urban area, for example, it would be next to impossible to locate such a device within a limited period of time unless the general vicinity of its concealment were known. NEST's limited technical capability is further reason to upgrade protection of weapons and of materials usable in weapons to make theft all but impossible.

An event much less significant than the detonation of a weapon—such as the seizure or attempted seizure of a weapon or the penetration of a storage site—is likely to be regarded as a terrorist "success." It is important, therefore, to deter to the maximum extent possible terrorist activities directed at nuclear weapons.

II. Protecting Nuclear Materials

1. Civil nuclear materials worldwide in forms suitable for use in weapons should be given protection equivalent to government protection of weapons.

In view of the terrorist threat, the Task Force recommends that certain forms of uranium and plutonium, because they are usable in nuclear weapons, should be provided the equivalent level of protection in the private sector worldwide as governments provide where nuclear-weapon materials, weapon components and the weapons themselves are located. There should be no less vigilance and protection on the grounds that these nuclear materials are dedicated for peaceful purposes.

2. The cost of protecting weapon-usable forms of nuclear materials should be factored into private decisions to produce and use them.

The costs of providing such protection over weapon-usable forms of nuclear materials in peaceful programs should be considered by those who produce and use these materials, and by their governments as well. These costs should be weighed against the benefit of proceeding with commercial use of these materials for the purpose of extending supplies of nuclear fuel and promoting long-term energy security.

3. In the meantime, reexamination of civil applications of plutonium can be conducted on economic grounds.

Widespread commercial use of plutonium should be subject to reexamination on economic grounds, including the security costs mentioned above. Such a reexamination would now be most appropriate since reserves of non-weapon-usable nuclear fuels are high and readily available at low prices; in addition, technology for highly efficient production and consumption of these fuels is becoming available. Sufficient supplies of low-price uranium fuel could permit storage or disposal of spent fuel without reprocessing—the so-called "once-through" fuel cycle—although any local opposition to such storage or disposal would have to be addressed. There should be consideration of whether civil use of plutonium can be limited to research, development and demonstration of the breeder reactor as a long-term energy option. This would leave open national options for eventual commercial development of this and other plutonium-fueled reactors, as economic and security conditions allow.

4. Conversion of reactors from weapon-grade uranium fuels to lower-enriched uranium not usable in weapons should be considered at this time, as well.

Virtually all research and power reactors utilizing highly enriched uranium fuels can be converted to low-enriched fuels now available. Consideration should be given worldwide to their prompt conversion, in light of the terrorist threat, as was recently required for most licensed research reactors in the United States.

5. To the extent civil materials suitable for weapons are used, extraordinary precautions should be taken to protect them from terrorists.

Facilities producing or handling metallic and other forms of weapon-usable uranium and plutonium are of special significance because these materials are suitable for a crude bomb. It is important, therefore, that "in-depth" protection be provided. Shipments of significant quantities of these materials over land are especially vulnerable and, accordingly, escorts or guards should accompany each shipment in special vehicles. Shipments on the high seas should take place under constant surveillance by escorts and under

conditions that assure close communication with appropriate forces. (Recommendations for protecting fuel facilities and reactors containing potentially explosive forms of plutonium and uranium are contained in the next section.)

Background

National sovereignty over nuclear and other domestic energy strategies is a rightfully cherished principle among nations. Long-term energy security is an essential objective of all nations. Nations lacking large domestic energy resources have little choice but to regard the energy contained in nuclear wastes as a potential resource too valuable to "throw away," at least until they are certain of other resources to take its place. Until such alternatives are as assured as the "domestic resource" represented by the plutonium and uranium content of their spent fuel, these nations cannot be expected to give up their long-term option to reprocess the waste and to recycle the recovered fuel into their power reactors. There is some question, however, as to whether a short-term imperative exists for nations to make large-scale commercial use of plutonium fuel at a time when the risks of terrorism run high.

[The Japanese members of the Task Force wish to add the following: Whatever may be the general applicability of the recommendations and the discussion contained in this section, the unique situation in Japan warrants continuation of the national program to make use of plutonium as reactor fuel. Japan is without indigenous energy resources and consequently there is a national plan to recover plutonium and uranium from spent reactor fuel. Japan is convinced that the utilization of plutonium as reactor fuel soon after the reprocessing of spent fuel will contribute to the prevention of nuclear proliferation and nuclear terrorism. Extensive high-technology measures have been developed to protect Japanese plutonium and highly enriched uranium. This work will continue, and there should be a sharing of such information among nations. Japanese society, because of its tragic experience with nuclear weapons, would not tolerate anything but the most elaborate precautions to guarantee that peaceful nuclear materials in Japan are never used in weapons.]

There are viable alternatives to a plutonium market including greater reliance on uranium fuel not usable in weapons, as well as possible utilization of thorium in nuclear fuel. Under prevailing conditions, reprocessing of spent fuel and fabrication of the recovered plutonium and uranium into fuel for recycle in conventional light water reactors appear not to be economically competitive with the once-through fuel cycle. Massive new finds of uranium have produced cheap and plentiful supplies that, in combination with cheaper oil and coal and a lower-than-expected growth rate of nuclear power, have resulted in lower uranium demand and no likely early need for large quantities of plutonium or for the plutonium-fueled breeder reactor. Thus, plans for reprocessing and for commercial use of the recovered plutonium over the near term raise issues of international plutonium trade and concomitant proliferation and terrorism risks that seem unjustified by present economic benefits.

About 45 tons of plutonium are being discharged each year as waste in the spent fuel of commercial nuclear power plants; by the year 2000 a total of 1,400 tons of plutonium will have been produced in spent fuel. In some countries, reprocessing is underway or planned to recover plutonium and depleted uranium for the stated purpose of recycling as fuel in existing powerplants and eventually in breeder reactors. If present reprocessing plans are carried out, by the mid- to late 1990s the amount of plutonium separated for civil uses worldwide will exceed the 200 tons separated by the superpowers for use in nuclear weapons. Tons of plutonium will be in commercial transit, posing increased opportunities for theft and diversion by terrorists.

The transport of weapon-useable nuclear materials on the open road poses the biggest risk of theft. In the United States, plutonium is not used in the commercial power program; significant quantities of plutonium and HEU used in the Energy Department's research and development program are generally transported over highways in a weapons-carrier, the Safe Secure Transport (SST), which is regarded as virtually impenetrable and theft-proof. However, armed-convoyed transport of nuclear-weapon materials between buildings within a government installation is done in less secure "bread-van"-type vehicles, which could be vulnerable, for example, to "snatch" attacks by helicopter. Transport of civil plutonium and highly enriched uranium in other countries is generally done in armored vehicles, some of which are equivalent to the SST and some of which are not.

The IAEA's role in physical protection of nuclear materials has been strictly advisory because

protection against theft always has been a national prerogative. Some international safeguards procedures, such as the use of tamper-indicating seals and remotely operated cameras to provide containment and surveillance of nuclear materials, offer some physical-protection benefit. But the best of these measures, fiber-optic seals and near real-time satellite surveillance, are often regarded as intrusions of national sovereignty. National physical protection systems vary in quality from country to country—the IAEA's minimum guidelines notwithstanding—and they rarely rise to the level of protection provided by governments over nuclear weapons and weapon materials.

The IAEA/EURATOM safeguards system, generally regarded as adequate to keep track of fabricated nuclear fuel elements, has more difficulty in accounting for nuclear materials in bulk form. The safeguards system is designed to provide "timely detection" of diversions of significant amounts of nuclear materials and to deter such diversions by the risk of detection. A nation may well be deterred from attempting to divert bomb quantities to a secret weapons stockpile on the assumption that the IAEA will detect and report the diversions before the materials can be converted into weapons. Terrorists, with insider support, might be able to divert small amounts from certain types of bulk-handling plants before the IAEA or the state can detect the loss. The stolen material could be enough at least to substantiate a credible threat. National safeguards systems are limited in their ability to detect such small diversions in time.

An attractive alternative to reprocessing for at least some countries may be to store the spent fuel or dispose of it without reprocessing, especially if the supplier or another country agrees to take the spent fuel off its hands. Such an approach would avoid the economic and political costs of providing a domestic means for waste disposal and would support the non-proliferation regime.

These efforts do not necessarily involve cancelling development of reprocessing and breeder technology as a hedge against future energy shortages; rather, these efforts would serve to allow postponement of widespread commercial production and use of plutonium fuels until such time as their need is clearly established, the threat of terrorism has lessened, and the adequacy of safeguards and physical-protection systems has improved. Similarly, there are now opportunities to accelerate conversion of research reactors from high-enriched to low-enriched uranium fuels and thereby eliminate access by terrorists to another potentially vulnerable weapons-useable nuclear material. A recent regulation requiring conversion of most licensed research reactors in the United States can serve as model for other nations.

III. Protecting Nuclear Facilities

1. Denial of access to nuclear facilities should be the basic consideration in protecting against sabotage.

Because of the extensive damage terrorists could do once they gain entry to a nuclear installation, denial of access should be the *sine qua non* of protection against nuclear terrorism. Even if a response force arrives only a few minutes after terrorists gain entry, it could be too late to prevent sabotage with severe consequences.

2. Thorough vigilance against the insider threat is needed.

Security staffs at nuclear facilities should be alert to the crucial role insiders can play in overcoming defenses against terrorists. Access to vital areas of facilities should be restricted to the extent possible without compromising safety—that is, without inhibiting access to such areas during an emergency. The reliability of employees at nuclear facilities should be a matter of prime concern, although security measures against the insider threat will necessarily vary according to the laws and traditions of individual nations. Rigorous assessments of potential employees by such means as psychological screening and background checks, and regular monitoring of employees' reliability, should be carried out according to professional standards with due regard to rights of privacy and free expression.

3. Guard forces should be thoroughly trained and authorized to use deadly force.

Guard forces and nearby reserve forces should be provided with high-quality and frequently updated training against the terrorist threat. They should be advised as to the appropriate use of deadly force to ensure responses sufficient to prevent a large sophisticated group of attackers or a few infiltrators from

APPENDIX 20

"BIWEEKLY FLIGHTS OF HUNDREDS OF POUNDS OF PLUTONIUM TO BE AUTHORIZED UNDER U.S.-JAPAN NUCLEAR ACCORD," NUCLEAR CONTROL INSTITUTE, MARCH 3, 1978

BIWEEKLY FLIGHTS OF HUNDREDS OF POUNDS OF PLUTONIUM
TO BE AUTHORIZED UNDER U.S.-JAPAN NUCLEAR ACCORD

President Reagan is preparing to submit to Congress a new 30-year nuclear-cooperation agreement with Japan that would require biweekly flights of a cargo plane carrying about 500 pounds of plutonium from Europe to Japan. Because of the enormous weight of shipping casks to be used to transport the plutonium, the flights would cross Canada and land for refueling in Anchorage, Alaska, and then take-off again for Japan.

A crash-proof cask being developed for these plutonium shipments failed to survive a high-velocity impact test at Sandia National Laboratories last summer. No new tests have been scheduled, and some experts close to the project believe that it will not be possible to build a large cask, for use in large-scale shipments of plutonium, that can survive a realistic crash test. The cask being developed weighs 5,000 pounds and holds about 15 pounds of plutonium. There would be as many as 40 of these casks on a single Boeing-747 cargo plane.

It is possible that the Reagan Administration will permit Japanese plutonium flights in and out of Anchorage utilizing casks that fail to meet strict safety criteria spelled out by the Nuclear Regulatory Commission after Congress mandated the development of crash-proof casks in a 1975 law.

Plutonium, a manmade element created as a waste byproduct of reactor operation, is highly toxic and can be used in nuclear weapons. The Japanese plan to separate plutonium from U.S.-controlled spent reactor fuel and use the plutonium as a fuel in their power reactors---an approach that has been rejected by Congress as too hazardous and costly for the United States domestic nuclear power program.

Details of the planned air shipments of plutonium are disclosed in a Special Report, "Air Transport of Plutonium Obtained by the Japanese from Nuclear Fuel Controlled by the United States," prepared by the Nuclear Control Institute and released today. The Institute is non-partisan and non-profit and conducts independent research on problems relevant to the spread of nuclear weapons.

The new nuclear agreement---negotiated by the Reagan Administration but still not submitted for Congressional approval---would give the Japanese a 30-year advance approval to recover and use plutonium produced in nuclear fuel originally supplied by the United States or used in U.S.-supplied power reactors. The new agreement would replace the present agreement, which does not expire until the year 2003. Under the existing agreement, the United States can withhold approval on a case-by-case basis of Japanese plutonium activities on safety or security grounds.

The U.S. government blocked for two years a large plutonium shipment by sea that originally was to proceed on its five-week journey from France to Japan without military escort or surveillance. The large risks and costs associated with this shipment, which finally involved the use of French and U.S. warships and satellites in 1984, led to plans to send future shipments by air. Under the new U.S.-Japan agreement, however, the United States would lose its veto power over safety and security arrangements for these shipments, as well as over use of the plutonium itself.

The United States presently exercises legal control over most of the 85 metric tons [187,000 pounds] of plutonium that the Japanese want to recover from their nuclear spent fuel by the year 2000. About half of the plutonium is contained in spent fuel that Japan has sent or has contracted to send, with U.S. consent, to France and the United Kingdom for reprocessing. U.S. controls now apply to at least 80 percent of the 45 metric tons [99,000 pounds] of plutonium to be separated in France and the U.K. from Japanese light-water reactor spent fuel, according to an analysis by David Albright, a physicist with the Federation of American Scientists.

Under the new agreement, the United States would provide one approval, in advance, for Japanese shipment and use of plutonium derived from U.S.-supplied nuclear fuel or fuel used in U.S.-supplied reactors, for the 30-year life of the agreement.

The Nuclear Control Institute report was co-authored by Paul Leventhal, the Institute's president, Milton Hoenig, the scientific director, and Alan Kuperman, a research associate.

The report concludes: "There are many technical issues to be resolved before it can be determined whether commercial air transport of plutonium, as envisioned in the upcoming U.S.-Japan nuclear agreement, can be achieved safely and securely . . . It is premature, therefore, for the Reagan Administration to negotiate away U.S. authority over how Japan makes use of plutonium contained in spent nuclear fuel originally supplied by the United States or used in U.S.-supplied reactors. The President should not submit the new U.S.-Japan agreement to Congress until all technical issues with regard to air transport of plutonium are resolved."

In addition, the report concluded: "... there are also questions concerning the vulnerability of commercial, weapon-useable plutonium to attacks or thefts by terrorists, as well as the eventual spread of this material to nations seeking the capability to build nuclear weapons. From both counter-terrorism and non-proliferation perspectives, the risks of commercial use of plutonium may far outweigh any energy benefits of using this fuel."

APPENDIX 21

"WILL DOE LOSE JAPAN'S ENRICHMENT BUSINESS," NUCLEAR CONTROL INSTITUTE, DECEMBER 15, 1987Will DOE Lose Japan's Enrichment Business?

In early November, Attorney William O. Doub of the Washington law firm of Doub Muntzing and Glasgow, speaking to the Atomic Energy Forum meeting in Los Angeles on the "Importance of the New U.S.-Japan Nuclear Cooperation Agreement for the American Nuclear Industry," raised the possibility of financial ruin for the Department of Energy's uranium enrichment enterprise, and of the consequences for U.S. utilities, if the new U.S.-Japan agreement is not accepted as negotiated and now submitted by the President to Congress.

Doub's statement carried the implied threat that Japanese utilities would cancel their enrichment contracts with DOE if the Agreement did not go into force as negotiated. Does this represent a subtle form of coercion being directed at the United States through leading representatives of Japanese commercial nuclear interests? "The Japanese utilities are among DOE's largest enrichment customers," Doub noted. "Without Japanese support for DOE's enrichment program, DOE's enrichment costs would inevitably be spread among fewer utility customers.... Consequently, it appears that U.S. nuclear utilities will have an interest in supporting the new U.S.-Japan agreement," he asserted.

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DOE's Real Problems

While it is true that the future for DOE's uranium enrichment business is fraught with uncertainty, the reasons for this have little to do with the U.S.-Japan agreement. Indeed, whether Japanese utilities decide to continue contracts that now comprise about one-fifth of DOE's enrichment business may well depend on market and industry factors exclusive of the U.S.-Japan agreement. The DOE enrichment enterprise is struggling to stay competitive. It faces keen competition from suppliers abroad for the business of foreign utilities. Today, the uranium enrichment business is a buyer's market; in 1987, for example, worldwide enrichment capacity of 42 million separative work units (SWU) exceeds projected sales of 22.6 million SWU by almost 100 percent. In the current environment, foreign customers are wary about extending their commitments to DOE when there are a number of outstanding and unresolved problems:

- The outcome of the pending lawsuit by U.S. uranium producers that seeks to ban the enrichment by DOE of foreign-origin uranium for use in domestic nuclear power reactors;
- The restructuring of the accumulated debt of the enrichment enterprise---estimated at over \$8 billion by the General Accounting Office (GAO)---to determine what portion is to be recovered in the future through charges to customers for uranium enrichment;
- The settlement of "demand charges" against DOE by the Tennessee Valley Authority (TVA) for electricity on which DOE is not taking delivery because of the shutdown of the Oak Ridge, Tennessee uranium enrichment plant;
- The outlook for continued government support of the atomic vapor laser isotope separation (AVLIS) program, including the operation of a commercial AVLIS enrichment plant in the 1990s or later;

--A decision on the reorganization of the enrichment enterprise as a government corporation.

Decisions that are made by Japan and by the other foreign customers of DOE about future commitments for enrichment services will be based on the above factors and other financial considerations, such as the decline in the value of the dollar, which dictate whether DOE will remain competitive. Also, for Japan, the large trade imbalance with the U.S. surely will influence any decision to take away enrichment business from the U.S.

Japan is Big DOE Customer

In fiscal year (FY) 1988, DOE has contracts with the 10 Japanese nuclear utilities to deliver 2.4 million separative work units (SWU) of enrichment, enough for 20 to 24 reloads. The sales to Japan for FY1988 will amount to about 19 percent of DOE's total enrichment transactions in that year. For subsequent years, DOE's projections of enrichment sales to Japan under and beyond existing commitments are 2.4 million SWU in FY1989, 2.8 million SWU in FY1990, 3.2 million SWU in FY1991, and 3.5 to 4.0 million SWU annually into the mid-1990s and through 2000. The potential value of DOE's enrichment business with Japan during this period could range between \$260 and \$435 million annually.

Almost all of Japan's enrichment requirements are supplied by DOE at the present time. In 1984, the Japanese utilities converted their enrichment contracts with DOE to the Utility Services Contract, which permit the customer to purchase between 70 and 100 percent of its enrichment requirements from DOE and up to 30 percent from other sources. Subsequently, all utilities except one (Shikoku) negotiated incentive packages with DOE covering 100 percent of their requirements. The services contracts are for 30 years or the lifetime of the plant, but commitments are normally made 10 years in advance. The contracts

can be terminated on 10-year prior notice, without penalty, or before that period with a penalty that increases each year by 10 percent of the value of the committed but unused SWUs.

Japanese utilities also receive deliveries of about one million SWU annually from the French consortium Eurodif under a 10-year contract running from 1980 through 1989. However, most of this uranium is stockpiled, so that by 1990, Japan may have as much as 7 million SWU of Eurodif-origin enrichment on-hand. The Eurodif contract for 1 million SWU annually is expected to be renewed, starting after 1993 when much of the stockpile will have been used up or stored at Japanese reactors, which normally maintain a 2-year reserve of fuel on-site. Another 2.5 million SWU of Japanese-owned enrichment left over from the "advance sale" of 10 million SWU made by DOE in the early 1970s at a price of \$32 per SWU still remains on DOE's books for delivery to Japan as required to fill uncommitted needs.

Japan's Future Options are Open

At the year 2000, Japan's demand for enrichment is expected to reach about 6.5 million SWU annually, according to a recent DOE projection. By that year, Japan plans to have increased its domestic commercial enrichment capacity to 3 million SWU, from 1.5 million SWU in 1991, and the country is expected to produce about 2.4 million SWU annually. The remainder of the enrichment requirements will be purchased abroad---about 1 million SWU annually under contract to Eurodif and the rest, 3.1 million SWU, from a number of possible sources: DOE, Eurodif, Urenco (Netherlands/West Germany/Britain) or Technabsexport (U.S.S.R.).

Clearly, Japan has the option to switch from the U.S. to other countries for its supply of enrichment. For the past two years, foreign utilities have been unwilling to make 10-year commitments to DOE because of the unresolved problems, and DOE has waived the requirement under the Utility Services Contract.

Consequently, Japan could give notice to terminate its existing enrichment contracts with DOE as early as the end of 1995 without incurring any penalty.

Some experts believe that by the year 2000 Japan's dependence on the U.S. for uranium enrichment will have declined to about 25 percent of its requirements. Others feel that Japan's commitment will hold firm at 3 to 4 million SWU annually, or about 50 percent of their needs. The deciding factor will be DOE's ability to resolve its financial problems and remain competitive.

Milton Hoenig

APPENDIX 22

**"DANGERS IN A PLUTONIUM ECONOMY," NUCLEAR CONTROL
INSTITUTE, FEBRUARY 22, 1988****DANGERS IN A PLUTONIUM ECONOMY****Can large plutonium reprocessing and fuel fabrication plants
be adequately safeguarded?**

The Nuclear Regulatory Commission recently stated that "technical constraints may make it impossible for the IAEA to achieve its current degree of safeguards effectiveness in Japan's proposed new large bulk-handling plutonium facilities," and that, consequently, "the U.S. should not commit itself, as the Proposed Agreement does, to giving programmatic approval for these facilities." (NRC Rebuttal to State/DOE/ACDA Comments on NRC Views.)

The Commission makes clear "that at the present time not enough is known about future IAEA safeguarding capabilities in the large plutonium facilities envisioned by Japan," and that "we have concerns that based on current international safeguards as applied to an 800 ton per year reprocessing facility, 200-300 kilograms of plutonium could remain unaccounted for each year." This amount of unaccounted-for plutonium is 2-4% of the amount of plutonium separated annually and would be sufficient for 25 to 37 nuclear weapons (using the IAEA's conservative "significant quantity" of 8 kilograms) should the plutonium fall into hands of terrorists or countries intent on making nuclear explosives.

Expectations for reliability of IAEA safeguards have changed little, perhaps even declining somewhat over the last 7 years since the report of the IAEA's International Working Group on Reprocessing Plant Safeguards was prepared. The Working Group concluded that "the performance of a conventional safeguards system in a large reprocessing plant ... would not meet [the detection guidelines] for plutonium. One of the bases for this conclusion was that "[e]xpected measurement uncertainties of \pm 0.5 to 1% ... could lead in some plants to an inability to state whether or not a diversion of plutonium of significance to safeguards had occurred." The report went on to note that even advanced safeguards techniques, which were then under study, could not meet the guidelines for the protracted diversion of plutonium.

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Can Real-World Safeguards and Physical Security Problems Be Resolved?

Both the Secretary of Defense and the Nuclear Regulatory Commission advised President Reagan not to proceed with the U.S.-Japan agreement on the basis of unresolved safeguards and physical security problems.

The NRC has warned of hundreds of pounds of material unaccounted for at the large plutonium processing and fabrication plants that Japan will bring on line under the terms of the agreement. International safeguards inspectors, faced with measurement uncertainties, will not know whether the plutonium has been lost in the pipes, diverted or stolen.

Nor will advanced technology necessarily make the inspectors' job easier. In 1986, the safeguards director of the IAEA warned that new computerized material accounting and control systems could make it possible for plant personnel to "give completely honest information to a facility operator and totally false information to IAEA inspectors."

On the physical security front, protection of nuclear facilities is typically based on a postulated threat that assesses the intentions, not the capabilities, of the adversary (as in the U.S. and Japan, for example) --- even though DOD, in its recent report to Congress, recommended that terrorist capabilities should provide the baseline against which protection should be designed. Of further concern is the thrice monthly plutonium air shipments from Europe to Japan at a time when, according to a majority of law enforcement officials surveyed by DOD, terrorists will soon be armed with Stinger-type shoulder-fired missiles capable of bringing down such aircraft. Further, a crashproof plutonium shipping cask is yet to be developed, and some experts believe one cannot be developed to withstand a worst-case crash.

Could terrorists build a crude nuclear explosive device with reactor-grade plutonium?

A study prepared for the International Task Force on Prevention of Nuclear Terrorism by five former Los Alamos weapons designers, including J. Carson Mark and Theodore B. Taylor, determined that fabricating a crude design, Nagasaki-type nuclear explosive from reactor-grade plutonium is within the reach of a terrorist group with sufficient resources to recruit a team of 3 or 4 technically qualified specialists who need not have previous experience in building weapons. According to the authors, terrorists could build a bomb with a yield in excess of 1000 tons of TNT with about 7 kilograms of reactor-grade plutonium metal. The terrorists could acquire the material as plutonium-oxide powder from a reprocessing or fuel fabrication plant and reduce it to plutonium metal in a process that would take a number of days but is within the reach of a dedicated technical team. Conceivably, oxide powder might be used directly in an explosive device without the need for conversion to metal; however tens of kilograms of oxide would probably be needed.

What is the likelihood that terrorists could steal plutonium?

It may not be likely that commercial fuel cycle facilities using plutonium would be better protected than the facilities of the Department of Energy's nuclear weapons complex, where materials and components for use in nuclear weapons are fabricated. Guard forces at DOE nuclear weapons facilities repeatedly fail so-called "black hat" exercises designed to simulate terrorist attack, as revealed in hearings held in 1984 and 1986 before the House Committee on Energy and Commerce's subcommittee on Oversight and Investigations, chaired by Congressman Dingell. For example, in May 1985 a DOE Inspection and Evaluation Team made an "attack" on the alarmed and fenced plutonium storage building at the Savannah River Plant and blew a simulated hole in the plutonium storage vault. The one surviving attacker escaped into the woods carrying plutonium buttons. In a test in October 1985 at the final assembly plant for nuclear weapons (Pantex Plant) in Amarillo, Texas, an "insider" smuggled a simulated plutonium weapon component outside the plant and threw it over the fence to a waiting accomplice.

Under the proposed U.S.-Japan Agreement, armed escorts are required to protect shipments of plutonium from Europe to Japan; also, response forces are to be on hand near plutonium bulk handling facilities. Yet, under the agreement, the domestic facilities themselves will not be required, and are not expected, to have armed guards on site.

Can all pathways to diversion of plutonium be successfully protected?

The developing nuclear waste scandal in West Germany involving Nukem and its subsidiary Transnuclear raises serious doubts about the trustworthiness of a commercial nuclear industry to handle tons of bomb-grade material, as would occur routinely in a plutonium economy. Part of this scandal is the allegation by a former West German minister of science and technology, who is now a senior energy advisor to the Social Democrats, that falsely labeled containers of bombusable material (plutonium or highly enriched uranium) were shipped by Transnuclear from Belgium to Pakistan and Libya through the German port of Luebeck. This allegation is being investigated by federal prosecutors and is still unconfirmed. Yet it raises the plausibility of the quick-and-easy passage of diverted nuclear bomb material through a complex of linked storage sites and transportation routes handling both safeguarded nuclear materials and unsafeguarded materials, such as low-level nuclear wastes. It is conceivable that several kilograms of plutonium that are wrapped to shield gamma-ray and neutron emissions could be transported with low-level wastes and escape detection.

What would be the effects of a terrorist bomb explosion?

A terrorist bomb with a 1000 ton yield that is set off in a crowded major financial center, such as Wall Street or the equivalent in Tokyo or London, at midday would demolish

buildings and cause 500,000 deaths. The impact on the global economy could be extremely severe. Even a bomb that fizzles, with a yield equivalent to 10 or 100 tons of TNT, could cause extensive casualties and damage from blast and radiation and disperse aerosolized particles of highly toxic plutonium over a wide area. There would be a psychological reaction on the world population that is difficult to quantify.

Are we prepared for the possibility of accidents resulting in large scale plutonium dispersal?

In a world caught up in a plutonium economy, the industrialized nations would support activities that involve the processing, transport and use of hundreds of tons of plutonium. Any reprocessing or fabrication plant could have several hundred kilograms of plutonium on-site at any one time, and any shipment, by land, sea or air, would involve an equally large quantity of plutonium.

Already, under the terms of the proposed U.S.-Japan Agreement, tri-monthly flights of about 150 kilograms of plutonium each are expected to take place between France and Japan with a refueling stop in Alaska. Plans for these flights are proceeding despite the repeated failure of prototype commercial air-shipment casks to survive simulated crash tests. An accident or act of sabotage in these activities that causes the widespread dispersal of plutonium in a populated area conceivably could lead to as many long-term cancer deaths through inhalation of micron-size plutonium particles as would be caused in toto by the explosion of a crude terrorist-made nuclear bomb.

About 16 millionths of a gram of the isotope plutonium 239 placed in the lungs of a laboratory animal (dogs) is known to cause death from cancer. Reactor-grade plutonium is some five times more potent. Plutonium could be very efficiently dispersed through a mid-air accident of a plutonium-laden aircraft or a ground crash and fire, or as the result of a fire in a reprocessing or fabrication plant or in a ground transport vehicle.

Only a small portion of the dispersed plutonium need reach the potential victim. A very conservative estimate by B.L. Cohen of the University of Pittsburgh is that 70 cancer deaths could result from the dispersal of a gram of reactor plutonium in a large building. (Safeguards Supplement to Final Generic Environmental Statement on the Use of Recycle Plutonium in Mixed Oxide Fuel in Light Water Cooled Reactors (GESMO), NUREG 0414, May 1978, p. 3-37.) Willrich and Taylor estimate that 100 grams of plutonium could be a deadly risk to everyone working in a large office building or factory. (Mason Willrich and Theodore Taylor, Nuclear Theft:Risks and Safeguards, p. 25.)

Thus the efficient dispersal of tens of kilograms of plutonium in a mid-air collision of a plutonium transport or in a major fire at a plutonium handling facility in an area of high population, conceivably could result in tens to several hundreds of thousands of excess cancer deaths.

APPENDIX 23

**"PHYSICAL PROTECTION PHILOSOPHY AND TECHNIQUES IN JAPAN," BY
HIDEO KUROI, JOURNAL OF NUCLEAR MATERIALS MANAGEMENT,
JAN. 1988**

Physical Protection Philosophy and Techniques in Japan

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UNDERLYING FACTORS IN THE UTILIZATION OF NUCLEAR ENERGY IN JAPAN

Japan is composed of four major islands isolated from the Eurasian Continent by the Japan Sea. The total area is small, approximately 143,000 square miles which is almost the same size as the British Isles. The highly mountainous nature of these islands leaves only 16 percent open field, which accommodates almost the total population of 120 million people, of a single race, all sharing similar culture backgrounds.

Natural resources in Japan, except water, are too scarce to maintain 120 million people. Therefore, industrial activities have to be maintained at a high level in order to sustain a reasonable living standard. As a result, Japan ranks high in energy consumption among the countries of the world. Since the oil crisis in 1972, the Japanese Government has implemented an intensive "Energy Saving Policy", which has accomplished a 15% reduction of the total energy consumption. Nevertheless, the overall dependence on imported energy resources still stands at a level higher than 80%.

With these ominous circumstances, Japan's expectations in utilizing nuclear energy remain very high, even though utilization of nuclear energy needs new technologies with some potential risk in new dimensions. Although sophisticated efforts would be needed to cope with legends of the so-called "Feynman Bargain" relating to nuclear issues, we are convinced that the associated risks could be manageable. Under these circumstances, neither anti-nuclear extremists nor influential political parties insisting on an anti-nuclear policy have ever emerged, although some anti-nuclear movements have been observed.

In 1955, Japan enacted "The Atomic Energy Basic Law" which prescribes that the research, development, and utilization of atomic energy must be carried out only for peaceful purposes. In the same year, the Atomic Energy Commission, chaired by the State Minister for Science and Technology, was established to recommend to the Prime Minister policy issues relating to nuclear energy. In 1956, the Science and Technology Agency was established as the government body responsible for science and technology issues, and the nuclear issue played a major role at that time. When the "Law for Regulation of Nuclear Source Materials, Nuclear Fuel Materials, and Nuclear Reactors" was enacted in 1958, Japanese legislation and administration for the utilization of nuclear energy was completed.

Since then, Japan has been making efforts to promote the peaceful

use of atomic energy. In 1966, the first commercial nuclear plant went into operation. Today, 32 nuclear power plants are in operation providing 24.5 million KWs. This corresponds to 23% of the total power generating capacity in Japan. Eleven more plants are under construction, and five are in the planning stage. In addition, there are in operation, five commercial LEU fuel fabrication plants, one pilot plant for fuel reprocessing, and one pilot plant for enrichment.

Japan is importing low enriched uranium for power reactors from the US and France due to the shortage of enrichment capacity at this time. All power plants in Japan are distributed around the coastal area, and most of the spent fuel is shipped from the nearest port to France or to the UK for reprocessing services.

In addition, considerable efforts have been devoted to programs to develop technologies in a wide range of areas relating to the establishment of a complete fuel cycle. Such programs include fast breeder reactors, fuel enrichment, fuel reprocessing, and waste disposal. However, some of these programs are a little bit further behind schedule than we expected. They are suffering from the impact of escalating costs and tighter budgets. Nevertheless, bearing in mind the long lead time necessary to establish safe and secure technologies, we should continue steady efforts toward sound nuclear fuel cycles.

RELEVANT LEGISLATION AND ADMINISTRATIVE STRUCTURE

Legal Norms

Legal norms for the peaceful use of nuclear energy in Japan consist of the "Atomic Energy Basic Law", enacted in 1955, and the "Law for Regulation of Nuclear Source Materials, Nuclear Fuel Materials, and Nuclear Reactors", enacted in 1957. In these two laws, there is no specific article dedicated only to physical protection, but it is the official interpretation that these two laws and associated licensing regulations and procedures can well accommodate the requirements of physical protection.

To acquire a license for construction and operation of nuclear facilities, it is necessary to assure that the proposed operation complies with the following four conditions: (1) the proposed facility shall not be used for non-peaceful purposes, (2) the proposed operator shall have the ability to construct and operate the facility well, both technically and financially, (3) the construction and operation of the proposed facility shall not disturb the programmatic approaches of research, development and utilization activities in

Japan, and (4) the location and design of the proposed facility shall not cause a calamity.

After acquiring the license, the operator of the facility must comply with two further regulations: to protect the nuclear facility strictly and to account for and control the nuclear material by the appropriate execution of safeguards.

Administrative Bodies

The Atomic Energy Commission (AEC) and the Safeguards Division of the Science and Technology Agency (STA) play key roles in physical protection, from policy making to implementation of nuclear non-proliferation issues. The Safeguards Division of the STA is responsible for the implementation of safeguards, as well as for other non-proliferation measures including physical protection.

Licensing Procedures

The Nuclear Regulatory Authority provides facility operators with appropriate instruction on physical protection as one of the requirements for protecting nuclear materials in facilities or in transit. The Authority verifies that all nuclear facilities are designed and operated in conformance with the guidelines of physical protection.

Physical Protection Guidelines

The ABC has established a special committee on physical protection to investigate an appropriate physical protection system in Japan. This takes into account the increased amount of nuclear material in Japan and the recommendation on physical protection of nuclear material by the IAEA in 1975 (INFCIRC225).

In 1977 the special committee provided an interim report, followed by government instructions, on the physical protection of all nuclear facilities in Japan. In 1980, the committee provided the final report, which included the guidelines on physical protection and an outline which is attached in the Appendix to this paper. These guidelines are basically comparable to INFCIRC225/Rev. 1 and clarify the responsibilities of facility operators, the regulatory authority, and the law enforcement authority.

UNDERLYING PHILOSOPHY ON IMPLEMENTATION OF PHYSICAL PROTECTION

The physical protection guidelines recommended by the IAEA in INFCIRC225/Rev. 1 provide a valuable concept for constructing a physical protection system. However, as is natural for this type of recommendation, it does not specifically spell out the depth of protection, allowing a certain flexibility in order to cover all member states with different sociological and political circumstances. The depth of protection should be determined and modified according to the social circumstances in various countries.

Nuclear incidents relating to the security of nuclear materials and facilities could be caused by a number of illegal actions like theft, robbery of nuclear material, attack on a nuclear facility, or sabotage resulting in radioactive contamination. These actions may be committed by criminals, lunatics, anti-nuclear extremists, or authentic political terrorists.

Note that all incidents relating to physical protection are caused by intentional human actions. The motivations to take such illegal actions are not technical ones. Consequently, the countermeasures against such actions must be political ones. In other words, political measures to alleviate such motivations are the primary measures. Technical measures should be considered to be very important, but

complementary to the political measures.

In fact, political and technical measures are interrelated in terms of the concept of "deterrence". Naturally, political measures depend so much on historical, sociological, and cultural backgrounds specific to each nation that obtaining meaningful accomplishments takes time. In contrast to political measures, technical measures may provide us with a quick fix. Therefore, taken together, technical and political measures provide us with the most efficient system against the risk of such incidents. That the physical protection system in a given country should be built in full utilization of the social features of that country is of vital importance. In this context, this paper explains the underlying philosophies on implementation of physical protection which focus on the sociological features specific to Japan.

Possible Threat

Nuclear threats may take different forms - theft, robbery or forcible attack, or sabotage.

- **Theft** - Theft of nuclear material is a realistic threat as the total amount and variety of nuclear material in the commercial sector increases. Therefore, facility operators must provide countermeasures against the theft of nuclear material, thus reducing the risk factor close to zero.

- **Robbery Or Forceable Attack** - Physical protection measures taken by operators in Japan are premised upon an assumption of general civil order. Foreseeable levels of violence may range from just hoaxes to terrorist-like violence. Physical protection is certainly related to the social circumstances of other countries. Looking at the domestic front, violence with heavy weapons or high explosives is unlikely because of the following features of society in Japan:

- the homogenous racial composition and weak religious influence on human life significantly diminish incentives to use severe violence; and
- legal prohibition of all civilian guns and ammunition, with a violation penalty of 10 years maximum imprisonment has helped to maintain the social milieu almost free from severe violence.

Looking at the international front, the ease of immigration/customs control resulting from the geographical features of isolated islands has traditionally contributed to weakened international ties of violence. However, as statistics point out, detecting the smuggling of small firearms such as handguns or handgrenades is difficult. Therefore, facility operators are requested to take appropriate countermeasures against forcible entry made by a group with small firearms or explosives.

Social circumstances change from time to time. We are seriously concerned about current trends of violence with strengthened international connections and tendencies to attack soft targets, i.e. those with relatively little apparent security.

Sabotage - Countermeasures against sabotage shall be taken by facility operators, but protection against sabotage is a physical protection function unrelated to the design of the plant itself.

Characteristics Of Offenders

Offenders may be categorized as authentic political terrorists, anti-nuclear extremists, criminals, or lunatics in one dimension, and insiders or outsiders in the other dimension.

As mentioned previously, an attack on nuclear facilities by a group of political terrorists or anti-nuclear extremists seems to be very unlikely in Japan because of certain political calculations and

moral constraints. Therefore, criminals or lunatics might be possible offenders in Japan.

Insider problems have traditionally been very rare in Japan. This is mainly due to a strong "group consciousness" which has long been one of the most prominent characteristics of Japanese society. Rather than ideological or professional common attributes, loyalty to the group and the practical benefit of belonging to the group are key virtues in Japanese society. At every level of society the Japanese have a strong sense of who is on the inside and who is not. Inside the group they are very closely involved in each other's personal lives. Consequently, serious personal matters are sometime the affair of the entire group.

These social features have developed an employment system specific to Japan. Newcomers are not accepted into the group (company) until they have been carefully screened, tested, and trained in its ethics and morality. But once employed, they are usually not dismissed for any functional failures. They may be dismissed if they break the group standards and tarnish the image of the group.

These specific features of Japanese society do not always provide us with an advantage in dealing with insider problems. Under certain circumstances, the strong group consciousness could develop a curious atmosphere to cover up any possible misbehavior of a person in the group. A typical example can be seen in the case of the tragedy of Japan Airlines that happened in 1982. The DC-8 passenger flight bound for Tokyo from Fukuoka was crashed into the sea intentionally by the lunatic captain in command. The co-pilot tried to block his captain, but could not succeed because it happened during the final landing approach. As a consequence, 24 passengers were killed and 150 were injured. Many of the captain's colleagues had reportedly observed his curious behavior and perceived something different, but did not take any action. As this experience indicated, lunatic insiders in relatively high positions may be a realistic threat of sabotage and must be examined more closely.

Countermeasures

In this section some specific considerations on countermeasures employed in Japan will be discussed.

• Facility Guards

As mentioned previously, in Japan all civilians have been prohibited by law for more than 100 years from having firearms and ammunition. Persons permitted to have firearms are limited to policemen and government investigators for narcotics, etc. Therefore, facility guards cannot have any firearms and are prohibited from responding directly against offenders. Their duties are to detect any threats as early as possible, to communicate with relevant security authorities, and to harden respective targets by hardware devices. Entry and exit control are also the duty of guards. Without armed guards, expecting significant retardation effects by the fence is hard but a fence is mainly for early detection of intruders.

Unarmed guards at nuclear facilities might be one unique feature specific to Japan. In order to compensate for the weakness of unarmed guards, at least one squad branch office of local police is situated close to nuclear facilities. The network of national and local police is closely coordinated, and security measures are well maintained. Thus, police can get to any nuclear facility in Japan within a very short time.

• Protecting Against Insider Threat

Precaution seems to be more effective than prevention to cope with insider problems. In this context, education, training, and screening of facility employees might be principal measures, and

entry control and two-men criteria might be complementary measures.

Entry control is used mainly for preventing the carrying-in of explosives and firearms. Exit control is mainly for preventing the carrying-out of nuclear materials. All nuclear power plants in Japan request a complete clothes change to company-supplied clothes at the plant entry point under surveillance of facility guards. This procedure, which was originally introduced for preventing any possibility of radioactive contamination of the uncontrolled area outside the plant, has helped entry control for physical protection.

For screening purposes, the personal origin records and the personal certificate issued by the local governor are very helpful.

If someone decides to commit an illegal action and he is not a lunatic or deranged there is always a certain reason behind it due to moral or personal objection. The most dangerous thing is a person taking action impulsively, without knowing how serious the consequences might be. Of great concern is a case in which, if the saboteur had been well-informed of the consequences, he would not have taken action. Education and training about physical protection issues are of vital importance to preclude insider problems.

Nuclear Material In Transit

In Japan there are about 200 instances of transportation of nuclear materials to and from facilities every year. These transports are categorized into two different modes. One mode is domestic, and the other is international. Due to Japan's geographical situation, the international transportation consists of long-distances and intercontinental movement of nuclear material.

• Domestic Transportation

Conforming to physical protection guidelines, the transportation plan must be examined in detail in advance by the transporter, regulatory authority, and law enforcement authority. The detailed information on transportation must be kept confidential, but local authorities on the route of the transportation must be well informed. When special nuclear material is transported over the road, the regulatory authority and the law enforcement authority require the licensee to implement a number of security measures. Such safety measures include law enforcement response arrangements, licensee's escort vehicles backed by radio communication, and armed national police vehicles accompanying the shipment to guard the nuclear material.

• International Transportation

Insofar as international transportation is concerned, Japanese traditional circumstances, explained earlier, do not exist. International transportation may be the "Achilles Heel" of the Japanese nuclear industry. This difficult situation is dramatically reported in the story of "The Curious Voyage of the Seishin Maru", which cost 5 million dollars in order to improve security for one shipment of plutonium. Certainly, international shipment of special nuclear material is a controversial issue involving not only technical issues, but also political issues. Therefore, tackling these issues now is of vital importance. Japan is seriously committed to take all possible measures to improve the security of nuclear materials under international transportation.

TECHNOLOGY FOR PHYSICAL PROTECTION

Behind the concept of physical protection, there is always the ethical view that man's inborn nature is not always good or trustworthy. This can be seen in implementation procedures of the "Two-men

criteria" and "Screening". In general, this ethical view is difficult for the Japanese mind to accept because of the traditional Japanese ethical view that man's labor nature is good.

One important consideration in building a physical protection system is to rely upon hardware devices to the maximum extent. Important devices necessary for the physical protection system are represented by barriers, entry/exit control devices, surveillance devices, intrusion detection devices, tamper indication devices, and monitoring/communication systems. Although the depth of defense is different, most devices are not specific to physical protection but common in all security businesses for banks, airports, computers, communication systems, etc.

"Cry Wolf" Syndrome

When we rely heavily upon hardware in constructing a physical protection system, the reliability of the devices must be very high, and the false alarm rate of the sensors should be very low. Frequent false alarms may result in by-passing the respective alarm circuit or lowering the sensitivity of sensor to the degree that they are incapable of detecting any anomaly. There still remains a certain tendency to rely upon the system, even though the system does not work all the time.

In addition, rather frequent anomaly signals actuated by the system cause facility guards to impute all alarms to false alarms, thus ignoring them. This is the dangerous syndrome of the legend of "The Boy Who Cried Wolf". Therefore, the designer of the physical protection system should always keep this in mind.

Secured Automatic Remote Continual Monitoring System

In many countries, development efforts are encouraged to improve security systems. Japan has also engaged in such development efforts. Among them is the Secured Automatic Remote Continual Monitoring System developed by Japan-US cooperation.

A typical example is the TRANSEAVER System (TRANsportation by SEA VERification). The system continually monitors any changes in the status of containment and surveillance sensors safeguarding sea-going cargo, and it tracks the position of the cargo during transportation. Communications are timely and encrypted to prevent falsification or tapping by unauthorized persons.

The system is designed to meet the requirements of a very low false alarm rate. Together with this requirement, unattended automatic operations, cost performance, and easy maintenance are also important factors to be accommodated. The system is divided into three sub-systems: the Ship-board system, the INMARSAT Communication System, and the Land-based system.

The Ship-board system consists of containment/surveillance sensors attached to containers known as Physical Protection Containers. These containers carry nuclear material and a communication container in which navigation and communication devices are installed.

The INMARSAT Communication System provides voice and data communication in real-time to the worldwide telecommunication network, through the INMARSAT satellite system. The ship at sea can be linked to any shore point by international telephone.

The Land-based system can be situated at any place where a dial-up international telephone is available in order to monitor the location and status of nuclear materials during sea transportation.

The system was developed as part of a secure global remote monitoring system. The development of a new aircraft monitoring system named "ARTEMIS" is planned for the future under cooperation with the US.

Integrated Concept For Nuclear Safety, Safeguards And Security

Although their objectives are different, safety, safeguards, and security systems need common technical and administrative features. For example, effective physical containments such as a reactor building which has the safety purpose of containing radioactivity in case of an accident, in conjunction with surveillance devices, can provide an effective measure to detect the clandestine removal of nuclear materials for international safeguards. The containment also provides a tough barrier to prevent and to retard forcible entry for physical protection purposes.

Various key surveillance devices such as CCTV, intrusion sensors, tamper sensors, and real-time remote communications devices that can signal alert conditions can be common to international safeguards and domestic physical protection.

The two-men criteria, entry control procedures, and contingency planning are common to security and safety in administrative procedures.

To build an integrated hardware and administrative system for safety, security, and safeguards without duplicating the investment is a challenge. In order to accomplish this, the key is to accommodate safeguards and security measures into plant design in the beginning stage of plant design.

LESSONS LEARNED

Constructing appropriate physical protection systems in order to protect nuclear material from theft, robbery, sabotage, or seizure is imperative for users of nuclear energy. However, construction of the physical protection system will be inexpensive. We are living in a society where there are many competing demands for rather limited resources. In Japan, we have had some specific problems, and this paper will contain some lessons learned from these past experiences.

Cost Of Security

Traditionally, the Japanese have found the idea that security should cost money incomprehensible. To the Japanese, security has been like water, free of charge to all. This attitude might have been developed by the unique geographical nature and historical background of a certain chain of lucky breaks specific to Japan.

A garden-like villa on isolated islands just off the Eurasian Continent, Japan has provided its people with a fortunate environment in which hardships are few. One of the greatest advantages isolation has given the Japanese is the non-invasion of their islands. The Japanese only once faced the possibility of invasion. In the 13th century, mighty Mongolian fleets attacked Japan and attempted to invade. They failed due to lucky divine winds "deus ex machina". At that time, strong typhoons suddenly hit the fleets and almost completely destroyed them.

On the domestic dimension, the Japanese have always lived free from severe religious and racial confrontations owing to a single race, thus having the same Japanese cultural background. Japan has plenty of social pressure, but none like religious persecution. Certainly, war and strife aplenty have plagued the nation, but in comparison to the fate of other parts of the world, the bloodshed and fighting the Japanese have known amount to little more than squabbles between closely related clans. There were castles in Japan, yet these were only to protect the interests of the ruling class and not to repel a foreign invader. In other parts of the world there have been many examples that community security provided by the city walls was imperative and was to be obtained by great labor and expense. No Japanese person anywhere ever entertained the idea of surround-

ing an entire city with protective walls because he felt no need of them.

This historical and geographical background gave the Japanese the attitude that steps taken for the sake of security ought not to cost anything because any devices or measures of security are not necessary and therefore, are not worth paying for.

However, too much of a good thing is as bad as too little. Excessive security has turned the Japanese into a cloistered people who panic when faced with crises of even minor security. Taking into consideration modern internationalization covering the whole world, in general, Japan cannot continue to stay in a cloistered environment. The real challenge for Japan has been to enlighten the people on the necessity of physical protection, while the national characteristic has always made us more inclined to be domestically oriented and reactive, rather than proactive.

Civil Liberties Concerns

History tells us that every society has had illegitimate violence to some extent. If a society attempts to eliminate illegitimate violence totally, the society would raise the level of legitimate violence to a point that may jeopardize civil liberties, including freedom and privacy. In this context, Louis O. Giuffrida, director of PEMA, proposed putting our combined efforts into trying to define the maximum level of illegitimate violence we can tolerate and still remain a free society. I am convinced that his proposal is of vital importance to maintain a free society. Otherwise, humanity will be jeopardized, and a miserable controlled society is bound to arise.

A range of views has been observed as to whether increased physical protection and surveillance activities to protect nuclear materials would lead to conflicts with basic civil liberties. This is really a difficult problem. All who are involved in the physical protection business should always keep the following points in mind. Because of the extremely high consequences of the physical protection system, it may sometimes consist of procedural and technical measures which have potential conflict with civil liberties. Use of such procedures and devices may be upheld by the public only for strictly limited and proper purposes. This situation occurred when many countries ratified the NPT and voluntarily accepted the IAEA safeguards inspections. There may be a certain conflict with the sovereignty of these countries.

Now consider a bad instance related to this concern which Japan had. Generally speaking, most office rooms are so secure in Japan that a person could leave cash in the unlocked drawer of his desk. It happened in an office that cash in an unlocked drawer had been occasionally stolen. Then the owner imprudently decided to identify the thieves by a CCTV surveillance system used for physical protection. As a result, a thief was clearly identified on the video tape.

What do you think about this case? We considered this case very seriously because this case might invite damage to the public acceptance of physical protection measures. The reasons are as follows:

- Equipment or devices developed for physical protection must not be used for other purposes without public consent. If this is not guaranteed, the public will not accept sophisticated systems that might have potential conflict with civil liberties for physical protection.
- In a bank the money is stored in protected areas which minimize the temptation to steal it. Of course, there are many surveillance devices in banks, but there is also clear notification to inform

people that the bank is protected with surveillance systems.

These surveillance devices are accepted by the public.

Once damaged by a single bad example, the public acceptance would be extremely hard to re-establish. Therefore, we finally decided not to use this video for any purpose and it was destroyed.

Communication And Mutual Understanding

In democratic countries, implementing any program of great importance without public acceptance is impossible. The public would not agree to construct physical protection systems without being told why. This demands intense dialogue with the involved public on different levels. This is true, especially in dealing with physical protection issues which are primarily related to sociopolitical problems.

Physical protection is doomed to deal with an event of very low probability, but very high consequence. In other words, it has the nature of "no news is good news" that involves things intangible for people not in the field of security. Under these circumstances, differences in viewpoints and approaches to physical protection are frequently observed among different people with different professional backgrounds or positions.

In our experience, due to such diversity of view points and intangibility of problems, obtaining necessary resources and staffing for physical protection is not easy. In order to cope with this difficulty, mutual understanding, developed on the basis of dialogue, seems to be the only sound way to solve problems.

The fundamental way people think in a given community is usually related to the background particular to that community. Therefore, dialogue should be developed case by case, taking into consideration specific features of each community. Preferably, the dialogue should make use of clear examples.

To explain this principle, in Kyoto, Japan there is a rock garden. The designer is unknown, but he must have lived at least 500 years ago. The garden is seemingly very simple. All you can see is a rectangle of white sand, about 30 x 100 ft., with rocks carefully placed within it. The rocks and white sand are the same, but constantly different. In broad daylight, there is one vision and by moonlight, another. To see what there is to see is left to each visitor's insight. The garden used to provide Zen philosophers with a place for meditation. For meditation, what does the white sand mean - ocean, space, or universe? And continent or earth for rocks? It depends on your imagination.

If you place a few people on different sides of this garden and ask them to count the number of rocks in the garden, to your amazement, all the observers will come up with different answers. Some of them will have counted fourteen, some of them thirteen, and some of them even as few as twelve. Now what is right? In fact, none of them, since there are fifteen rocks in the garden. That depending on your relative position around the garden, you will observe a different number of rocks, and no one can observe fifteen rocks from any position is the result of careful arrangement by the designer.

This illustrates that several persons can take a look at the same object at the same time and yet come up with different points of view, depending on their relative position and their perception of the object. If communication is poor among them, such a situation may be serious enough to introduce suspicious consequences among them. Only elaborate communication or dialogue can develop mutual understanding (not necessarily mutual agreement) of their positions and develop further mutual cooperation to find out the right number of rocks.

Discussions of different points of view and different perceptions are very necessary; otherwise, we will miss a chance to know what the truth is. One of the major objectives of this paper is to provide a chance for good communication to develop and to promote an understanding of the Japanese culture and the Japanese approach to physical protection. That with the expression of this different view of physical protection, hopefully a spirit of mutual cooperation among different countries will be enhanced.

APPENDIX

Outline of Recommendations on Physical Protection by the Japan AEC

I. General Recommendation

1. Measures which should be taken by concerned persons for physical protection of nuclear material in use, storage, and transit according to the category recommended by IAEA.
2. Guidelines for emergency actions.
3. Promotion of research and development activities on physical protection.
4. Legislative issues.
5. International cooperation.

II. Physical Protection Requirements in Use, Storage and Transit

1. Goals

Taking into account the social circumstances in Japan, the committee recommended that the goals of physical protection measures taken by operators should be to:

- 1) Establish and maintain the appropriate communication system with the relevant security authorities in order to inform them of any threat quickly.
- 2) Take adequate measures through systems and devices to prevent or retard any offense until the security authorities can respond.

2. Physical Protection Requirements in Use and Storage should be to:

- 1) Define and designate special areas for physical protection.
- 2) Provide surveillance and custody of protected areas.
- 3) Control entry into protected areas.
- 4) Account for and control nuclear material.
- 5) Provide intrusion detection system to unauthorized entry to protected areas.
- 6) Manage appropriately all detailed information of physical protection.
- 7) Structure the responsible organization and system for physical protection.
- 8) Maintain physical protection system and devices.
- 9) Provide employees with training on physical protection.

3. Physical Protection Requirements in Transit should be to:

- 1) Plan for transit operation.
- 2) Provide for escorts charged with responsibility for security.
- 3) Arrange communication systems in transit.
- 4) Protect transport vessel.
- 5) Manage appropriately detailed information on physical protection.

III. Guidelines for Emergency Actions

1. Emergency Program of Action

Those who operate nuclear facilities and transport nuclear material should prepare the emergency program of action to counter effectively any possible threats in accordance with the phases cited in the next section after consultation with relevant authorities.

2. Phase of Emergency

- 1) Phase I: A time when those who operate nuclear facilities and transport nuclear material are not yet convinced that a threat exists, but have reason to suspect unauthorized acts may be committed.
- 2) Phase II: A time when those who operate nuclear facilities and transport nuclear material are firmly convinced a threat exists, but no nuclear material has yet been illegally removed.
- 3) Phase III: The time when any nuclear material is illegally removed.

3. Major issues incorporated in the Emergency Program of Actions

- 1) To provide a quick and effective transition plan for the executive system from the ordinary phase to the emergency phase, e.g., mobilization of responsible person.
- 2) To retard or to prevent any illegal act including sabotage by means of physical protection devices; e.g., closing protective doors, locking making transport vehicles immovable.
- 3) To grasp the situation and to communicate quickly to relevant authorities.
- 4) To protect personnel from radiological contamination.

Dr. H. Kuroi received his Ph.D. in 1962 after majoring in Applied Physics at Kyoto University, Japan. He subsequently joined the Japan Atomic Energy Research Institute, and in 1964 joined in the EBR-II project ANL, Idaho, Japan, as a resident research associate. He then rejoined the JAERI in 1964 as a Head of the Fast Reactor Physics Laboratory, the General Manager of Fast Critical Assembly and a Head of Safeguards Laboratories. Dr. Kuroi was also involved in the construction of the safeguards system at JAERI, and has participated in technology developments and international meetings for the implementation of safeguards. In September 1967 he joined the IAEA as an advisor to the development of safeguards technologies for future commercial reprocessing plants.

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APPENDIX 24

MEMORANDUM FROM AMERICAN LAW DIVISION, CONGRESSIONAL RESEARCH SERVICE TO COMMITTEE ON FOREIGN AFFAIRS: WHETHER UNDER 42 U.S.C. 2153(b) PRESIDENT MUST ALTER TERMS OF SUBMISSION OF COOPERATION AGREEMENT ON NUCLEAR ENERGY IF HOUSE AND SENATE COMMITTEES OBJECT TO INITIAL SUBMISSION, DECEMBER 30, 1987

Washington, D.C. 20540

To: House Committee on Foreign Affairs
Attention: Arch Roberts

From: American Law Division

Subject: Whether Under 42 U.S.C. 2153(b) President Must Alter Terms of Submission of Cooperation Agreement on Nuclear Energy If House and Senate Committees Object to Initial Submission

This is in partial response to your request regarding the President's submission of the "Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy." More specifically, this memo concerns whether 42 U.S.C. 2153(b) requires the President to alter the findings in the initial submission of the Agreement that it is consistent with the requirements of the Atomic Energy Act, if the pertinent House and Senate Committees disagree. If the Presidential findings need not be altered, the Agreement may be prevented from entering into force only by a joint resolution of disapproval.¹ If, on the other hand, the President must alter the findings, the Agreement will take effect only upon Congressional approval.²

The current procedure for Congressional review of proposed agreements on nuclear energy has evolved considerably from the role Congress originally reserved for itself. The Atomic Energy Act of 1954 authorized the negotiation of cooperation agreements with respect to the peaceful applications of nuclear

¹ 42 U.S.C. 2153(d).

² Id.

energy but retained restrictions on the transfer of militarily-useful information and materials. Section 123 of the Act set forth certain requirements for such agreements, required the President to approve each agreement and to certify in writing "that the performance of the proposed agreement will promote and will not constitute an unreasonable risk to the common defense and security," and provided simply that they be submitted to and lay before the Joint Committee on Atomic Energy for thirty days before taking effect.³

In 1958, however, at the request of President Eisenhower Congress broadened the potential scope of such agreements to include militarily-useful information and material. At that point Congress added to Section 123 the requirement that cooperative agreements involving the military applications of nuclear energy lay before the Congress for an additional 60 days before taking effect and be subject to disapproval by Congress by concurrent resolution.⁴

The report of the Joint Committee explained as follows:

As an additional safeguard, the Joint Committee added a new subsection 123d to require all proposed agreements for cooperation involving transfer of military information or military material to be submitted to the Congress and referred to the Joint Committee. Such proposed agreement shall not become effective if the Congress passes a concurrent resolution of disapproval within a period of 60 days. Thus, the Congress reserves to itself by this process a share in the responsibility of the dissemination of this important information and the distribution of this important material.

Subsequently, in 1974 Congress expanded the categories of cooperative agreements subject to Congressional disapproval by concurrent resolution and

³ C. 1073, Sec. 1 (Aug. 30, 1954); 68 Stat. 940.

⁴ P.L. 85-479, Secs. 3, 4 (July 2, 1958); 72 Stat. 277.

⁵ H. Rept. No. 1849, 85th Cong., 2d Session (June 5, 1968), reprinted at 1958 U.S. Code Cong. & Adm. News 2816, 2829.

required the Joint Committee to report, and the House and Senate to act upon, a concurrent resolution approving or disapproving such agreements.⁶ In 1978 in the "Nuclear Non-Proliferation Act" Congress set forth a number of non-proliferation criteria for cooperative agreements and permitted their waiver only upon a Presidential determination that their inclusion "would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security," provided that a Nuclear Nonproliferation Assessment Statement be prepared and submitted both to the President and the Congress regarding non-military cooperation agreements, substituted the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations as the committees of referral in place of the Joint Committee, and limited the applicability of the 30-day layover requirement to those agreements not subject to the 60-day disapproval period.⁷

Finally, following the Supreme Court decision in Immigration and Naturalization Service v. Chadha, 462 U.S. 919 (1983), holding a one-house legislative veto unconstitutional, Congress in 1985 required the Nuclear Nonproliferation Assessment Statement to include analysis of the consistency of the agreement with the requirements of the Atomic Energy Act (and particularly with the non-proliferation criteria), replaced the concurrent resolution of disapproval with a joint resolution of disapproval, and provided that cooperation agreements exempted by the President from any of the non-proliferation requirements contained in 42 U.S.C. 2153(a) could take effect only upon enactment of a joint resolution of approval.⁸ In addition, Congress

⁶ P.L. 93-485, Sec. 1 (Oct. 26, 1974); 88 Stat. 1460.

⁷ P.L. 95-242, title IV, Sec. 401 (Mar. 10, 1978); 92 Stat. 142.

⁸ P.L. 99-64, Tit. III, Sec. 301 (July 12, 1985); 99 Stat. 159.

added to the review procedure the pre-review section that is the focus of this memo, as follows:

the President has submitted text of the proposed agreement for cooperation together with the accompanying unclassified Nuclear Proliferation Assessment Statement, to the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of the House of Representatives, the President has consulted with such Committees for a period of not less than thirty days of continuous session...concerning the consistency of the terms of the proposed agreement with all the requirements of this chapter and the President has approved and authorized the execution of the proposed agreement for cooperation and has made a determination in writing that the performance of the proposed agreement will promote, and will not constitute an unreasonable risk to, the common defense and security.⁹

The President submitted the proposed U.S.-Japan Cooperation Agreement and the required Nuclear Proliferation Assessment Statement to the House on November 9, 1987, and to the Senate the following day.¹⁰ The President's message stated that the agreement "will promote, and will not constitute an unreasonable risk to, the common defense and security," and further asserted that the agreement "meets all applicable requirements of the Atomic Energy Act." Because of the claimed consistency of the Agreement with the Act, the President stated that he was submitting it "without exempting it from any requirement contained in section 123a of that Act" (the non-proliferation criteria) and that the submission triggered both the 30-day pre-review consultation period set forth above and, upon completion of that period, the 60-day review period during which Congress might adopt a joint resolution disapproving the agreement.¹¹

The issue, then, is whether the above provision permits the pertinent

⁹ 42 U.S.C. 2153(b) (Supp. III, 1985).

¹⁰ See 133 Cong. Rec. H 9841-42 (Nov. 9, 1987) and S 16092 (Nov. 10, 1987) (daily ed.).

¹¹ Id.

committees to disagree with the President's findings regarding consistency and to require that the Agreement be re-submitted with appropriate exemptions from the non-proliferation criteria set forth in the Act. As noted, such exemptions would subject the Agreement to a requirement of Congressional approval before it can take effect.

On its face the above provision, in itself, would not appear to confer on the pertinent committees the authority to compel the President to alter his findings regarding consistency. The language used speaks simply in terms of "consultation" between the President and the committees "concerning the consistency of the terms of the proposed agreement with all the requirements of this chapter." That language clearly mandates a process of discussion on the matter of consistency, but it does not provide that the committees must agree with the President's findings before the process can move forward. Indeed, the conference report on the legislation described the consultation process as "informal."¹²

The legislative history of the provision also suggests, however, a Congressional "expectation" that the President would withdraw and re-submit any agreement if one of the pertinent committees determined that an exemption was necessary. The conference report, for instance, stated:

...if during the 30-day prior consultation period either the House Foreign Affairs Committee or the Senate Foreign Relations Committee indicates that in its judgment the proposed agreement is outside the parameters of the nine criteria in section 123a, the Congress expects that the President will submit an exemption.¹³

And again:

¹² H. Conf. Rept. No. 99-180 (June 25, 1985), at 52, reprinted in 1985 U.S. Code Cong. & Adm. News at 108, 114.

¹³ Id.

The Congress fully expects, however, that the President will resubmit any agreement for which he has not submitted an exemption if either committee during the prior consultation period recommends that an exemption is required.¹⁴

But an "expectation" seems to fall short of a binding requirement. While it may be politic in particular circumstances for the President to meet that expectation, it does not appear to rise to the level of a legal necessity.

Moreover, it should be noted that in the 1985 legislation Congress was essentially responding to the Supreme Court decision in Chadha holding the legislative veto unconstitutional. The conference report stated, for instance, with respect to the consultation provision:

This special provision...is included here solely because a new system for nuclear cooperation agreements is being adopted so that the balance between the Congress and the President on nuclear agreements that was upset by the Chadha decision can be restored. Since the track chosen for approving such agreements depends on whether they are outside the parameters of the nine non-proliferation criteria in section 123a., the provision is intended to ensure that the committees can advise the President on that all important issue during the 30-day prior consultation period but not necessarily before that agreement is signed.¹⁵

In Chadha the Court reasoned that the legislative veto violated the presentment clause of Article I, which requires legislative action by Congress to be presented to the President for approval or veto. Such a veto, the Court said, while "a convenient shortcut," nonetheless eroded the system of checks and balances built into the Constitution. The intent of the Framers, it concluded, was that "the legislative power of the Federal Government be exercised in accord with a single, finely wrought and exhaustively considered, procedure."¹⁶ That reasoning would appear to be equally applicable to a committee veto of

¹⁴ Id.

¹⁵ Id., at 52, reprinted at 113.

¹⁶ Immigration and Naturalization Service v. Chadha, supra, at 951.

Presidential action, and further suggests that the consultation process mandated in 42 U.S.C. 2153b does not necessarily connote agreement between the President and the committees on the consistency issue.

I hope the above is responsive to your request. If we may be of additional assistance, please call on us.



David M. Ackerman
Legislative Attorney

APPENDIX 25

MEMORANDUM FROM AMERICAN LAW DIVISION, CONGRESSIONAL RESEARCH SERVICE TO COMMITTEE ON FOREIGN AFFAIRS: U.S.-JAPANESE NUCLEAR COOPERATION AGREEMENT AND ITS CONFORMANCE TO LEGAL REQUIREMENTS, FEBRUARY 5, 1988

Washington, D.C. 20540

TO : House Committee on Foreign Affairs
Attention: Arch Roberts

FROM : American Law Division

SUBJECT : U.S.-Japanese Nuclear Cooperation Agreement And Its Conformance To Legal Requirements

Reference is made to your recent inquiry requesting an analysis of the above matter. Specifically, you ask whether the cooperative agreement in question violates sections 123 and 131 of the Atomic Energy Act of 1954 (AEA), as amended by the Nuclear Non Proliferation Act of 1978 (NNPA) and other laws, 42 U.S.C. §§ 2153, 2160, because it grants the advance, 30-year, consent of the United States for Japan to transfer and to reprocess spent fuel rather than review all such activities on an individual or case by case basis.

Overview

This issue involves interpretation of the AEC/NNPA provisions concerning U.S. controls over its nuclear exports, in particular control over what is done with spent nuclear reactor fuel. While many technical descriptions of the linkage seen between civil nuclear power and nuclear weapons are available, it is of interest here to recall what the D.C. District Court had to say in 1985.

It wrote:

.... Spent fuel is nuclear reactor fuel that has been irradiated in a nuclear reactor in order to produce power through nuclear fission. For our purposes, it will suffice to recognize a nexus between the civilian nuclear power process and the risk of proliferation of nuclear explosives. While spent fuel used in a civilian fission reactor cannot be directly fashioned into a nuclear explosive, it can be reprocessed to provide weapons grade plutonium suitable for nuclear weapons manufacture. Thus, a spent fuel management policy is essential to prevent diversion of nuclear

materials in the hands of would-be weapons manufacturers.
Cranston v. Reagan, 611 F. Supp. 247, 248 (D.D.C. 1985).

In brief, while reprocessing produces plutonium for civil purposes, it also makes available plutonium in a form suitable for explosive uses if this material was to be diverted by governments or seized by terrorists.

This nexus between the civilian power process and the risk of nuclear weapons spread, or proliferation -- avoidance of which is one of two overarching principles embodied in the AEA/NNPA -- seems to argue against advance long term consent and in favor of case by case review. Manifestly, reliance on the general purpose of the law for its interpretation and application implies that statutory language and legislative history are inconclusive. While this seems to be the present situation, overriding congressional concern for avoiding proliferation and strengthening the statutory scheme to control opportunities for diversion appear incontrovertible. Whether the incontrovertibility of congressional purpose as evidenced, *inter alia*, in the statutory scheme of regulation, is sufficient to establish the Act's seeming implicit but imperfectly expressed requirement of case by case prior approval of reprocessing presents an issue which only Congress by law or the Supreme Court may answer with finality.

Assuming for the sake of argument that case by case reprocessing approvals are required by the AEA/NNPA, it is not clear how this conclusion improves the position of Congress vis-a-vis the Executive Branch in the event of a faceoff over the U.S.-Japanese Nuclear Cooperation Agreement. The law is not self-executing in the sense that an agreement at odds with statutory requirements stops the review and approval process in its tracks. See, e.g., Crockett v. Reagan, 558 F. Supp. 893, 900 (D.D.C. 1982). Unless the Executive Branch relents and acknowledges that the agreement omits a mandated requirement which

the President is authorized to exempt and agrees to resubmit the agreement for congressional approval by joint resolution, the only apparent foolproof option available to Congress is disapproval by legislative action which, in turn, raises the possibility of having to muster two-thirds to override a presidential veto. 42 U.S.C. § 2153(d). The availability of judicial review in these circumstances is problematical and one court in 1985 dismissed a suit brought by members of Congress challenging the President's authority to give advance consent in these agreements. Cranston v. Reagan, 611 F. Supp. at 254.

Legal Background

The Atomic Energy Act of 1954 had among its principal purposes the establishment of a framework for international cooperation to make available the benefits of peaceful applications of atomic energy, consistent with technological developments in the area and considerations of common defense and national security. The intent of the NNPA was to make this framework "more effective." Senate Report No. 95-467 at 2. Accordingly, the framework established by the 1954 Act, in many respects, continued unchanged under the NNPA. A prime goal of the later enactment, therefore, was to advance the cause of international cooperation for peaceful nuclear activities while simultaneously preventing proliferation mainly through more effective control over U.S. exports of nuclear materials and equipment and of nuclear technology, including post export controls. Indeed, one purpose of the NNPA was to codify the latter which until then was largely left to Executive Branch discretion.

Congressional concerns regarding the dangers of proliferation associated with peaceful nuclear activities are manifest in section 2 of the NNPA which finds and declares:

... that the proliferation of nuclear explosive devices or of the direct capability to manufacture or otherwise acquire such devices poses a grave threat to the security interests of the United States and to continued international progress toward world peace and development. Recent events emphasize the urgency of this threat and the imperative need to increase the effectiveness of international safeguards and controls on peaceful nuclear activities to prevent proliferation. Accordingly, it is the policy of the United States to --

- (a) actively pursue through international initiatives mechanism for fuel supply assurances and the establishment of more effective international controls over the transfer and use of nuclear materials and equipment and nuclear technology for peaceful purposes in order to prevent proliferation, including the establishment of common international sanctions;
- (b) take such actions as are required to confirm the reliability of the United States in meeting its commitments to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies by establishing procedures to facilitate the timely processing of requests for subsequent arrangements and export licenses;
- (c) strongly encourage nations which have not ratified the Treaty on the Non-Proliferation of Nuclear Weapons to do so at the earliest possible date; and
- (d) cooperate with foreign nations in identifying and adapting suitable technologies for energy production and, in particular, to identify alternative options to nuclear power in aiding such nations to meet their energy needs, consistent with the economic and material resources of those nations and environmental protection. 92 Stat. 120 (1978). (Emphasis added.)

Basic to cooperation with another nation or group of nations is the agreement for cooperation, an executive agreement authorized by the governing law. 42 U.S.C. § 2014(b). Simply stated, the United States must enter into such an agreement before cooperation in peaceful nuclear activities and the attendant export of nuclear materials and equipment and nuclear technology in line with such activities can take place. The agreement has to contain certain

provisions and must be entered into pursuant to a specified procedure. In the words of a participant in its negotiation: "The agreement for cooperation constitutes the umbrella agreement under which government or private nuclear cooperation may take place. It sets forth controls and safeguards and authorizes private transactions and contracts. Neither nuclear reactors nor nuclear fuel can be licensed for export from the United States unless the export is pursuant to an agreement for cooperation." Bettauer, "The Nuclear Non-Proliferation Act of 1978". 10 Law & Policy in International Business 1150, 1111 (1978).

Section 123 of the Act, 42 U.S.C. § 2153, sets out in detail the provisions which must be included in a cooperation agreement and the procedures that must be followed for its entry into force. Section 404 required the President to renegotiate existing agreements, 42 U.S.C. § 2153d(a). The Japanese agreement is among the last to be renegotiated. The required conditions of section 123 of the AEA/NNPA also apply to renegotiations. Subsections (a)(5), and (7) mandate ("shall") the inclusion of a provision for prior approval of transfers for reprocessing abroad and reprocessing of spent U.S.-supplied fuel. In the pertinent words of section 123, as amended:

No cooperation with any nation, group of nations or regional defense organization ... shall be undertaken until --

a. the proposed agreement for cooperating has been submitted to the President, which proposed agreement shall include the terms, conditions, duration, and scope of the cooperation; and shall include the following requirements:

...

(5) a guaranty by the cooperation party that any material or any Restricted Data transferred pursuant to the agreement for cooperation and ... any production or utilization facility transferred pursuant to the agreement for cooperation or any special nuclear material produced through the use of any such facility or through the use of any material transferred pursuant to the agreement, will not be

transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States.

...

(7) [with certain exceptions not relevant here] a guaranty by the cooperating party that no material transferred pursuant to the agreement for cooperation and no material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to the agreement for cooperation will be reprocessed, enriched or (in the case of plutonium, uranium 233, or uranium enriched to greater than twenty percent in the isotope 235, or other nuclear materials which have been irradiated) otherwise altered in form or content without the prior approval of the United States. (Emphasis added.)

Agreements for cooperation are negotiated by the Secretary of State "with the technical assistance and concurrence of the Secretary of Energy and in consultation with the Director of the Arms Control and Disarmament Agency" (ACDA). 42 U.S.C. § 2153(a). The President considers the recommendation of these officials and of the Nuclear Regulatory Commission, as well as an unclassified nuclear proliferation assessment statement prepared by ACDA. Id. Presidential approval of an agreement requires a written determination by the President "that the performance of the proposed agreement will promote, and will not constitute an unreasonable risk to, common defense and security." 42 U.S.C. § 2153(b). By virtue of a 1985 amendment, the President not only submits those matters to the committees of jurisdiction for review but is required to consult with such committees during a period of at least thirty days of continuous session "concerning the consistency of the terms of the proposed agreement with all the requirements of the [Act]." Id. (Emphasis added.) Congressional review procedures are specified in detail. 42 U.S.C. § 2159. In 1985, following the decision in INS V. Chadha, 462 U.S. 919 (1983), Congress substituted for the ill-fated concurrent resolution of approval or

disapproval in section 123, a joint resolution, a legislative device that follows the requirements for lawmaking, bicameralism and presentation to the President. 42 U.S.C. § 2153(d). Accordingly, if the President submits an agreement for cooperation that complies with all of the required elements of section 123, Congress can prevent its entry into force only by passage of a disapproval resolution within the following sixty days of continuous session. Conversely, if the President exercises authority granted to him by the Act to exempt an agreement from a required element, the agreement can only come into effect by passage of an affirmative or approving joint resolution. Id.

U.S. post-export controls are accomplished in large part through "subsequent arrangements" authorized by the Secretary of Energy. Section 131 of the AEA as added by section 303 of the NNPA sets forth procedures governing assessment, approvals, and review of those subsequent arrangements. 42 U.S.C. § 2160. This term refers to an arrangement entered into by any agency or department of the U.S. Government with respect to cooperation with any nation or group of nations involving: contracts for furnishing of nuclear materials and equipment; retransfer approvals under agreements for cooperation (i.e., transfer of source or special nuclear material between foreign nations either exported by the U.S. or produced through use of nuclear materials and equipment or sensitive nuclear technology exported by the U.S.); authorizations for the distribution of nuclear materials and equipment not subject to other sections of the NNPA; arrangements for physical security; arrangements for the storage or disposition of irradiated fuel elements; arrangements for the application of safeguards with respect to nuclear material and equipment; and any other arrangement which the President finds to be important from the standpoint of preventing proliferation. 42 U.S.C. § 2160(a)(2).

For present purposes, the relevant categories of subsequent arrangements are those described in 131, 42 U.S.C. § 2160(a)(2)(B) and (E), specifically, a subsequent arrangement entered into after the agreement for cooperation takes effect and which involves;

[United States] approvals for the transfer, for which prior approval is required under an agreement for cooperation, by a recipient of any source or special nuclear material, production or utilization facility, or nuclear technology

and

arrangements for storage or disposition of irradiated fuel elements.

Section 131 further provides that before any subsequent arrangement under a civil agreement can be approved, the Secretary of Energy is required to obtain the concurrence of the Secretary of State and consult with the Director of ACDA, NRC, and the Secretary of Defense. The Secretary of State "shall have the leading role" when the subsequent arrangement involves policy negotiations pertaining to the storage or disposition of irradiated fuel elements or retransfer approval. Notice of a proposed subsequent arrangement together with the determination of the Secretary of Energy that such arrangement is not inimical to the common defense and security must be published in the Federal Register fifteen days before it can take effect. However, the publication requirement is required to be delayed when the Director of ACDA declares an intent to prepare a Nuclear Proliferation Assessment Statement in which case publication must be made after the Secretary of Energy receives the Statement or after the 60 days allowed for its preparation expires, "whichever occurs first." 42 U.S.C. § 2160(a)(1). [Note, this authority has yet to be exercised].

If ACDA believes that the subsequent arrangement might significantly contribute to proliferation, it may prepare an unclassified Nuclear Proliferation Assessment Statement. 42 U.S.C. § 2160(a)(2). To date ACDA has not done so.

The United States declares that it will give timely consideration to requests for prior approval of reprocessing when the terms and conditions for such reprocessing are set forth in the applicable agreement for cooperation or an international agreement executed by the U.S. and subject to congressional review. 42 U.S.C. § 2160(a)(3).

Under section 131 some subsequent arrangements are subject to heightened scrutiny. Thus, a subsequent arrangement which involves retransfer of any special nuclear material to a third country for reprocessing, for the reprocessing of any such material, or for subsequent retransfer of plutonium in quantities greater than 500 grams resulting from the reprocessing of any such material, cannot take effect until the Secretary of Energy provides the House Foreign Affairs Committee and the Senate Foreign Relations Committee with a report of his reasons for entering into the arrangement. Moreover, fifteen days of continuous session must pass between submission of the Secretary's report and the taking effect of the arrangement. In emergencies as determined by the President, a subsequent arrangement may take effect after fifteen calendar days, rather than fifteen days of continuous session. 42 U.S.C. § 2160(b)(1).

Special approval procedures apply to subsequent arrangements involving reprocessing of U.S. controlled spent fuel. These different procedures are for (1) any subsequent arrangement for the reprocessing of any special nuclear material in a facility that has not processed power fuel assemblies or been the

subject of a subsequent arrangement; and (2) a subsequent arrangement for the retransfer to a non-nuclear-weapons state of plutonium in quantities greater than 500 grams resulting from such reprocessing. These subsequent arrangements are not permitted unless the Secretaries of Energy and of State judge that such reprocessing or retransfer will not result in a "significant increase in the risk of proliferation beyond that which exists at the time approval is requested." The factor to be given the "foremost consideration" in making this judgment is whether or not the reprocessing or retransfer will take place under conditions that will insure "timely warning" to the United States of any diversion, well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device. 42 U.S.C. § 2160(b)(2). As explained by one of the Senate architects of the NNPA, the standard of timely warning is the basic concept upon which the entire international safeguards program rests; [it] is strictly a measure of whether warning of diversion will be received far enough in advance of the time when the recipient could transform the diverted material into an explosive device to permit an adequate diplomatic response." Remarks of Senator Glenn, 124 Cong. Rec. 2511 (1977).

The Secretary of Energy is to make efforts to ensure that these same or comparable standards are met by subsequent arrangements involving reprocessing or retransfers in exempted facilities or arrangements. 42 U.S.C. § 2160(b)(3).

Note that in express terms, the NNPA "is not intended to prohibit, permanently or unconditionally, the reprocessing of spent fuel owned by a foreign nation." 42 U.S.C. § 2160(d).

The Current Controversy

In submitting the proposed U.S.-Japanese Agreement and ancillary materials to Congress the President asserted that it "meets all applicable requirements of the Atomic Energy Act." Accordingly, the President stated that he was submitting it "without exempting it from any requirement contained in section 123a of the Act." 133 Cong. Rec. H9841-9842 (daily ed. Nov. 9, 1987) and S16092 (daily ed. Nov. 10, 1987).

The President's conclusion that the proposed agreement "meets all the statutory requirements" has been challenged by some members of Congress and others who believe that advance long term consent to transfer and reprocessing spent nuclear fuel is inconsistent with section 123 of the AEA/NNPA. 42 U.S.C. § 2153(a) and (7). Fifteen members of the Senate Foreign Relations Committee, the Committee of jurisdiction, in a letter to the President dated December 17, 1987, informed him of the Committee's conclusion that the agreement was not consistent with the law and requested him either to renegotiate the U.S.-Japanese Nuclear Cooperation Agreement to retain prior approval rights with respect to transfers or reprocessing of spent fuel on a case by case basis, or to resubmit the agreement with exceptions in conformity with section 123, 42 U.S.C.

§ 2153(a), thus placing the agreement on the track that requires approval by joint resolution before it can enter into force. Subsequently 23 members of the House Foreign Affairs Committee, the other Committee of jurisdiction, signed a similar letter to the President.

As refined by the foregoing statutory background and the circumstances which bring them to the foreground, the issue is the compatibility in the Implementing Agreement's exercise in Article 1, the consent rights provisions,

on a one-time basis for the 30-year life of the U.S.-Japanese Agreement with the provisions of the AEA/MNPA.

Agreements for Cooperation

Section 123 provides that a proposed agreement "shall include" nine requirements including those relevant here. 42 U.S.C. § 2157 (a)(5) and (7). In addition to the obvious mandatory language of the section itself, the Senate Report (No. 95-467) on the legislation that became the MNPA in regards to this section speaks consistently in terms of "requirements". In its explanation of the section (401) of the 1978 legislation that proposed to amend section 123 of the 1954 Act, the report, in pertinent part, states as follows:

.... Subsection ... [a] revised the conditions which currently are required to be included in agreements for cooperation, and adds certain new ones. The requirements are as follows:

...

(5) This subparagraph requires a guaranty that any material, production or utilization facility, or Restricted Data transferred and any special nuclear material produced through such materials or such facilities will not be transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States. Current law requires a guaranty that any transferred material or Restricted Data will not be retransferred to unauthorized persons or beyond the jurisdiction of the cooperating party, except as specified in the agreement.

...

(7) Subparagraph 123(a)(7) requires a guaranty that no transferred material and no special nuclear material used in or produced through the use of any exported material or production or utilization facility will be reprocessed or --- in the case of plutonium, U-233, highly enriched uranium, or irradiated material --- otherwise altered in form or content without the prior approval of the U.S. It should be noted that although this provision does not require prior approval of further enrichment of U.S.-supplied low enriched uranium, section 402(a) of this bill does address this issue. pp. 22-23. (Emphasis added.)

Clearly the statutory language of section 123 and the congressional intent as evidenced by report language support the conclusion that the requirements

applicable to agreements for cooperation are mandatory. However, less clear is whether these concededly mandatory elements, particularly the (a)(7) requirement relative to prior approval, are satisfied by advance long term consent to or case by case consent to each and every transfer or reprocessing activity. Neither the AEA/NNPA nor the latter unequivocally resolves the matter.

Reprocessing as a Subsequent Arrangement

Also, despite the apparent comprehensiveness of section 131's treatment of subsequent arrangements, neither its language nor legislative history appear to provide a conclusive answer to the controversy over advance long term consent versus case by case approval or whether there is an invariable connection between subsequent arrangements and case by case prior consent. Indeed, an agreement for reprocessing as such is not included among the definitions of subsequent arrangement set out in paragraph (a)(2) unless approval of reprocessing is considered an arrangement for disposition. See Senate Report No. 95-467 at 10. That such arrangements are covered finds support in other parts of section 131 and in the legislative history of the NNPA. As to the former, paragraph (b), which imposes special approval procedures with respect to subsequent arrangements expressly refers to "subsequent arrangement ... for reprocessing." The various committee reports on the NNPA leave little doubt that reprocessing activities were contemplated as being encompassed by the term "subsequent arrangement". The Senate Report, a joint report issued by the Senate Committees on Governmental Affairs, on Energy and Natural Resources, and on Foreign Relations, contains the following supportive references:

.... Subsequent arrangements are extremely important, as they encompass many of the detailed arrangements for U.S. nuclear cooperation with foreign nations, including: the approval of reprocessing

Under section 303(a) the Secretary of Energy would retain the principal role in negotiating and executing subsequent arrangements, although he would be required to obtain the concurrence of the Secretary of State and consult with ACDA, Defense and the NRC. It should be noted, however, that the Secretary of State will have the lead role in negotiations of a policy nature on proposed subsequent arrangements regarding the storage or disposition of irradiated fuel elements, including reprocessing ...

Subsection 303(b) sets forth new procedures and guidelines to be followed in the consideration of subsequent arrangements involving the approval of reprocessing,

...

Subsection 303(b)(2) provides that the Secretary of Energy may not approve any subsequent arrangement for reprocessing This subsection provides that among other factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will insure timely warning ... Senate Rept. No. 95-467, 10-11 (Emphasis added.)

Similar statements appear in the report of the House Committee on International Relations on the NNPA. "Subsequent arrangements ... are arrangements required to implement an agreement for cooperation and they pertain to such activities as the retransfer and reprocessing of U.S. supplied nuclear material." House Report No. 95-587, 17. In describing its version of the paragraph (b)(1) and (b)(2), the House Committee, like its Senate counterpart, made clear that the subsequent arrangements subject to special review procedures included "any arrangement for reprocessing itself." Id. at 18.

The legislative history of the NNPA supports the conclusion, notwithstanding any equivocation of the definition of subsequent agreements in the law, that the term comprehends arrangements for reprocessing. This arguably is an aspect of an arrangement regarding disposition for purposes of fitting it within the existing statutory definitional framework. Senate Report No. 95-467 at 10. Also, these sources support the view that Energy Department

authorization of reprocessing of U.S. controlled spent fuel abroad is a subsequent arrangement under the NNPA. This conclusion not only flows from the unqualified language of the section but is strongly implied from the exemption of certain foreign facilities from the timely warning requirements of the law. Id. at 12. See remarks of Senators Glenn and McClure, 124 Cong. Rec. at 2511, 2512, respectively. The latter observed as follows:

As I understand what we have done up until now, it is that we have, in effect, grandfathered the existing reprocessing and fuel arrangements so that the ones that are in existence now are not subjected to the new tests and that the new facilities for reprocessing are not likely to come into being before November 1, 1980, whether they are in the United States, or in Japan, or in Brazil, or in Europe, wherever they may be. Because of this time lag, there will be a period of time in which we can work this out. (Emphasis added.)

If the legislative history illuminates the NNPA's subsequent arrangements section to this extent, it does not resolve the problem of their compatibility with advance long term approval of reprocessing activities. This problem, either in the context of subsequent arrangements generally or as such arrangements are subject to the standard of timely warning does not appear to have been anticipated or discussed in clear cut terms. See equivocal observation regarding the provision in paragraph (a)(3) for "timely [U.S.] consideration to request for prior approval for reprocessing Senate Report No. 95-467 at 11-12.

Case By Case Versus Advance Consent

Ambiguous textual language and inconclusive legislative history aside, other factors may inveigh against advance long term consent and militate in favor of case by case approval of reprocessing. Conspicuous in this regard is the unquestioned overarching nonproliferation principle of the AEA/NNPA and the

comprehensive regime it established to prevent diversions that have adverse implications for nonproliferation.

Transfers of spent nuclear fuel for reprocessing and reprocessing are critical insofar as opportunities for diversion are concerned. Reprocessing not only provides plutonium to fuel certain kinds of reactors, it also makes plutonium available in a form suitable for explosive purposes. See Bettauer, supra at 1150. It stands to reason that case by case approval in this connection is more in accord with the nonproliferation objective of the Act than an advance long term consent. Indeed, one of the major reasons for the existence of the subsequent arrangement device is to spell out details for U.S. approval of reprocessing as the need for reprocessing arises. These approvals, more than a one-time consent for the life of an agreement, also comport with the "timely warning" standard which is intended to assure that detailed arrangements regarding reprocessing afford the United States maximum advance warning of the transformation of diverted material into an explosive device.

The 1985 amendment to section 123, inter alia, demonstrates congressional concern that an agreement be in harmony with that section's requirements. This amendment inserted a requirement for "consultation" between the President and the committees of jurisdiction "concerning the consistency of the terms of the proposed agreement with all requirements of the chapter." 42 U.S.C. § 2153(b). This development underscores the importance that Congress attached to compliance with section 123's requirements. Note, however, that at the time they were pending congressional review, the Swedish and Norwegian agreements which also gave advance long term consent did not occasion significant controversy and litigation challenging them was dismissed. See Cranston v. Reagan, 611 F. Supp. at 248.

Generally, it may be argued that the purposes of the AEA/WNPA and the statutory scheme to effectuate those purposes are clear and pervasive enough to remedy ambiguous language and overcome gaps in legislative history. Courts, notably the Supreme Court, have employed this rationale in a number of cases. See and compare Holy Trinity Church v. U.S., 143 U.S. 457, 459 (1892); U.S. v. American Trucking Ass'n., 310 U.S. 534, 542-544 (1940); United Steel Workers v. Weber, 443 U.S. 193, 201 (1979). In the last case, the Court said that "[t]he prohibition against racial discrimination in §§ 703(a) and (d) of Title VII must ... be read against the background of the legislative history of Title VII and the historical context from which the Act arose." In United States v. Timbers Of Inwood Forest, No. 86-1602, decided January 20, 1988, the Supreme Court in a unanimous opinion expressed the idea as follows:

.... Statutory construction ... is a holistic endeavor. A provision that may seem ambiguous in isolation is often clarified by the remainder of the statutory scheme ... or because only one of the permissible meanings produces a substantive effect that is compatible with the rest of the law" Slip opinion at 4.

The threat to national security and international peace posed by the proliferation of nuclear devices seems to be an appropriate reason to look at the larger picture behind a law in order to determine its meaning.

Also, the interpretation of the AEA/WNPA suggested here seems to comport with the general understanding and consistent U.S. practice from 1954 when Congress rewrote the Atomic Energy Act to open the way for U.S. nuclear cooperation until the Norwegian and Swedish Agreements which went into effect in 1984. Why these agreements failed to provoke effective congressional opposition is unclear but that singular instance does not seem to meet court criteria for application of the principle that longstanding congressional acquiescence in administrative interpretation raises a presumption in its

favor. See, e.g., Iran Hostage case, Dames & Moore v. Regan, 453 U.S. 654, 686 (1981).

Although the foregoing considerations may seem to tilt the balance in favor of case by case prior approval of transfers of spent fuel for reprocessing and reprocessing, they are in the final analysis, considerations probative of congressional intent, but not conclusive to the point of precluding the contrary argument that if Congress had desired case by case approval it could have said so explicitly.

Congressional Options

For reasons stated at the outset and barring a significant change in the administration's stance regarding compliance by the U.S.-Japanese Agreement for Nuclear Cooperation with the AEA/NNPA requirements, it seems reasonable to conclude that nailing down a requirement for case by case approval or stopping the agreement's entry into force would require lawmaking. In this regard the problem under the Act is not unlike those under the War Powers Resolution, 50 U.S.C. § 1543, Arms Export Control Act, 22 U.S.C. § 2753, and other acts that mandate consequences stymied by presidential failure, for whatever reason, to execute the law in conformity with congressional expectations. As with presidential failure to describe the circumstance into which U.S. troops are being introduced and to determine that U.S.-provided weapons have been used for unauthorized purposes, presidential effective (but not acknowledged) exemption of a mandatory element under section 123, would require a statutory response.

Raymond J. Celada
Raymond J. Celada
Senior Specialist In
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APPENDIX 26

**REPORT FROM THE COMPTROLLER GENERAL OF THE UNITED STATES TO
SENATOR JOHN GLENN IN RESPONSE TO REQUEST CONCERNING EXEC-
UTIVE BRANCH IMPLEMENTATION OF THE NUCLEAR NON-PROLIFERA-
TION ACT OF 1978, JANUARY 28, 1988**

January 28, 1988

The Honorable John Glenn
United States Senate

Dear Senator Glenn:

This is in response to your request concerning executive branch implementation of the Nuclear Non-Proliferation Act of 1978 (Non-Proliferation Act). You asked that we focus our inquiry on two major issues.

The first issue concerns the test the executive branch must apply in evaluating (1) whether to approve a request for reprocessing of spent nuclear fuel that had originally been exported or produced through the use of any nuclear materials and equipment or sensitive nuclear technology exported from the United States; or (2) whether to approve the transfer back of the plutonium in quantities greater than 500 grams resulting from the reprocessing for use in another nuclear reactor. The Non-Proliferation Act mandates that United States authorization for such reprocessing or retransfers not result in a significant increase in the risk of proliferation of nuclear weapons. In addition, the statute requires that:

" . . . Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." (Emphasis added.)

You express concern that, contrary to the legislative history, the executive branch in its first two such approvals since enactment of the Non-Proliferation Act has based its "timely warning" analyses on certain political factors rather than a technical assessment of the capability of the recipient state to convert diverted material into a nuclear weapon before a diversion could be detected and effective diplomatic efforts taken to deter completion of a nuclear explosive device.

We have concluded that the executive branch's statement of its interpretation of the meaning and application of timely warning is a legally permissible one. Neither the statute nor its legislative history confines a timely warning analysis to a technical assessment. However, consideration of non-technical factors in a timely warning analysis cannot override the need to perform a technical assessment of the capabilities of the recipient country to transform diverted material into a nuclear explosive device.

In these two cases, we could not evaluate, on the basis of the Secretary of Energy's reports to Congress alone, whether the executive branch properly applied the required technical assessment because there was inadequate analysis of timely warning reflected in these reports. The executive branch contends that the statute does not explicitly require a separate "determination" that timely warning exists or is absent with respect to any proposed approval associated with reprocessing. In our view, however, a timely warning assessment must be made since it is the foremost factor to be considered in making the overall proliferation risk judgement. Therefore, we believe the absence of meaningful discussion of timely warning in these reports to Congress and its application to the facts of each particular situation does not comport with congressional intent on this matter.

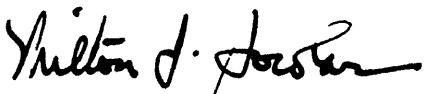
Your second concern involves the agreements for cooperation recently concluded with Sweden, Norway and Finland. The minutes for each of these agreements include advance approvals for the duration of the 30-year agreement for the transfer to designated facilities in England or France of spent fuel for reprocessing. You question whether such approvals were intended to be included in agreements for cooperation and for such long periods of time, rather than limiting them to inclusion in subsequent arrangements and only on a case-by-case basis reasonably contemporaneous with the proposed action. This would enable the Congress to review each proposed transfer and each instance of proposed reprocessing.

We have concluded that in these three agreements, the inclusion of advance, long term approvals for the transfer to designated facilities in England or France of spent fuel for reprocessing was legally permissible. The statute does not explicitly confine approvals to the subsequent arrangement process or preclude inclusion of advance, long term approvals in the agreement for cooperation between the United States and other countries. However, it is clear that agreements for cooperation were intended to provide a broad framework pursuant to which short term arrangements would be reported and carried out. While case-by-case

review of each retransfer or instance of reprocessing is not necessarily required, short term arrangements were contemplated to provide for meaningful congressional oversight and the application of uniform statutory standards. Nevertheless, although it was anticipated that approvals for reprocessing and retransfer activities would be granted under the subsequent arrangement process, we do not believe the evidence is sufficient to conclude, as a matter of law, that such approvals cannot be included in an agreement for cooperation. However, to achieve the purpose of the Non-Proliferation Act, if such approvals are included in an agreement for cooperation, the statutory requirements of both section 123 (dealing with agreements for cooperation) and Section 131 (dealing with subsequent arrangements) must be satisfied, including the timely warning evaluation and the proliferation risk determination.

Our detailed analyses are included in the enclosed legal memorandum.

Sincerely yours,



Acting Comptroller General
of the United States

Enclosure

LEGAL MEMORANDUM

B-219816

**TIMELY WARNING AND ADVANCE APPROVALS CONCERNING REPROCESSING
UNDER THE NON-PROLIFERATION ACT OF 1978**

This memorandum is in response to a request of Senator John Glenn concerning executive branch implementation of the Nuclear Non-Proliferation Act of 1978, Pub. L. No. 95-242, approved March 10, 1978, 92 Stat. 120 (Non-Proliferation Act). One of the purposes of that Act was to ensure effective controls by the United States over its exports of nuclear fuel, equipment and technology. 22 U.S.C. § 3202(d). It was hoped that, in this way, the United States could restrict the proliferation of nuclear weapons while, at the same time, confirming its reliability as a supplier of nuclear reactors and fuel for peaceful purposes to nations which adhere to effective non-proliferation policies. 22 U.S.C. § 3201.

Three legal instruments are primarily relied upon to effectuate this control. The most fundamental mechanism, which was used under the Atomic Energy Act of 1954 and continued by the Non-Proliferation Act, is the "agreement for cooperation" between the United States on the one hand and nations or international organizations on the other. It includes the "terms, conditions, duration, nature and scope of the cooperation." 42 U.S.C. § 2153(a).

However,

". . . agreements for cooperation generally are not in and of themselves commitments to supply nuclear reactors and fuel; rather they set forth the terms under which such commitments may be made." S. Rep. No. 467, 95th Cong., 1st Sess. 3 (1977).

The Non-Proliferation Act sets forth nine guaranties or requirements to be contained in agreements for cooperation. 42 U.S.C. § 2153(a).

The second form of legal instrument is a "subsequent arrangement" pursuant to an agreement for cooperation. "These subsequent arrangements are specific contracts, approvals, authorizations and other arrangements required to implement an agreement for cooperation." H.R. Rep. No. 587, 95th Cong., 1st Sess. 17 (1977). See also, 42 U.S.C. § 2160.

". . . Subsequent arrangements are extremely important, as they encompass many of the detailed arrangements for U.S. nuclear coopera-

tion with foreign nations, including: the approval of reprocessing or re-transfers, contracts for the provision of enriched uranium, physical security arrangements, detailed safeguard arrangements It should be noted that private contracts and arrangements are not 'subsequent arrangements.' S. Rep. No. 467, 95th Cong., 1st Sess. 10 (1977).

The third major element of control, but not of concern here, is the export licensing process.

Among the primary proliferation concerns are those activities associated with the reprocessing of spent nuclear fuel. Spent fuel is the waste product from the use of enriched uranium in a nuclear reactor to produce power. Its reprocessing involves chemical separation of plutonium from the components of the spent fuels. The separated plutonium can be recovered for peaceful future uses for certain other nuclear reactors. However, unlike the low-level enriched uranium used in most nuclear reactors, plutonium is fuel of weapons-useable quality. Therefore, its potential diversion for use in a nuclear explosive device is a considerable proliferation risk.

Both questions focus on whether the executive branch is properly implementing the provisions of the Non-Proliferation Act that apply to activities associated with reprocessing of spent nuclear fuel. The first issue concerns the test the executive branch must apply in evaluating: (1) whether to approve a transfer of spent nuclear fuel from the country that had originally received the fuel from the United States to some third country for purposes of reprocessing; or (2) whether to approve the transfer back of the plutonium resulting from the processing.

The same test is applicable for both and is set forth in the section of the Non-Proliferation Act dealing with subsequent arrangements. 42 U.S.C. § 2160. Aside from the determination that the arrangement will not be inimical to the common defense and security, the Non-Proliferation Act mandates that United States authorization for such reprocessing or retransfers not result in a significant increase in the risk of proliferation of nuclear weapons. In addition, the statute requires that:

". . . Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the

time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." (Emphasis added.) 42 U.S.C. § 2160(b)(2).

Senator Glenn expressed concern about two approvals of transfers associated with reprocessing, the first such cases since the passage of the Non-Proliferation Act; namely, to Japan in the one case and to Switzerland in the other. It has been claimed that, contrary to the legislative history, the executive branch had based its "timely warning" analyses on a combination of political factors rather than a technical assessment of the capability of the recipient state to convert diverted material into a nuclear weapon before a diversion could be detected and effective diplomatic efforts taken to deter completion of a nuclear explosive device.

The second issue involves the agreements for cooperation recently concluded with Sweden, Norway, and Finland. The minutes for each of these agreements include advance approvals for the duration of the 30-year agreements for the transfer to designated facilities in England or France of spent fuel for reprocessing. Senator Glenn questions whether such approvals were intended to be included in agreements for cooperation and for such long periods of time, rather than limiting them to inclusion in subsequent arrangements and only on a case-by-case basis reasonably contemporaneous with the proposed action. This would enable the Congress to review each proposed transfer and each instance of proposed reprocessing.

In the course of our consideration of Senator Glenn's request, we requested the views of the Departments of State, Energy, and Defense, the Arms Control and Disarmament Agency and the Nuclear Regulatory Commission. In addition, we carefully considered the thorough analysis of timely warning prepared by Dr. Leonard Weiss, who was then Minority Staff Director, Subcommittee on Energy, Nuclear Proliferation, and Government Processes, Senate Committee on Governmental Affairs (Weiss Analysis). Our detailed analyses follow.

I. TIMELY WARNING

Facts

The Administration, through the mechanism of subsequent arrangements, approved two retransfers associated with reprocessing that are of concern. The first was an approval in August 1985 of a request made by Switzerland. In the past, the Swiss, with United States approval, had spent fuel that had originally been obtained from the United States

reprocessed in France. The recent approval was for the resulting plutonium to be retransferred from France to Germany for further fabrication and subsequently to Switzerland for experimental use in a power reactor.

The second instance was approval of a request made by Japan to retransfer plutonium resulting from the French reprocessing of Japanese spent fuel from France to Japan. The fuel had originated in the United States, and the United States had previously authorized Japan to have it reprocessed in France. The plutonium recently approved for retransfer to Japan would be used in an experimental fast breeder reactor. Switzerland, Germany and Japan are, of course, non-nuclear-weapon states, and France is a nuclear-weapon state.

Law

Under subsection 131(b)(2) of the Atomic Energy Act, added by the Non-Proliferation Act, 42 U.S.C. § 2160(b)(2), the Secretary of Energy may not enter into any subsequent arrangement for, among other things, retransfer to a non-nuclear-weapon state of any plutonium resulting from reprocessing in quantities greater than 500 grams, unless in his judgment and that of the Secretary of State, such retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested.

"Among all the factors in making this judgment, foremost consideration will be given to whether or not the . . . retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device."

In addition, the Secretary of Energy must provide the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations with a report containing his reasons for entering into such arrangement.^{1/} 42 U.S.C. § 2160(b)(1).

1/ Among other statutory requirements, prior to entering into any proposed subsequent arrangement (1) the Secretary of Energy must obtain the concurrence of the Secretary of State, after consultation with the Director of the Arms Control and Disarmament Agency, the Nuclear Regulatory Commission, and the Secretary of Defense; and (2) the Secretary of Energy must publish in the Federal Register a

(continued...)

B-219816

Energy's Reports on the Retransfers

The Secretary of Energy submitted reports to the cognizant congressional committee on both the Swiss and Japanese retransfer requests. The structure and contents of these reports, in part, precipitated the question of whether the statutory requirements were being satisfied. In particular, the Secretary of Energy stated in similar language in both reports that:

" . . . Together with the Department of State, we have concluded that, taking into account the non-proliferation credentials of the countries involved . . . and the fact that the material may not be used or retransferred . . . without explicit U.S. consent, this approval will not result in a significant increase in the risk of proliferation."

Thereafter, in virtually identical language in both reports, the Secretary stated the following regarding timely warning:

". . . Timely warning is the foremost factor to be taken into account in determining whether subsequent arrangements for reprocessing, retransfer of spent fuel for reprocessing, or retransfer of resulting separated plutonium in excess of 500 grams would result in a significant increase in the risk of proliferation beyond that which existed at the time that approval was requested. "Timely warning", as defined in the [Non-Proliferation Act], is not an IAEA [International Atomic Energy Agency] concept. Although international safeguards are but one means of providing such warning, we believe that effective IAEA safeguards are being applied at the facilities where the plutonium is to be located." 2/

1/(...continued)

written determination that such arrangement will not be inimical to the common defense and security. 42 U.S.C. § 2160(a)(1).

2/ An international safeguard system is maintained by the IAEA. Under this system, records are kept of all nuclear material going into and coming out of civilian power reactors throughout much of the world, and verified by international inspectors.

Additional factors considered by Energy in its overall proliferation risk determination in both reports included the closeness and importance of the relationship of the countries involved to the United States, membership of the transferee countries in the IAEA, and physical security arrangements associated with the retransfers.

Concerns

Although the Nuclear Regulatory Commission concurred that these two approvals would not result in a significant increase of the risk of proliferation, it disagreed with Energy on whether non-technical factors are to be considered in connection with reaching any conclusions on the existence of timely warning. In the Commission's view, Congress intended timely warning to be essentially a technical matter involving such factors as safeguard measures applied to the material and the technical ease of incorporating the material into a nuclear explosive device. Other non-technical factors were to be considered relevant only in connection with making the overall statutory finding of no significant risk of proliferation.

Senator Glenn asserts that it is a misinterpretation of the intent of Congress for the executive branch to find in these two plutonium retransfer cases--

"that the timely warning test was met . . . through a combination of certain political factors which appear to have nothing whatever to do with the technical capability of the recipient state to convert diverted material into a nuclear weapon."

In addition, the Weiss Analysis concludes that the executive branch's determinations as reflected in the reports to Congress were counter to congressional intent, because there was inadequate explanation of how the determination of "timely warning" was arrived at, no showing of how "foremost consideration" was given to it and the reports suggested that extraneous political factors were the main component in the determinations.

Therefore, the issues for resolution regarding timely warning, as thus presented, are: (1) the legality of considering political factors in analyzing whether timely warning exists; and (2) whether a complete timely warning analysis should be included in Energy's reports to cognizant congressional committees when subsequent arrangements are entered into granting approvals associated with reprocessing.

Analytical Basis for Timely Warning

We have carefully reviewed the statute and its legislative history, as well as other supporting materials provided us by interested parties. On reading the latter materials, it was evident that the interested parties use a specificity of terminology in expressing their positions not always evident in the statute and its legislative history, although not necessarily inconsistent with it. These refinements were understandably developed subsequent to enactment, in association with the implementation of the statute. Some familiarity with this terminology will clarify the differences in the positions, as well as facilitate narrowing the issue for resolution and application of the legislative history.

The Weiss Analysis sets forth four time intervals relevant to the concept of timely warning. These are:

Detection Time: The time between diversion of material and either the later detection of the diversion by the safeguards system or the earlier prediction of diversion through intelligence information.

Conversion Time: The time needed by country "X" to convert diverted material into an explosive device.

Warning Time: The interval between the time when the United States learns a diversion has occurred or may occur and the time at which country "X" is capable of producing a nuclear explosive device following the aforementioned diversion of material.

Reaction Time: The amount of time needed to fashion an appropriate and effective diplomatic response to prevent diverted material from being converted by country "X" into an explosive device.

Applying these after-the-fact definitions, the Weiss Analysis concludes that warning time equals conversion time minus detection time. In addition, according to the Weiss Analysis, "The U.S. has received 'timely warning' of a diversion by country 'X' when warning time is greater than reaction time." Thus the conclusion of whether a warning is timely is the result of the comparison of two time intervals; namely, reaction time and warning time.

All parties are in agreement that reaction time involves consideration of political factors, and this is in accord with the legislative history. Accordingly, every evaluation of timely warning involves political factors impacting on the anticipated reaction time needed to fashion an

appropriate and effective diplomatic response against country "X" to try to prevent country "X" from developing a nuclear explosive.

As indicated above, the Weiss Analysis considers warning time to be the difference between conversion time and detection time. Conversion time is related to such things as the amount, type, form and location of the diverted material; the facilities available to convert the material to weapon-usable form and to assemble a nuclear explosive device; and the availability of personnel and other scientific and technical resources to design, test and manufacture the components of a nuclear explosive device. All parties are also in agreement that calculation of conversion time requires a technical assessment, and no political factors should be involved.

Therefore, the matter in dispute can be more narrowly stated as whether political factors should be considered in determining "detection time" rather than the legality of considering political factors in computing warning time. In fact, this seems to be the crux of the controversy.

In the bill that first passed the House of Representatives (H.R. Rep. No. 8638, 95th Cong.), the language of the pertinent provision was somewhat different from that which was ultimately enacted in the Non-Proliferation Act. The language did not include provision for a proliferation risk determination. In addition, the House bill prohibited subsequent arrangements for the reprocessing and retransfer of United States supplied material unless it could be certified that:

" . . . such reprocessing or retransfer will take place under conditions that are designed to ensure reliable detection of any diversion and which would provide timely warning to the United States of such diversion well in advance of the time at which the non-nuclear-weapons state could transform diverted material into a nuclear explosive device." (Emphasis added.)

This language presupposes that a diversion has occurred. Thus it was stated that "Reliable detection refers . . . to the act of determining that material has been diverted . . ." H.R. Rep. No. 587, 95th Cong., 1st Sess. 18 (1977). This detection would be accomplished by safeguards, an essentially technical monitoring system. See id. at 20. The time interval measured for detection time would be that from the time of diversion until the diversion is detected by safeguards.

Thus this portion of the process, as stated in the House report, was essentially a technical assessment.

"It is impossible to specify with absolute precision how long the interval of warning time . . . would have to be in order to satisfy the standard set forth in this section. Upon completion of the International Nuclear Fuel Cycle Evaluation,[3/] it should be possible to know which of a number of alternatives to conventional reprocessing would most optimally fulfill the timely warning requirement and to know as well the amount of warning time such alternative could provide. At a minimum, however, it is clear that the existing conventional reprocessing technologies, that is, those that result in the production of weapon-usable plutonium fail to meet the committee's prescribed standard: for, as has been frequently explained, one could not confidently expect warning times of more than a few days or weeks with such technologies. Until such time, then, as this act may be amended on the basis of the findings of the International Fuel Cycle Evaluation, the committee expects the Administrator [now Secretary of Energy] to assure that warning times would exist which are at least roughly equivalent to those that can be obtained when spent low enriched reactor fuel is placed under verified storage in countries not possessing a reprocessing capability."

(Emphasis added.) H.R. Rep. No. 587, 95th Cong., 1st Sess. 19 (1977). See also id. at 20.

The executive branch at the time had serious difficulties with the above language of the House bill, which was also the language of the Senate bill, as reported from the Senate Committee on Governmental Affairs. Among these concerns were:

". . . First, it would jeopardize negotiation of new, strict nuclear cooperation agreements since an overly strict interpretation of the 'timely warning' standard could rule out all forms of fuel processing necessary

3/ The International Nuclear Fuel Cycle Evaluation (INFCE) was a technical and analytical study of the nuclear fuel system established in October 1977. It was the United States objective that through the INFCE study our allies would be convinced to refrain from reprocessing. However, the INFCE study, completed in February 1980, concluded that reprocessing is an essential preliminary to many fuel cycles and that reprocessing and recycling do not create a greater proliferation risk than other fuel cycles. See INFCE Final Report of Working Group 3, IAEA, February 1980.

for future fuel cycle activities. Second, 'timely warning' should not be the sole basis for making determinations concerning the acceptability of subsequent arrangements, taking into account the existence of other factors which must be evaluated. Additional factors of importance include the non-proliferation policies of the countries concerned, and the size and scope of the activities involved. Thirdly, as presently written in S.897, . . . section 303(b) would give the impression that the U.S. is prejudging the results of the international fuel cycle evaluation by apparently ruling out any form of fuel processing. We should not legislate policies giving such an impression since the serious participation of other countries in this program is dependent upon their perception that the study will result in a fair and open minded evaluation. . . ." S. Rep. No. 467, 95th Cong., 1st Sess. 47 (1977).

In order to ameliorate these concerns, discussions were held by the executive branch with, among others, the leadership of the House Committee on International Relations and members of the Subcommittee on Arms Control, Oceans, and International Environment, Senate Committee on Foreign Relations, to which the bill had also been referred. These discussions resulted in a number of changes which affect the issue at hand. We discuss them here not necessarily in the chronological order in which they occurred but with regard to their relevance and importance to this analysis.

First, the following language was added to the "subsequent arrangements" section of the bill to assert clearly that the United States was not opposed to reprocessing of spent fuel:

"Nothing in this section is intended to prohibit, permanently or unconditionally, the reprocessing of spent fuel owned by a foreign nation which fuel has been supplied by the United States, to preclude the United States from full participation in the International Nuclear Fuel Cycle Evaluation provided for in section 3224 of title 22; to in any way limit the presentation or consideration in that evaluation of any nuclear fuel cycle by the United States or any other participation; nor to prejudice open and objective consideration of the results of the evaluation." 42 U.S.C. § 2160(d).

Secondly, in order to fulfill this policy, some change was necessary in the language of the bill, quoted previously, dealing with "reliable detection of any diversion" and "timely warning." Under this language, as we previously noted, the House committee had stated, "Conventional

reprocessing technologies result in direct access to weapons usable material and therefore do not permit timely warning. . . ." H.R. Rep. No. 587, 95th Cong., 1st Sess. 20 (1977). Consequently, the executive branch would have been prohibited from entering into subsequent arrangements associated with conventional reprocessing. Therefore, some flexibility had to be introduced so that reprocessing would not be foreclosed.

One major change that was made to the language of the bill, and ultimately the statute that was enacted, was to expand the standard on which decisions to enter into subsequent arrangements associated with reprocessing were to be based. Rather than being limited to "reliable detection of any diversion" and "timely warning," the bill was changed to require the Secretaries of Energy and State to make a determination that

". . . such reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested." 42 U.S.C. § 2160(b)(2).

Among all the factors in making this judgment, foremost consideration would be given to "timely warning." Id. However, "other factors" might also be considered to overcome a negative timely warning finding and thereby still permit the subsequent arrangement.

The Senate committee report stated:

"Other factors which may be taken into account in determining whether there will be significant increase in the risk of proliferation are whether the nation is firmly committed to effective non-proliferation policies and is genuinely willing to accept conditions which would minimize the risk of proliferation, whether the nation has a security agreement or other important foreign policy relationship with the U.S., the nature and stability of the recipient's government, its military and security position, and the energy resources available to that nation.

"It is important to note that the bill requires that 'foremost' consideration be given to the question of timely warning. While this implies that the latter will receive the greatest weight among all factors, there may be circumstances that will suffice and a request may be granted even though timely warning is not present. 'Timely warning' cannot be controlling in every case. The Committees do wish to emphasize that

in the absence of a clear determination that timely warning will indeed be provided, a strong combination of other factors is necessary to compensate for this weakness in safeguards." S. Rep. No. 467, 95th Cong., 1st Sess. 12 (1977).

Another major change that was made to the language of the bill, and ultimately the statute that was enacted, was to delete the phrase "reliable detection of any diversion" altogether. We could find no discussion in the legislative history of the reason for the deletion. However, it is very significant to the question of how detection time is to be measured.

As noted previously, the earlier language about "reliable detection" expected the agency to assume that a diversion had occurred in evaluating whether timely warning exists; that is, it appeared to require that a worst-case scenario be used in the analysis. This is reflected in the House committee report:

"In applying the timely warning standard, the committee expects the Administrator [now Secretary of Energy] to assume that the party in question could already have done work in nuclear weapons research, design, and fabrication, so that the sole remaining need would be that of the weapons usable material itself. The committee also expects the Administrator to assure that the standard would apply in the instance of each of a number of credible possibilities, that is, with respect to the threat of terrorist diversion, to clandestine diversion by nations, and to outright national abrogation of agreements with subsequent appropriation of the facilities and materials in question. . . ." H.R. Rep. No. 587, 95th Cong., 1st Sess. 19 (1977).

Under this worst-case scenario, as indicated previously, detection time would be that time interval measured from the time of diversion until the diversion is detected by safeguards.

It appears that the worst-case concept; that is, that the United States would not suspect in advance that a diversion might occur, but would learn about it only after the fact, when the safeguards system had detected it, was recognized by the Congress as too stringent a concept as reflected in the following portion of the Senate report:

". . . the standard of timely warning . . . is strictly a measure of whether warning of a

diversion will be received far enough in advance of the time when the recipient could transform the diverted material into an explosive device to permit an adequate diplomatic response." (Emphasis added.) S. Rep. No. 467, 95th Cong., 1st Sess. 11 (1977).

In addition, the Senate report contained a letter from Mr. Douglas J. Bennett, Jr., Assistant Secretary of State for Congressional Relations, to Senator John Sparkman, Chairman of the Senate Foreign Relations Committee, which states, in part:

"Agreement has been reached on suitable language . . . related to the 'timely warning' standard to govern U.S. approval of reprocessing with the leadership of the House Committee on International Relations. This language is acceptable to the Administration. While setting forth strict standards, it recognizes that other foreign policy and non-proliferation factors must be considered. It should also be recognized that warning time associated with alternative reprocessing technology is difficult to quantify but does represent a continuum, progressing from a minimum time associated with processes that involve separated plutonium to longer times for processes that involve uranium and most of the fusion products present in irradiated spent fuel. Timely warning is a function of a number of factors, including the inherent risk of proliferation in the country concerned, the amount of warning time provided, and the degree of improvement in warning time that alternative reprocessing technology provides relative to other technologies." (Emphasis added.) Id. at 60.

Relying, in part, on these congressional changes and their own interpretation of the Non-Proliferation Act, the Departments of Energy and State and the Arms Control and Disarmament Agency in some cases would have a different standard of measurement for detection time than the time interval from the time of diversion until the diversion is detected by safeguards. Our understanding of their position is that for some non-nuclear-weapon states, particularly those without "an inherent risk of proliferation," the United States would have warning of a possible diversion in advance of the time that the diversion actually takes place through United States intelligence capability of various sorts, and could then take into consideration political factors, among others. Accordingly, for these instances, detection time would be measured from the time the United States obtained knowledge of an expected diversion to the time the diversion occurs.

Taking all of these factors into account, we do not believe it is contrary to the Non-Proliferation Act or its legislative intent if non-technical factors are considered in evaluating detection time, to the extent they contribute to intelligence information that would enable the executive branch to become aware of plans for a possible diversion of nuclear materials prior to the diversion occurring.

We conclude that the following statement of the executive branch's interpretation of the meaning and application of non-technical factors in a timely warning analysis is a legally permissible one:

"Neither the legislative history of the NNPA [Non-Proliferation Act] nor the language of the Act itself specifies that consideration of timely warning is limited to technical factors only. Political factors may be taken into account in considering warning time, but only where such factors in the particular situation increase or decrease the interval between the time the U.S. receives indications that a diversion has occurred or is intended and the time the material could be assembled into a nuclear explosive device. The timely warning issue in appropriate circumstances includes technical as well as other factors, including political factors. Moreover, the timeliness of warning of diversion clearly involves a number of non-technical judgments, including judgments about the diplomatic relationships and influence that the U.S. has with respect to the country in question."

Nevertheless, although we agree that non-technical factors may be considered in a timely warning analysis, those factors cannot be used to avoid performing the technical assessment of the capability and proficiency of a recipient country to convert diverted material into a nuclear explosive device. This technical assessment of conversion time is crucial to the timely warning determination. Timely warning is present only if the United States could effectively respond to a diversion before a recipient country could successfully convert diverted material into a nuclear explosive device. As previously stated, conversion time includes consideration of such things as the amount, type, form and location of the diverted material; the facilities available to convert the material to weapon usable form and to assemble a nuclear explosive device, and the availability of personnel and other scientific and technical resources to design, test and manufacture the components of a nuclear explosive device.

Inadequate Analysis in Secretary of Energy's Reports

The Secretary of Energy's reports to the Congress on these plutonium retransfers did not indicate whether the technical assessments associated with calculating conversion time were made. It was these omissions that were at the heart of the concerns raised here.

Energy's reports on these plutonium retransfers state that timely warning is the foremost factor to be taken into account, and that it is not an International Atomic Energy Agency concept. The only statement relating the concept of timely warning to the particular retransfers involved is that "we believe that effective IAEA safeguards are being applied at the facilities where the plutonium is to be located."

However essential effective safeguards at the site are, one cannot determine on the basis of effective safeguards alone whether timely warning would exist. Although the existence of effective safeguards is very important, it is but one factor to be taken into account in any conscientious evaluation of the existence of timely warning. No other evidence of analysis of timely warning is apparent in Energy's two reports. There is no indication that the necessary and important technical assessments were made. To the extent we know Energy's position on the matter, it was the result of independent correspondence with executive branch agencies.^{4/}

The Administration does not dispute this nor does it claim that the reports on these two plutonium retransfers provided an analysis of timely warning. Rather, the Departments of State and Energy and the Arms Control and Disarmament Agency emphasized in their composite letter to us that the Non-Proliferation Act does not require a separate "determination" regarding timely warning. Therefore, implicitly the Secretary of Energy's report to the cognizant congressional

4/ According to the consolidated response we received from the Departments of Energy and State and the Arms Control and Disarmament Agency, the factors considered in the timely warning analysis of both Swiss and Japanese requests included the nature and extent of Swiss nuclear facilities and capabilities; the application of IAEA safeguards; and the extent of Switzerland's non-proliferation commitments and policies as well as Switzerland's stable, democratic system. In the case of Japan the factors considered included all of the above, plus Japan's status as a reliable United States ally.

committees need not include a separate analysis of timely warning.

Although the statute does not specifically require a separate "determination" that timely warning exists or is absent with respect to any proposed approval associated with reprocessing, in our view the timely warning assessment must be made since it is the foremost factor to be considered in making the overall proliferation risk judgment. Further, we believe the legislative history reflects a congressional intent that the reports to the cognizant congressional committees, required by the statute, include a meaningful discussion and application of the timely warning standard to the facts involved in any particular case.

Subsection 131(b)(1) of the Atomic Energy Act of 1954, as added by the Non-Proliferation Act, 42 U.S.C. § 2160(b)(1), requires that the mandated reports to the cognizant congressional committees contain the Secretary of Energy's reasons for entering into a subsequent arrangement with another country associated with reprocessing. The congressional committee reports do not state what is to be included in these reports. See, H.R. Rep. No. 587, 95th Cong., 1st Sess. 18 (1977) and S. Rep. No. 467, 95th Cong., 1st Sess. 11 (1977). However, the statute requires that "foremost consideration" be given to timely warning in making the proliferation risk determination. Therefore, it is apparent that Congress contemplated that there would be meaningful discussion and application of the timely warning standard in the reports to Congress.

It is clear from the legislative history that Congress recognized the importance of the Secretary of Energy's reports. As originally proposed, Congress was to be provided with 15 calendar days to review the reports. However, the bill was amended on the floor to provide Congress with 15 legislative days.

In explaining the purpose of the proposed amendment, Senator Glenn, who was the Senate floor manager of the bill stated:

"Mr. President, there is no part of this bill that is of more significance for the prevention of nuclear proliferation than the elevation of the 'timely warning' standard to statutory force.

• • • •

"Indeed the inherently sensitive nature of any subsequent arrangement for reprocessing or for the subsequent retransfer of plutonium in quantities

greater than 500 grams makes it imperative that the Congress be given a sufficient amount of time to react to the Secretary of Energy's report as provided for in subsection 303(b)(1), a report which is designed to lay out the Secretary's reasons for entering into such subsequent arrangements, including his application of the timely warning standard. (Emphasis added.)

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"The proposed amendment simply changes the time involved to 15 days during which the Congress is in continuous session as defined in section 130(g) of the 1954 act. The amendment insures, Mr. President, that if the appropriate committees wish to react or to take any substantive action based upon the Secretary's report, they will have sufficient opportunity to do so." 124 Cong. Rec. 2511 (1978).

Senator James McClure concurred with Senator Glenn when he stated:

". . . I think that, . . . the 15-day provision referring to legislative days, does strengthen the congressional oversight, the congressional opportunity, which is, I think, fundamental to this legislation." (Emphasis added.)

The legislative history on the House side similarly reflects the significance accorded timely warning. See, e.g., Statement of Chairman Clement Zablocki of the House Committee on International Relations, 124 Cong. Rec. 2975 (1978) Statement of Congressman Robert Lagomarsino, minority member of the House Committee on International Relations, 123 Cong. Rec. 30297 (1977). See also, H.R. Rep. No. 587, 95th Cong., 1st Sess. 2 and 4 (1977).

Thus, we believe that Congress intended and contemplated that the Secretary of Energy, in his reports to the cognizant congressional committees, would include a sufficiently meaningful discussion and application of the timely warning standard to the facts involved in any particular reprocessing or retransfer arrangement. This would include a full account of the technical factors considered to enable the Congress to evaluate whether the standards set forth in the Non-Proliferation Act have been met. See 123 Cong. Rec. 30294 (1977). To fail to do so does not adequately recognize the degree of importance that the statute attached to timely warning or allow Congress to perform its oversight function.

Consequently, we believe that the absence of a meaningful discussion of timely warning and in particular the lack of any technical assessment in the reports to Congress on the Japanese and Swiss plutonium retransfers did not comport with congressional intent. We note, in this regard, that the Secretary of Energy has provided a more complete analysis in his report on the more recent subsequent arrangement dealing with reprocessing of special nuclear material of the United States origin at the Tokai-Mura facility in Japan.

II. ADVANCE APPROVALS CONCERNING REPROCESSING

Facts

The second concern involves the agreements for cooperation concluded with Sweden, Norway and Finland. The texts of the first two agreements were transmitted by the President to Congress on January 26, 1984, and the agreement with Finland was transmitted on May 21, 1985. See, respectively, H.R. Doc. No. 163, 98th Cong., 2d Sess. (1984); H.R. Doc. No. 164, 98th Cong., 2d Sess. (1984); and H.R. Doc. No. 71, 99th Cong., 1st Sess. (1985). Each of the three agreements for cooperation were for a term of 30 years. Each agreement also provided, in substance, that

"Each party guarantees that material . . . shall not be transferred to unauthorized persons or, unless the parties agree, beyond its territorial jurisdiction," and

"Each party guarantees that source or special nuclear material transferred . . . shall be reprocessed only if the parties agree." See, e.g., Articles 7.2 and 8.1, respectively, of H.R. Doc. No. 163, 98th Cong., 2d Sess. 15 (1984).

What has proven to be controversial was that advance approval of the United States for the cooperating country to retransfer material and to reprocess spent nuclear fuel was contained in an Agreed Minute to the agreement for cooperation itself in all three instances. These approvals could last for the full 30-year term of the agreements. The relevant language of the Swedish Agreed Minute, which is typical of the others, states:

". . . the parties agree that material . . . may be transferred by Sweden to the United Kingdom or France and reprocessed at the Sellafield or La Hague reprocessing facilities, subject to the following conditions:

"(1) Sweden shall keep records of such transfers and shall upon shipment notify the United States of each transfer;

"(2) prior to such transfers, Sweden shall confirm to the United States that, while outside of Swedish jurisdiction, the material will be subject to the agreement for cooperation between the United States and EURATOM [European Atomic Energy Community];

"(3) Sweden shall retain the right to consent to any transfer or further use of any plutonium separated as a result of any such transfer and shall obtain the prior agreement of the United States for the transfer of the plutonium to Sweden or any other country or for any use of the plutonium.

"With regard to the understanding in paragraph (2) above, the parties will cooperate in efforts to obtain such confirmation on a generic basis from EURATOM.

"The foregoing understandings concerning fuel disposition may be terminated in whole or in part, if either party considers that exceptional circumstances of concern from a non-proliferation or security standpoint so require. . . . Such circumstances include, but are not limited to, a determination by either party that the foregoing understandings cannot be continued without a significant increase of the risk of proliferation or without jeopardizing its national security."

H.R. Doc. No. 163, 98th Cong., 2d Sess. 36 and 37 (1984).

The Agreed Minutes associated with each of the three countries involved explicitly provide that the Agreed Minutes shall be an integral part of the agreement for cooperation. H.R. Doc. No. 163, 98th Cong., 2d Sess. 27 (1984); H.R. Doc. No. 164, 98th Cong., 2d Sess. 32 (1984); and H.R. Doc. No. 71, 99th Cong., 1st Sess. 22 (1985).

It has been argued that such advance, blanket approvals to retransfer or reprocess spent fuel were not intended to be included in agreements for cooperation and for such long periods of time. Rather, United States approval was only contemplated to be given in subsequent arrangements and only on a case-by-case basis reasonably contemporaneous with the proposed action, which would enable the Congress to

individually review each proposed transfer and each instance of proposed reprocessing.^{5/}

Law

As noted previously, under the Atomic Energy Act of 1954 and continued by the Non-Proliferation Act, the agreement for cooperation is the most fundamental legal mechanism by which nuclear cooperation is regulated between the United States on the one hand and nations or international organizations on the other. It includes the general "terms, conditions, duration, nature and scope of the cooperation." 42 U.S.C. § 2153(a). On the other hand, subsequent arrangements are specific contracts, approvals, authorizations and other arrangements required to implement an agreement for cooperation. See 42 U.S.C. § 2160; H.R. Rep. No. 587, 95th Cong., 1st Sess. 17 (1977); and S. Rep. No. 467, 95th Cong., 1st Sess. 10 (1977).

The Atomic Energy Act, as amended by the Non-Proliferation Act, treats agreements for cooperation and subsequent arrangements in separate sections. Section 123 of the Atomic Energy Act, as amended, 42 U.S.C. § 2153, addresses agreements for cooperation, while section 131 of the Atomic Energy Act, as amended, 42 U.S.C. § 2160, regulates subsequent arrangements. The substantive requirements and procedures for the two also differ.

Subsection 123(a) prescribes nine requirements that must^{6/} be included in agreements for cooperation. Among these are:

5/ Senator Alan Cranston, Congressman Howard Wolpe, Congressman Michael Barnes and six public interest organizations had filed suit in U.S. Federal District Court contesting the authority of the Administration to approve in advance retransfer or reprocessing of spent fuel, but their lawsuit was dismissed on the basis of non-justiciability. Cranston v. Reagan, 611 F. Supp. 247 (D.C.D.C. 1985).

6/ The President may exempt a proposed agreement for cooperation from any of the requirements if he determines that inclusion of any such requirement would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security. 42 U.S.C. § 2153(a). However, any such proposed agreement for cooperation shall not become effective unless the Congress adopts, and there is enacted, a joint resolution stating that the Congress favors the agreement. 42 U.S.C. § 2153(d).

(1) a guaranty by the cooperating party that any material transferred pursuant to the agreement for cooperation will not be transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States, and (2) a guaranty by the cooperating party that no material transferred pursuant to the agreement for cooperation will be reprocessed without the prior approval of the United States. 42 U.S.C. § 2153(a)(5) and (7).

Proposed agreements for cooperation are to be negotiated by the Secretary of State, with the technical assistance and concurrence of the Secretary of Energy, and in consultation with the Director of the Arms Control and Disarmament Agency. After subsequent consultation with the Nuclear Regulatory Commission (NRC), the proposed agreement is to be submitted to the President jointly by the Secretary of State and the Secretary of Energy, accompanied by the views and recommendations of the Secretary of State, the Secretary of Energy, the NRC and the Arms Control and Disarmament Agency. The Arms Control and Disarmament Agency must also provide the President an unclassified Nuclear Proliferation Assessment Statement (NPAS).

If the President wants to pursue the proposed agreement for cooperation, he is obliged to submit the text, with the accompanying NPAS, to the Senate Committee on Foreign Relations and the House Committee on Foreign Affairs, and to consult with both during a period of not less than 30 days of continuous session of the Congress on the consistency of the terms of the proposed agreement with the statutory requirements. Thereafter, once the President has approved it and made a determination in writing that the agreement "will promote and will not constitute an unreasonable risk to the common defense and security," he may authorize the execution of the agreement. Then, depending on the nature of the proposed agreement for cooperation, it and the accompanying Presidential approval and determination, must lie before the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations for a period of either 30 or 60 days of continuous session, before it becomes effective for the United States. A proposed agreement for cooperation shall not become effective if during this period the Congress adopts, and there is enacted, a joint resolu-

tion stating in substance that the Congress does not favor it.^{7/}

On the other hand, subsequent arrangements are under an agreement for cooperation and are entered into by the Secretary of Energy, with the concurrence of the Secretary of State, after consultation with the Arms Control and Disarmament Agency, the NRC and the Secretary of Defense. Notice of any proposed subsequent arrangement is to be published in the Federal Register at least 15 days before it becomes effective, together with the written determination of the Secretary of Energy that the arrangement will not be inimical to the common defense and security. It is discretionary with the Arms Control and Disarmament Agency whether to prepare an NPAS.

In addition, as was discussed previously with respect to the first question in this memorandum, if the subsequent arrangement is associated with reprocessing, the Secretary of Energy must provide the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations with a report containing his reasons for entering into the arrangement, and a period of 15 days of continuous session must elapse before the subsequent arrangement can become effective. Moreover, where the proposed subsequent arrangement authorizes reprocessing or a retransfer to a non-nuclear-weapon state of any plutonium resulting from reprocessing in quantities greater than 500 grams, the Secretaries of Energy and State must find that the reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. Among all the factors used in making this judgment, foremost consideration must be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to

7/ When the proposed agreements for cooperation with Sweden, Norway and Finland were before Congress, the statute provided for passage of a concurrent resolution approving or disapproving the agreement under review. This provision was amended by section 301 of the Export Administration Act of 1979, Reauthorization, Pub. L. No. 99-64, approved July 12, 1985, 99 Stat. 120, 159, in light of Immigration and Naturalization Service v. Chadha, 462 U.S. 919 (1983). Congress also provided in section 301 of that Act that if the proposed agreement for cooperation is one subject to the 60-day lie and wait period, the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations are obliged to hold hearings and submit a report to their respective bodies.

the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted materials into a nuclear explosive device. The Departments of Energy and State acknowledge that the Agreed Minutes of the Swedish, Norwegian and Finnish agreements for cooperation contain several features, including advance approval for retransfer and reprocessing, which would constitute subsequent arrangements under the Atomic Energy Act, as amended, if agreed to separately from the agreements for cooperation. See, e.g., H.R. Doc. No. 163, 98th Cong., 2d Sess. 48 (1984); H. R. Doc. No. 71, 99th Cong., 1st Sess. 68 (1985). The issue is whether it was legally permissible for the Administration to include the substantive content of a subsequent arrangement in these three agreements for cooperation.

Legislative History

The law on cooperative agreements prior to the enactment of the Non-Proliferation Act required a guaranty that any transferred material not be retransferred to unauthorized persons or beyond the jurisdiction of the cooperating party, except as specified in the agreement. 42 U.S.C. § 2153(a) (1976); S. Rep. No. 467, 95th Cong., 1st Sess. 22 (1977). There was no specific statutory provision addressing reprocessing. In addition, the Atomic Energy Act, before enactment of the Non-Proliferation Act, contained no section regulating subsequent arrangements.

The legislative history of the Non-Proliferation Act reflects substantial dissatisfaction with the variable controls and absence of standards extant under the old system:

". . . Controls over important matters such as the reprocessing of U.S. fuel varied in strength and clarity from agreement to agreement. In some cases, U.S. rights of prior approval or veto were clear; in others, they were clearly absent. In some cases, the United States was left to make an ambiguous determination about the 'acceptability' of the facility within which reprocessing was to occur, leaving open important questions about the disposition and 'safeguardability' of the reprocessed product. Other agreements were formulated so as to require a determination that safeguards could be 'effectively applied.'

". . . Not only were U.S. controls over reprocessing highly variable, but no standards were provided by which determinations on approval or

disapproval could be made." H.R. Rep. No. 587, 95th Cong., 1st Sess. 4 (1977).

To ameliorate these concerns, Congress sought "to see existing agreements for cooperation strengthened, simplified, and made essentially uniform with respect to their criteria, standards and conditions." Id. at 17. In particular, the "United States retransfer approval right is to be unqualified and set forth in the agreement unambiguously." Id. at 13. In addition, the "U.S. reprocessing approval right is to be unqualified and set forth in the agreement unambiguously." Id. at 14. Moreover, Congress sought:

". . . to provide a clear and understandable set of standards and export criteria to replace the loose and inconsistent policies of the past . . . The ambiguity of past agreements and policies has not only led to genuine confusion, but has provided a pretext for distortion as well. The codification of consistent standards accomplished by this legislation will help to eliminate such possibilities in the future." Id. at 7.

A separate section on subsequent arrangements was enacted requiring

". . . a formalized process of interagency review and consultation in order to insure that these decisions receive the thoughtful and systematic review they so obviously deserve." Id. at 18.

Of particular concern and interest were the required findings and procedures explained above for United States approval of reprocessing and United States approval of the retransfer of the resulting plutonium.

At the same time, Congress was concerned that the process not get bogged down. Thus, the law prescribed that, within 90 days of enactment, orderly and expeditious procedures be developed for the administrative consideration of requests for subsequent arrangements. 42 U.S.C. § 2160(c). It also stated that:

"The United States will give timely consideration to all requests for prior approval . . . for the reprocessing of material . . . , and additionally, to the maximum extent feasible, will attempt to expedite such consideration when the terms and conditions for such actions are set forth in [an] . . . agreement for cooperation or in some other international

agreement executed by the United States and subject to [comparable] congressional review procedures" 42 U.S.C. § 2160(a)(3).

A caveat was expressed, however, that:

". . . Although the U.S. may enter into an agreement at any time with a recipient nation setting forth conditions that would be required to obtain U.S. approval for reprocessing, any such agreement should include sufficient flexibility to enable the U.S. to respond to changed circumstances, as such shifts could drastically alter U.S. expectations concerning the intentions of the recipient." S. Rep. No. 467, 95th Cong., 1st Sess. 10 and 11 (1977).

Discussion

Whether approvals associated with reprocessing may be included in the agreement for cooperation, rather than as subsequent arrangements, may have significant substantive consequences and is not merely a technical matter of form. A primary reason for including approvals associated with reprocessing in the agreement for cooperation is to provide so-called generic or programmatic approvals--that is, arrangements covering indeterminate amounts of material over a long period of time, e.g., for the duration of the agreement for cooperation. The potential proliferation implications of such approvals may be more serious, and are usually much more difficult to discern, than approvals covering specific and limited amounts of material on an individual basis.

In addition, as is evident from the discussion above, the procedures and substantive requirements of law governing subsequent arrangements differ from those for agreements for cooperation. For example, where a proposed subsequent arrangement authorizes reprocessing or a retransfer to a non-nuclear-weapon state of any plutonium resulting from reprocessing in quantities greater than 500 grams, the Secretaries of Energy and State must make a finding that the reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. Among all factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure the timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state

could transform the diverted material into a nuclear explosive device. 42 U.S.C. § 2160. No such requirements exist for agreements for cooperation.^{8/} See 42 U.S.C. § 2153.

Moreover, the duration of agreements for cooperation is usually a substantial period of time, generally 30 years. Thus, although the statutory time period for congressional review of an agreement for cooperation (up to a total of 90 days) is substantially longer than the 15-day congressional review period for subsequent arrangements associated with reprocessing, the effect of a one-time approval can last as long as 30 years for an agreement for cooperation. Subsequent arrangements, on the other hand, provide approvals on a request-by-request basis, offering more extensive opportunity for oversight and control over activities associated with reprocessing.

There is no express statutory provision which limits approvals associated with reprocessing to the subsequent arrangements process, or which precludes inclusion of advance, long-term, approvals in the agreements for cooperation between the United States and other countries. At the same time, we note that the practice prior to the enactment of the Non-Proliferation Act was for the United States Government to provide approvals, including approvals associated with reprocessing, on a request-by-request basis. The Non-Proliferation Act's addition of the separate section on subsequent arrangements, 42 U.S.C. § 2160, was an obvious attempt to continue but regularize this process. In addition, the substantial modifications by the Non-Proliferation Act to section 123 of the Atomic Energy Act governing agreements for cooperation, seem designed to buttress this process. 42 U.S.C. § 2153. The language prohibiting retransfers of material beyond the jurisdiction of the cooperating party "except as specified in the agreement" for cooperation was deleted. In its place, the Non-Proliferation Act added requirements that the agreement for cooperation contain guarantees by the cooperating party that no material would be retransferred beyond its jurisdiction or be reprocessed without United States approval, which approval rights were to be unqualified and set forth

8/ Consequently, we would disagree with the Arms Control and Disarmament Agency statement that "The procedural requirements and substantive findings that are required for an agreement for cooperation match or exceed those requirements applicable to subsequent arrangements . . ." H.R. Doc. No. 163, 98th Cong., 2d Sess. 78 (1984) (Sweden); H.R. Doc. 71, 99th Cong., 1st Sess. 48 (1985) (Finland).

in the agreement unambiguously. One might extrapolate from these provisions that the approvals themselves were not to be included in an agreement for cooperation. Rather, it appears that an agreement was intended to provide the broad framework pursuant to which short term arrangements would be reported and carried out. These short term arrangements were to be processed as subsequent arrangements in accordance with the procedures and constraints of the new section governing such arrangements. Hence, as contemplated, Congress would have continuous oversight over reprocessing and retransfer activities and an opportunity to act prior to any action being taken by the requesting country.

Nevertheless, although it appears that Congress anticipated that approvals for reprocessing and retransfer activities would be granted under the subsequent arrangement process and cover a definite amount of material over a specified period of time, we do not believe the evidence is sufficient to conclude, as a matter of law, that approvals associated with reprocessing cannot be included in an agreement for cooperation and must be granted only through the subsequent arrangement process. There is nothing in the law which specifies in which legal document the approvals must be placed. Nor does the statute specifically require a case-by-case review of each retransfer or instance of reprocessing.

On the contrary, subsection 131(a)(3) states that the terms and conditions on which approvals for activities associated with reprocessing will be based may be included in the agreement for cooperation. 42 U.S.C. § 2160(a)(3). However, in these situations, the actual approvals would still be provided through the subsequent arrangement process, but on an expedited basis.

In addition, subsection 131(a)(4) of the Atomic Energy Act, as amended, 42 U.S.C. § 2160(a)(4), indicates that the requirements of various sections of the statute were to be cumulative:

"All other statutory requirements under other sections of this chapter for the approval or conduct of any arrangement subject to this subsection [on subsequent arrangements] shall continue to apply and any other such requirements for prior approval or conditions for entering such arrangement shall also be satisfied before the arrangement takes effect"

The Non-Proliferation Act goal of consistent application of the clear and understandable statutory standards for approvals associated with reprocessing would be thwarted if

an Administration could by-pass the timely warning evaluation and make a proliferation risk determination by merely including approvals for activities associated with reprocessing in the agreement for cooperation.

Nevertheless, we conclude that it is not prohibited, as a matter of law, for approvals associated with reprocessing to be included in the agreement for cooperation rather than as subsequent arrangements. However, to achieve the purpose of the Non-Proliferation Act as explained in its legislative history, if such approvals are included in an agreement for cooperation, the statutory requirements of both section 123 (dealing with agreements for cooperation) and section 131 (dealing with subsequent arrangements), including the timely warning evaluation and the proliferation risk determination, must be satisfied.

Specific Agreements for Cooperation

The Departments of Energy and State in their transmittal of the Swedish, Norwegian and Finnish agreements for cooperation did consider the statutory requirements of both section 123 and 131. For example, as is required by section 123, each agreement in fact contains unqualified and unambiguous reservations of United States approval rights over the cooperating country's retransfer of material beyond its jurisdiction and reprocessing of spent fuel. H.R. Doc. No. 163, 98th Cong., 2d Sess. 14 and 15 (1984); H.R. Doc. No. 71, 99th Cong., 1st Sess. 9 and 10 (1985).

In relation to the advance reprocessing approvals contained in the Agreed Minutes to each agreement for cooperation, the Departments of Energy and State stated, with respect to the requirements of section 131:

". . . We have considered the question of whether the advance consent to reprocessing will result in a significant increase of the risk of proliferation beyond that which existed at the time the approval was granted, and have considered whether there would be timely warning 'of any diversion well in advance of the time at which a non-nuclear weapon state could transform the diverted material into a nuclear explosive device.' We have concluded that the advance approval of reprocessing will not result in a significant increase in the risk of proliferation."

H.R. Doc. No. 163, 98th Cong., 2d Sess. 48 (1984); H.R. Doc. No. 164, 98th Cong., 2d Sess. 84 (1984); H.R. Doc. No. 71, 99th Cong., 1st Sess. 68 (1985).

Although this statement indicates that the Secretaries of Energy and State applied the statutory standard of section 131, it does not provide the Congress with an adequate analysis of timely warning or the overall proliferation risk determination. (See question 1.)

In addition, we note two technical omissions relating to section 131. First, there is no indication for any of the three agreements that the Department of Defense was consulted. Secondly, no notices or determinations were published in the Federal Register for any of the three agreements. We do not think that publication as a House document or in the Congressional Record satisfies a statutory requirement of publication in the Federal Register. The primary audience of the latter is the public in general and not just the Congress.

Nevertheless, although it is unclear whether the proliferation risk determinations were properly made, it appears that these three particular agreements for cooperation would meet the proliferation risk standard. The critical advance approval in each was for reprocessing of spent fuel subject to the agreement, which could occur during the whole 30-year term of the agreements. This reprocessing was approved in each instance only for designated facilities in the United Kingdom and France, both nuclear-weapon states. The United States would have to provide separate approvals in the future for any transfer of plutonium separated as a result of the reprocessing. This includes not only transfer to any other country, but also transfer of the plutonium from the United Kingdom or France back to the cooperating country involved, each of which are non-nuclear-weapon states. Presumably such approvals would be accomplished through the subsequent arrangement process.

Consequently, since the reprocessing would be occurring in states that were already nuclear-weapon states, the only increase in risk of proliferation would be that associated with greater quantities of plutonium that the United Kingdom or France would have to safeguard. Moreover, to give the United States the flexibility to respond to changed circumstances, the advance approvals for processing can be terminated immediately at any time the United States believes that exceptional circumstances from a non-proliferation or a security standpoint so require. Under these circumstances, it appears that the approvals in these agreements are legally permissible.

Need for Scrutiny and Caution

Although we have concluded that the advance approvals in these agreements are legally permissible, we are concerned

about the inclusion of such approvals in agreements for cooperation in other factual contexts. For example, when advance approvals are contained in agreements for cooperation and involve reprocessing in a non-nuclear-weapon state or retransfer of plutonium to a non-nuclear-weapon state, these agreements may not satisfy the statutory standards of the Non-Proliferation Act.

If the advance approvals in these latter factual circumstances are for long periods of time, such as the 30-year term of the agreement for cooperation, it becomes particularly difficult to apply the timely warning and proliferation risk standards of section 131. It cannot be asserted with any degree of confidence that over the succeeding 30-year period the technical capabilities of the cooperating country, the anticipated conversion time, safeguard capabilities, United States political relationship with the cooperating country, etc., would all be such as to assure the existence of timely warning at all times or even assure there would be no increase in proliferation risk over the 30-year period. Therefore, such approvals may not be appropriate. The problem is less significant where, as in the three agreements just discussed, the activity and possession of the plutonium remain in a nuclear-weapon state. At least when reprocessing is authorized for a nuclear-weapon state, the country involved already has the capability and has detonated a nuclear explosive device. This element of unpredictability is removed from the evaluation in assessing increased risk. The only increase in risk would be that associated with the greater quantities of plutonium that the nuclear-weapon state would have to safeguard.

We recognize that some of the consequences of the uncertainty discussed above may be mitigated by including contingent termination provisions in the long-term agreement for cooperation, as was done in the Swedish, Norwegian and Finnish agreements. However, we are not convinced that the use of this mechanism can enable the executive branch to make the necessary long-term findings of section 131 when activities associated with reprocessing are at issue in a non-nuclear weapon state. More particularly, in this context, we disagree with the Department of State's position that:

". . . there is no substantive difference between a commitment in an agreement for cooperation to approve reprocessing or retransfers for reprocessing under specified conditions and actually granting the approval in the agreement subject to the continued existence of these same conditions."

Legislation to Amend the Nuclear Non-Proliferation Act of 1978: Hearings and Markup on H.R. 6032 and H.R. 6138 Before the House Committee on Foreign Affairs and House Subcommittee on International Security and Scientific Affairs and on International Economic Policy and Trade. 97th Cong., 2d Sess. (August 3, 10; September 8, 15; December 14, 1982) pp. 252-253.

The procedure specified in the former is, of course, contemplated by subsection 131(a)(3) of the Atomic Energy Act, as amended, 42 U.S.C. § 2160(a)(3), but thereunder congressional review may occur on a request-by-request basis under the subsequent arrangement process. In the procedure presented by the latter, subsequent decisionmaking on implementation or termination of the approvals in the agreement for cooperation lies with the executive branch alone, with no necessary notification or participation by the Congress.

Accordingly, as a matter of law, under circumstances where the statutory standard can be met, the executive branch is not prohibited from including advance approvals for activities associated with reprocessing in agreements for cooperation. However, there may be factual circumstances, of which the Congress should be aware, where these procedures may not be legally permissible.

APPENDIX 27**REPORT FROM THE COMPTROLLER GENERAL OF THE UNITED STATES TO
CHAIRMAN DANTE B. FASCELL IN RESPONSE TO REQUEST FOR AN
ANALYSIS OF THE PROPOSED U.S.-JAPAN NUCLEAR COOPERATION
AGREEMENT, FEBRUARY 29, 1988**

The Honorable Dante B. Fascell
Chairman, Committee on Foreign Affairs
House of Representatives

Dear Mr. Chairman:

This is in response to your January 29, 1988, letter requesting our analysis of the proposed Agreement for Cooperation between the Government of the United States and the Government of Japan Concerning Peaceful Uses of Nuclear Energy (Agreement).

In subsequent conversations with your staff, it was agreed that our review of the proposed Agreement would focus on whether the advance approvals for the reprocessing and retransfer of United States-origin nuclear material would meet the requirements of the Atomic Energy Act of 1954 (Act), as amended. In particular, you wanted our views on whether the requirements provided in Section 123 of the Act that the Agreement contain guarantees of United States consent and prior approval for retransfer and reprocessing activities are satisfied by the proposed Agreement and if the standard of timely warning provided in Section 131 of the Act would be met under the terms of the proposed Agreement.

As you are aware, the Agreement is the most fundamental legal mechanism by which nuclear cooperation is regulated between the United States and other nations. It includes the general "terms, conditions, duration, nature and scope of the cooperation." 42 U.S.C. § 2153. Section 123 of the Atomic Energy Act of 1954, as amended, addresses the substantive and procedural requirements of the Agreement. Subsection 123 (a) prescribes nine requirements that must be included in the Agreement. Of concern here are (1) a guaranty by the cooperating party that any material transferred pursuant to the Agreement will not be transferred to unauthorized persons or beyond the jurisdiction or

control of the cooperating party without the consent of the United States, and (2) a guaranty by the cooperating party that no material transferred pursuant to the Agreement will be reprocessed without the prior approval of the United States. 42 U.S.C. § 2153(a)(5) and (7).

On the other hand, subsequent arrangements are specific contracts, approvals, authorizations and other arrangements required to implement an Agreement. See 42 U.S.C. § 2160; S. Rep. No 467, 95th Cong., 1st. Sess. 10 (1977). Section 131 of the Act regulates subsequent arrangements. The subsequent arrangement provision provides the test the executive branch must apply in evaluating (1) whether to approve a request for reprocessing of spent nuclear fuel that had originally been exported or produced through the use of any nuclear materials and equipment or sensitive nuclear technology exported from the United States; or (2) whether to approve the transfer back of the plutonium in quantities greater than 500 grams resulting from the reprocessing for use in another nuclear reactor. The Act mandates that United States authorization for such reprocessing or retransfers not result in a significant increase of the risk of proliferation of weapons beyond that which exists at the time the approval is requested. In addition, the statute requires that:

". . . Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." (Emphasis added.)

The Act explicitly ties the timely warning standard to non-nuclear-weapon states. This is because a non-nuclear-weapon state has not previously been known to have detonated a nuclear explosive device. Accordingly, there is a heightened risk of proliferation when reprocessing or the return of plutonium involves a non-nuclear-weapon state.

Japan is a non-nuclear weapon state. In the past, Japanese requests for approvals for reprocessing or the retransfer back of plutonium from a third country have been provided on a request-by-request basis under the subsequent arrangement process. The proposed Agreement in the accompanying Implementing Agreement, however, provides blanket authority to Japan to reprocess and store United States-origin nuclear material within Japan, as well as the authority to transfer

spent fuel to designated facilities in England and France for reprocessing and have the resulting plutonium subsequently returned. The consents and prior approvals for these activities would last the life of the Agreement and apply to facilities within Japan not yet in existence.

We conclude that the proposed Agreement does not meet the requirements of subsections 123(a)(5) and (7) of the Act or the timely warning standard of Section 131. Although the Act does not explicitly require that consent or advance approvals only be granted under the subsequent arrangement process or on a request-by-request basis, it is clear from the structure of the Act and its legislative history that it was anticipated that the guarantees of consent and prior approval over retransfer and reprocessing activities would provide the United States with the opportunity to apply the substantive standards of the subsequent arrangement process, including timely warning, in a systematic and effective manner. This is particularly true when the reprocessing or retransfer of plutonium involves a non-nuclear-weapon state.

The Implementing Agreement that accompanies the proposed Agreement for Cooperation provides blanket approval for reprocessing within Japan and the return of plutonium from third countries to Japan that would leave the United States with no effective control over the life of the proposed Agreement for these activities. The United States would have to rely solely on the monitoring of these activities by the executive branch, as opposed to before-the-fact determinations made through the subsequent arrangement process. The United States would also have to rely on its ability in the extreme case to terminate the proposed Agreement or suspend the Implementing Agreement to ensure that the reprocessing within Japan and the return of plutonium to Japan, does not, over the 30-year Agreement, create increased risks of proliferation. Further, advance approval deprives the Congress of its oversight function.

We do not believe the Act intended that the subsequent decision-making or oversight of the United States would be based only on the executive branch's assessment of the implementation of the activities authorized by a one-time blanket approval for reprocessing activities and the subsequent return of plutonium to a non-nuclear-weapon state such as Japan. Nor did the Congress anticipate that United States oversight would be limited to its ability to terminate or suspend an agreement under certain extreme conditions.

Rather, we think that by providing for a separate section in the Act on subsequent arrangements and requirements for consent and prior approval over retransfer and reprocessing activities, that the Congress sought to ensure that the United States would maintain effective control over these activities through application of the standards of the subsequent arrangement process in a meaningful way.

We think that it is particularly difficult to apply the timely warning standard to advance approvals that involve reprocessing in or the transfer of plutonium to a non-nuclear-weapon state. In our view, it cannot be asserted with any degree of confidence that over the succeeding 30-year period the technical capabilities of the cooperating party,^{1/} anticipated conversion times, safeguards capabilities, United States political relationships with the cooperating party, etc. would all be such as to assure the existence of timely warning at all times or even ensure there would be no increase in proliferation risks over the life of the agreement. Accordingly, we do not think that the timely warning standard can be applied in a systematic and effective way to the blanket approvals at issue here.

Finally, we recognize that Japan is an advanced nuclear nation that is seeking nuclear cooperation on a long-term, predictable, reliable basis. However, the Act does not differentiate between advanced nuclear countries that have not detonated nuclear weapons and those that have. Rather, the Act applies heightened scrutiny to non-nuclear-weapon states, whatever their state of advancement. Since Japan is a non-nuclear-weapon state, the timely warning standard must be applied as intended by the Act.

There is, however, flexibility in the Act. The Act provides for a type of generic or programmatic approval process, that we believe would provide Japan with the long-term, predictable terms it needs while still allowing the United States to maintain effective oversight. Under Subsection 131(a)(3), the terms and conditions necessary for he

1/ We recognize that from a strictly technological base, Japan can hardly be distinguished from a nuclear-weapon state in that it has the scientific expertise and nuclear material necessary to construct a nuclear explosive device. However, as the Departments of State and Energy make clear in their analysis, should Japan choose to build a nuclear explosive device, it would need to acquire unique equipment and production facilities not presently available domestically in Japan.

approvals associated with reprocessing can be included in the Agreement. However, the actual approval is still provided under the subsequent arrangement process, but in an expedited manner.

Our more detailed analyses are included in the enclosed legal memorandum.

Sincerely yours,

Milton J. Rosler

for
Comptroller General
of the United States

Enclosure

B-230201

LEGAL MEMORANDUM**REVIEW OF THE PROPOSED AGREEMENT OF COOPERATION**

This memorandum is in response to a request of the Honorable Dante B. Fascell, Chairman of the House Foreign Affairs Committee, requesting our analysis of the proposed Agreement for Cooperation between the Government of the United States and the Government of Japan Concerning Peaceful Uses of Nuclear Energy (Agreement).

In subsequent conversations with the Chairman's staff, it was agreed that our review of the proposed Agreement would focus on whether the advance consent and prior approvals for the retransfer and reprocessing of United States-origin spent fuel would meet the requirements of the Atomic Energy Act of 1954 (Act), as amended. Specifically, the Chairman is interested in our views on whether the requirements provided in Section 123 of the Act for the Agreement pertaining to the guarantees of consent and prior approvals for and retransfer reprocessing activities are satisfied by the proposed Agreement and if the standard of timely warning provided in Section 131 of the Act would be met under the terms of the proposed Agreement.^{1/}

Our detailed analysis follows:

Background of the Proposed Agreement

One of the purposes of the Atomic Energy Act was to ensure effective controls by the United States over its exports of nuclear fuel, equipment and technology. 22 U.S.C. § 3202(d). It was hoped that, in this way, the United States could restrict the proliferation of nuclear weapons while, at the same time, confirming its reliability as a supplier of nuclear reactors and fuel for peaceful purposes to nations which adhere to effective non-proliferation policies. 22 U.S.C. § 3201.

Three legal instruments are primarily relied upon to achieve this control. The most fundamental mechanism is the "Agreement for Cooperation" between the United States on the one hand and nations or international organizations on the

^{1/} The pertinent sections of the Act are set out in Appendix I. The pertinent sections of the proposed Agreement and the accompanying Implementing Agreement are set out in Appendices II and III.

other. It includes the "terms, conditions, duration, nature, and scope of the cooperation." 42 U.S.C. § 2153(a).

However,

". . . agreements for cooperation generally are not in and of themselves commitments to supply nuclear reactors and fuel; rather they set forth the terms under which such commitments may be made." S. Rep. No. 467, 95th Cong., 1st Sess. 3 (1977).

The Act sets forth nine guarantees or requirements to be contained in agreements for cooperation. 42 U.S.C. § 2153(a).

The second form of legal instrument is a "subsequent arrangement" pursuant to an agreement for cooperation. "These subsequent arrangements are specific contracts, approvals, authorizations and other arrangements required to implement an agreement for cooperation." H.R. Rep. No. 587, 95th Cong., 1st Sess. 17 (1977). See also 42 U.S.C. § 2160.

". . . Subsequent arrangements are extremely important, as they encompass many of the detailed arrangements for U.S. nuclear cooperation with foreign nations, including: the approval of reprocessing or re-transfers, contracts for the provision of enriched uranium, physical security arrangements, detailed safeguard arrangements. . . . It should be noted that private contracts and arrangements are not 'subsequent arrangements.'" S. Rep. No. 467, 95th Cong., 1st Sess. 10 (1977).

The third major element of control, but not of concern here, is the export licensing process.

Among the primary proliferation concerns are those activities associated with the reprocessing of spent nuclear fuel.^{2/} Spent fuel is the waste product from the use of uranium in a nuclear reactor to produce power. Its reprocessing involves chemical separation of plutonium from the components of the spent fuels. The separated plutonium can be recovered for peaceful future uses for certain other nuclear reactors. However, unlike the low-level enriched

^{2/} Proliferation risks include the proliferation of nuclear explosive devices or the direct capability to manufacture or otherwise acquire such devices. See 22 U.S.C. § 3201.

uranium used in most nuclear reactors, plutonium is fuel of weapons-useable quality. Therefore, its potential diversion for use in a nuclear explosive device is a considerable proliferation risk. This concern is exacerbated when the reprocess or the return of plutonium resulting from the reprocessing involves a non-nuclear-weapon state.

Up until recently, approvals for the transfer of spent fuel for reprocessing and the retransfer of plutonium back to a non-nuclear-weapon state were accomplished under the subsequent arrangement process. The required proliferation risk determination and timely warning evaluation were applied on a request-by-request basis.

This changed in 1984 and 1985. The United States in those years entered into agreements of cooperation with Sweden, Norway, and Finland that for the first time provided a cooperating party with the long-term, advance consent of the United States for reprocessing of United States-supplied origin nuclear material in designated facilities in England and France. See, respectively, H.R. Doc. No. 163, 98th Cong., 2d Sess. (1984); H.R. Doc No. 164, 98th Cong., 2d Sess. (1984); and H.R. Doc. No. 71, 99 Cong., 1st Sess. 55 (1985). These consents were for 30 years and were provided in the minutes to the agreements. The minutes were designated as an integral part of each agreement.

Although these advance approvals represented a change in our handling of reprocessing requests, it should be noted that the advance approvals contained in the agreements with Sweden, Norway and Finland allowed only the retransfer of spent fuel to designated facilities in England and France. Both of these nations are nuclear-weapon states. The return of the resulting plutonium to Sweden, Norway or Finland, which are non-nuclear-weapon states, would require further approval(s) of the United States under the subsequent arrangement process. This assures continued oversight by the Congress and notice to the public. Hence, the United States retained effective control over the export of its nuclear material to the non-nuclear-weapon states involved.

There was no congressional challenge to the agreements with Sweden, Norway or Finland. However, Senator Alan Cranston, Congressman Howard Wolpe, Congressman Michael Barnes and six public interest organizations subsequently filed suit in U.S. Federal District Court contesting the authority of the Administration to approve in advance retransfer or reprocessing of spent fuel, but their law suit was dismissed on the basis of non-justiciability. Cranston v. Reagan, 611 F. Supp. 247 (D.D.C. 1985).

The Proposed Agreement

The advance consents in the proposed Agreement go much further than those provided for in the agreements entered into with Sweden, Norway, and Finland. The "Implementing Agreement Between the Government of the United States of America and the Government of Japan pursuant to Article 11 of Their Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy" (Implementing Agreement) would provide Japan with new long-term United States approvals that include:^{3/}

-- reprocessing and alteration in form or content of United States-origin fuel at designated facilities within Japan.^{4/}

3/ The Implementing Agreement is set out in Appendix III.

4/ The principal consent and approvals contained in the Implementing Agreement apply to facilities listed in the four Annexes to that Agreement. The first three Annexes list existing facilities of the following type:

Annex 1 - facilities for reprocessing, alteration in form or content and storage, including the reprocessing plant and associated facilities at Tokai-Mura, and the British Sellafield plant and the French at LaHague.

Annex 2 - Other facilities where separated plutonium is located, including the Fugen ATR, the JOYO FBR, two LWRs at which mixed uranium-plutonium oxide fuel is present, and three critical assemblies.

Annex 3 - LWRs and GCRs from which spent fuel may be sent to Annex 1 facilities.

The fourth Annex lists facilities which are planned or under construction in Japan, and which are intended to be added to the other Annexes. It includes reprocessing facilities, plutonium fuel fabrication facilities, reactors and other facilities. All of the programmatic consents and approvals included in the Implementing Agreement can be extended to additional facilities within Japan by appropriate notification in writing by Japan to the United States and acknowledgement by the United States. The acknowledgement is limited to a statement that the notification has been received and must be provided no later than 30 days after
(continued...)

-- storage of plutonium in designated facilities within Japan.

-- the transfer of spent fuel from Japan to designated facilities in third countries for reprocessing and the subsequent return of the resulting plutonium to Japan. (At present the Sellafield Reprocessing Plant in the United Kingdom and the La Hague Reprocessing Plant in France would be designated.)^{5/}

-- the transfer of unirradiated source material and low-enriched uranium to designated third countries but not for the production of high-enriched uranium.

-- the transfer of unirradiated nuclear material containing plutonium, in quantities not to exceed 500 grams per shipment and per Japanese facility each year, to designated facilities in third countries for irradiation and the subsequent return to Japan.^{6/}

4/(...continued)

the receipt of the notification. An addition of a facility outside of Japan other than those designated in Annex 1 or in the Notes Verable can only be accomplished by the agreement of the parties.

5/ The return of the resulting plutonium from the United Kingdom and France would require long-term approval under the Agreement of Cooperation with EURATOM. The Implementing Agreement provides that the United States will give the necessary consent to third countries to allow the return of the recovered plutonium concerned in quantities of two kilograms or more per shipment to Japan. (Article 1, para. 3(a) (iii)). The President enclosed the text of a proposed subsequent arrangement with EURATOM that would allow the return of the plutonium.

6/ The return of the irradiated nuclear material would require the approval of the United States under the Agreement of Cooperation that the United States has with third countries. The Implementing Agreement provides that this advance approval will be granted. The President, in his submission to the Congress, included the proposed text of a subsequent arrangement with EURATOM and one with Norway that would provide the necessary approval on a long-term basis.

It must be kept in mind that Japan is a non-nuclear-weapon state and that the proposed consents and approvals are much more comprehensive than those provided in the Sweden, Norway, and Finland agreements. Not only would these consents and approvals last the life of the proposed Agreement, but they would also apply to facilities in Japan not yet in existence.

A majority of both the Senate Foreign Relations Committee and the House Foreign Affairs Committee have challenged the proposed Agreement.^{7/} See Letter from 15 members of the Senate Committee on Foreign Relations to the President, December 17, 1987; Letter from 23 Members of the House Foreign Affairs Committee to the President, December 21, 1987.

These committees have requested that the proposed Agreement be renegotiated to bring it into conformity with United States law or if not renegotiated, that it be resubmitted to the Congress, with a waiver of statutory requirements, in accordance with Section 123(a) of the Act.^{8/} Under this provision, if the President submits an exemption, the

7/ Under the requirements of Section 123(b), the President is to consult with the Senate Foreign Relations Committee and the House Foreign Affairs Committee for a period of not less than 30 days concerning the consistency of the terms of the proposed agreement with the requirements of the Act. 42 U.S.C. § 2153(b). This period has expired without the President responding to the concerns of the cognizant congressional committees.

8/ The President may exempt a proposed agreement for cooperation from any of the requirements of subsections 123(a)(1)-(9), if he determines that inclusion of any such requirement would be seriously prejudicial to the achievement of United States' non-proliferation objectives or otherwise jeopardize the common defense and security. 42 U.S.C. § 2153(a). However, any such proposed agreement for cooperation shall not become effective unless the Congress adopts, and there is enacted, a joint resolution stating that the Congress favors the agreement. 42 U.S.C. § 2153(d).

agreement must await affirmative action by the Congress through enactment of a joint resolution of approval.^{9/}

Can an Advance Approval Be Legal?

The first issue we must determine, before we can address the specifics of the proposed Agreement is whether advance approvals are, in and of themselves, legal.

As noted previously, the agreement for cooperation is the most fundamental legal mechanism by which nuclear cooperation is regulated between the United States and nations or international organizations. It includes the general "terms, conditions, duration, nature and scope of the cooperation." 42 U.S.C. § 2153(a). On the other hand, subsequent arrangements are specific contracts, approvals, authorizations and other arrangements required to implement an agreement for cooperation. See 42 U.S.C. § 2160; H.R. Rep. No. 587, 95th Cong., 1st Sess. 17 (1977); and S. Rep. No. 467, 95th Cong., 1st Sess. 10 (1977).

The Atomic Energy Act, as amended by the Nuclear Non-Proliferation Act of 1978, Pub. L. No. 95-242, approved March 10, 1978, 92 Stat. 120 (Non-Proliferation Act), as amended, treats agreements for cooperation and subsequent arrangements in separate sections. Section 123 of the

9/ On January 20, 1988, the Senate Foreign Relations Committee reported out a Senate Concurrent Resolution that states that it is the sense of Congress that:

"(1) the programmatic consent to be granted by the United States on a one-time basis for Japanese processing, transport, and use of United States controlled plutonium during the thirty-year initial term of the proposed nuclear agreement for cooperations between the United States and Japan is not consistent with section 123 of the Atomic Energy Act of 1954, as amended; and

"(2) the President, in accordance with section 123 of the Act, must renegotiate the draft agreement to bring it into conformity with the requirements of the Act, or if this agreement is not renegotiated, the President must resubmit the agreement with an exemption of statutory requirements, whereupon the agreement must await affirmative action by Congress through the enactment of a joint resolution of approval before it comes into force." S. Con. Res. 96, 100th Cong., 1st Sess. (1988).

Atomic Energy Act, as amended, 42 U.S.C. § 2153, addresses agreements for cooperation, while section 131, 42 U.S.C. § 2160, regulates subsequent arrangements. The substantive requirements and procedures for the two also differ.

Subsection 123(a) prescribes nine requirements that must be included in agreements for cooperation. Of concern here are: subparagraph (5) which in pertinent part requires a guaranty by the cooperating party that any material transferred pursuant to the agreement for cooperation will not be transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States, and subparagraph (7) which, in pertinent part, requires a guaranty by the cooperating party that no material transferred pursuant to the agreement for cooperation will be reprocessed without the prior approval of the United States. 42 U.S.C. § 2153(a)(5) and (7).

Proposed agreements for cooperation are to be negotiated by the Secretary of State, with the technical assistance and concurrence of the Secretary of Energy, and in consultation with the Director of the Arms Control and Disarmament Agency. After subsequent consultation with the Nuclear Regulatory Commission (NRC), the proposed agreement is to be submitted to the President jointly by the Secretary of State and the Secretary of Energy, accompanied by the view and recommendations of the Secretary of State, the Secretary of Energy, the NRC and the Arms Control Disarmament Agency.^{10/} The Arms Control and Disarmament Agency must also provide the President an unclassified Nuclear Proliferation Assessment Statement (NPAS).

If the President wants to pursue the proposed agreement for cooperation, he is obliged to submit the text, with the accompanying NPAS, to the Senate Committee on Foreign Relations and the House Committee on Foreign Affairs, and to consult with both during a period of not less than 30 days of continuous session of the Congress on the consistency of the terms of the proposed agreement with the statutory requirements. Once the President has approved it and made a determination in writing that the agreement "will promote

^{10/} These views were submitted to the cognizant congressional committees along with the text of the proposed Japanese Agreement and accompanying documents. The Secretaries of Energy and State, as well as the Director of the Arms Control and Disarmament Agency, supported the Agreement. However, the NRC did not. One of the concerns expressed by the NRC was over the provisions for advance approval for plutonium use in future Japanese plutonium facilities.

and will not constitute an unreasonable risk to the common defense and security," he may authorize the execution of the agreement.11/ After this and the 30-day consultation period, depending on the nature of the proposed agreement for cooperation, it and the accompanying Presidential approval and determination, must lie before the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations for a period of either 30 or 60 days of continuous session, before it becomes effective for the United States. If, as in the proposed Agreement, it is subject to a 60-day review period, the cognizant congressional committees are to hold hearings and submit a report to their respective bodies recommending whether the Agreement should be approved or disapproved. If the Agreement has not been exempted from any of the nine requirements, it shall not become effective during this period if the Congress adopts, and there is enacted, a joint resolution of disapproval. However, if the proposed Agreement has been exempted from one or more of the requirements, it will become effective only if the Congress adopts, and there is enacted, a joint resolution of approval.12/

11/ The President made this determination on October 28, 1987. See H.R. Doc. No. 128, supra, at p. 201.

12/ We recognize that the legislative history provides that the Congress "expects that the President will submit an exemption" to the Section 123 requirements if either of the cognizant congressional committees indicate that in their judgment such is required. In addition, the legislative history indicates that the Congress ". . . fully expects, . . . that the President will resubmit any agreement for which he has not submitted an exemption if either committee during the prior consultation period recommend that an exemption is required." See H.R. Rept. No. 180, 99th Cong., 1st Sess. 5154 (1985). However, these actions are not mandatory. Therefore, although the cognizant committees have expressed their belief that the proposed Agreement is outside the parameters of the requirements of Section 123, we would have to agree with the Congressional Research Service (CRS) assessment that:

"barring a significant change in the administration's stance regarding compliance by the US-Japanese Agreement for Nuclear Cooperation with the AEA/NNPA requirements, it seems reasonable to conclude that nailing down a requirement for case by case approval or stopping the agreement's entry into force would require lawmaking." CRS study, January 25, 1988.

On the other hand, subsequent arrangements are under an agreement for cooperation and are entered into by the Secretary of Energy, with the concurrence of the Secretary of State, after consultation with the Arms Control and Disarmament Agency, the NRC and the Secretary of Defense.^{13/} Notice of any proposed subsequent arrangement is to be published in the Federal Register at least 15 days before it becomes effective, together with the written determination of the Secretary of Energy that the arrangement will not be inimical to the common defense and security. It is discretionary with the Arms Control and Disarmament Agency whether or not to prepare an NPAS.

In addition, if the subsequent arrangement is associated with reprocessing, the Secretary of Energy must provide the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations with a report containing his reasons for entering into the arrangement, and a period of 15 days of continuous session must elapse before the subsequent arrangement can become effective.

Moreover, where the proposed subsequent arrangement authorizes reprocessing or a retransfer to a non-nuclear-weapon state of any plutonium resulting from reprocessing in quantities greater than 500 grams, the Secretaries of Energy and State must find that the reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested.

"Among all the factors in making this judgment, foremost consideration will be given to whether or not the . . . retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." 42 U.S.C. S 2160(b)(2).

It appears from the structure of the Act and its legislative history that the Congress contemplated that the broad framework of cooperation would be provided under a general

^{13/} The Secretary of Defense has opposed the proposed Agreement.

agreement for cooperation with subsequent details and approvals implementing this agreement handled by the subsequent arrangement process. In particular, the Act required that the cooperating party guarantee as part of the agreement for cooperation that the United States have consent and prior approval over certain retransfer and reprocessing activities. As anticipated, these consents and approvals would be later evaluated under the substantive standards prescribed by the subsequent arrangement provision. However, there is no statutory provision in the Act which expressly limits approvals associated with reprocessing or retransfers to the subsequent arrangements process, or which specifically precludes the inclusion of advance, long-term approvals for these activities in the agreements for cooperation.

At the same time, we note that the practice prior to the enactment of the Non-Proliferation Act was for the United States Government to provide approvals, including approvals associated with reprocessing, on a request-by-request basis. The Non-Proliferation Act's addition of the separate section on subsequent arrangements, 42 U.S.C. § 2160, was an obvious attempt to continue but regularize this process. In addition, the substantial modifications by the Non-Proliferation Act to section 123 of the Atomic Energy Act governing agreements for cooperation, seem designed to buttress this process. 42 U.S.C. § 2153. The language prohibiting retransfers of material beyond the jurisdiction of the cooperating party "except as specified in the agreement" for cooperation was deleted. In its place, the Non-Proliferation Act added requirements that the agreement for cooperation contain guaranties by the cooperative party that no material would be retransferred beyond its jurisdiction or be reprocessed without United States approval, which approval rights were to be unqualified and set forth in the agreement unambiguously. One might extrapolate from these provisions that the approvals themselves were not to be included in an agreement for cooperation. Rather, it appears that an agreement was intended to provide the broad framework under which short-term arrangements would be reported and carried out. These short-term arrangements were to be processed as subsequent arrangements in accordance with the procedures and constraints of the new section governing such arrangements. Hence, as contemplated as well, the Congress would have continuous oversight over reprocessing and retransfer activities and an opportunity to act prior to an action being taken by the requesting country.

The Non-Proliferation Act also provided a mechanism for providing a cooperating party with broad authority for reprocessing activities. Subsection 131(a)(3) states that

the terms and conditions on which approvals for activities associated with reprocessing will be based may be included in the agreement for cooperation. 42 U.S.C § 2160(a)(3). However, in these situations, the actual approvals would still be provided through the subsequent arrangement process, but on an expedited basis.

Nevertheless, although it appears that the Congress anticipated that approvals for reprocessing and retransfer activities would be granted under the subsequent arrangement process and cover a definite amount of material over a specified period of time, we do not believe the evidence is sufficient to conclude, as a matter of law, that approvals associated with reprocessing cannot be included in an agreement for cooperation and must be granted only through the subsequent arrangement process. There is nothing in the law which specifies in which legal document the approvals must be placed. Nor does the statute specifically require a request-by-request review of each retransfer or instance of reprocessing.

However, it is clear that by providing for a separate section on subsequent arrangements and a requirement of prior approval and consent over reprocessing and retransfer activities, that the Act sought to provide:

" . . . a formalized process of interagency review and consultation in order to insure that these decisions receive the thoughtful and systematic review they so obviously deserve." H.R. Rep. No. 587, supra. at 18.

Of particular concern and interest were the required findings and procedures explained above for United States approval of reprocessing and United States approval of the retransfer of the resulting plutonium.

This review process would be defeated if the Administration could by-pass the timely warning evaluation and make a proliferation risk determination by merely including blanket, long-term approvals for activities associated with reprocessing in the agreement for cooperation.

Therefore, we conclude that although approvals associated with reprocessing may be included in the agreement for cooperation rather than as subsequent arrangements, to achieve the Act's purpose if such approvals are included in an agreement for cooperation, the statutory requirements of both section 123 (dealing with agreements for cooperation) and section 131 (dealing with subsequent arrangements), must be satisfied.

In the Agreements for Cooperation with Sweden, Norway, and Finland, the United States provided long-term consent to transfer spent fuel from these non-nuclear-weapon countries to designated facilities in England and France. Both England and France are nuclear-weapon states. However, further approvals, including Congressional review under the subsequent arrangement process, would be necessary for the return of the resulting plutonium back to the non-nuclear-weapon state involved. Therefore, this advance approval was discrete and did not render meaningless the guarantees of consent and prior approvals required by the Act. The United States still maintains an oversight role with respect to future retransfer of plutonium and reprocessing within Sweden, Norway and Finland.

The Advance Approvals in the Proposed Agreement

On the other hand, the proposed Agreement purports to meet the requirements of Subsection 123(a)(5) and (7) by providing that the retransfer of nuclear material, etc. may occur "only to persons authorized by a receiving party or, if the parties agree, beyond the territorial jurisdiction of the receiving party" and that reprocessing may occur "if the parties agree." See Articles 3 and 5.1 of the proposed Agreement, Appendix II. The problem is that the agreement of the parties referenced in these two articles is provided in advance, by means of the Implementing Agreement submitted as part of the Agreement for Cooperation itself.

Therefore, as previously noted, the Implementing Agreement would provide Japan with the long-term consent of the United States that includes: (1) reprocessing within the territories of Japan; (2) storage of plutonium and spent fuel within the territories of Japan; (3) the retransfer of spent fuel from Japan to designated facilities in England and France and the subsequent return of resulting plutonium to Japan; and (4) the retransfer of unirradiated nuclear material to designated facilities in EURATOM and Norway for irradiation and the subsequent return of the resulting plutonium to Japan.

These are open-ended, blanket approvals and consents since they will last for the duration of the Agreement and apply in advance to facilities not yet in existence. Basically, under the terms of the proposed Agreement, the United States would agree to allow Japan to use United States-supplied nuclear material within the territory of Japan without any further approvals by the United States required. We believe this is directly at odds with the requirements of Section 123(a)(5) and (7).

We recognize that the approvals and consents provided by the Implementation Agreement are subject to a suspension provision. Under the suspension provision:

"Either party may suspend the agreement it has given in Article I of this Implementing Agreement in whole or in part to prevent a significant increase in the risk of nuclear proliferation or in the threat to its national security caused by exceptional cases. . . . Any decision on such suspension would only be taken in the most extreme circumstance or exceptional concern from a non-proliferation or national security point of view, would be taken at the highest level of government, and would be applied only to the minimum extent and for the minimum period of time necessary to deal in a manner acceptable to the parties with the exceptional case.

* * * * *

". . . The suspending party shall carefully consider the economic effects of such suspension and shall seek to the maximum extent possible to avoid the disruption of international nuclear trade and the fuel cycle operations under this Implementing Agreement. . . ." (Emphasis added.) (Implementing Agreement, Article 3, paras. 2 and 3).

The consent and prior approval guaranties required by the Act provide for the effective oversight of reprocessing and retransfer activities by allowing the imposition of the substantive standard of the subsequent arrangements process before the activities take place. The suspension provision, on the other hand, would only allow the United States to respond in the exceptional case if the approvals are not being properly implemented. Moreover, only the executive branch would be involved in this decision. Under the proposed Agreement, the United States would have no further input on the use of the United States-supplied nuclear material save for the notifications from Japan regarding the activities specified in Article 1 of the Implementing Agreement, including notification of each international transfer prior to shipment or as soon thereafter as possible. See Agreed Minutes to the Implementing Agreement, para. 1(a) and Note Verbale No. 329 contained in H.R. Doc. 128, supra, at pp. 58 and 169-186, and notification from Japan that additional reprocessing or storage facilities within Japan will be used. The subsequent arrangement process, however, contains a congressional lie-in-wait

provision which would not come into play under the terms of the agreement.^{14/}

We do not believe that the Act intended that the subsequent decision-making of the United States would be based solely on the executive branch's assessment of the implementation of the activities authorized by a one-time blanket approval for reprocessing activities and the subsequent return of plutonium to a non-nuclear weapon state, such as Japan. Nor do we think that the Act intended that United States oversight and control over these important and significant activities would be limited to our ability to terminate or suspend an agreement under certain extreme conditions.

Accordingly, we do not believe the proposed Agreement sets forth the "unqualified and unambiguous" guaranties of consent and prior approval over retransfer and reprocessing activities required by subsections 123(a)(5) and (7).

14/ In this regard, we disagree with the statement in the NPAS that:

" . . . Congressional review is not frustrated by setting forth advance consent for reprocessing or alteration of spent fuel in the proposed Agreement since section 123 permits Congress to review a new agreement for cooperation for up to ninety days, while section 131 provides that subsequent arrangements involving reprocessing or the retransfer of the plutonium in quantities greater than 500 grams must only lie before Congress for a 15 day period." H.R. Doc. 100-128, supra, at p. 228.

Although the statutory time period for congressional review of an agreement for cooperation (up to a total of 90 days) is substantially longer than the 15-day congressional review period for subsequent arrangements associated with reprocessing, the effect of a one-time approval can last as long as 30 years for an agreement for cooperation. Subsequent arrangements, on the other hand, generally provide approval on a request-by-request basis, offering more extensive opportunity for oversight and control over activities associated with reprocessing.

Timely Warning

You have asked that we examine the timely warning analysis provided by the Departments of Energy and State.^{15/}

Under subsection 131(b)(2), in approving requests for reprocessing or the subsequent return of the resulting plutonium in quantities greater than 500 grams to a non-nuclear-weapon state, the Secretaries of State and Energy must determine that the approval "will not result in a significant increase of the risk of proliferation beyond that which exists at the time the approval is requested."

In making this judgment "foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material."^{16/} (Emphasis added.)

15/ Although the Departments of State and Energy consider the Implementing Agreement to be an integral part of the proposed Agreement, in view of the important commitments it entails and the fact that it would constitute a subsequent arrangement if submitted separate from the proposed agreement, these Departments sought to "ensure[] that [the approvals and consents provided therein would] meet[] all requirements for subsequent arrangements under the Act." H.R. Doc. 100-128, supra, at p. 259.

16/ Timely warning is the foremost factor in the proliferation risk determination. Other factors include:

-- whether the nation is firmly committed to effective non-proliferation policies and is genuinely willing to accept conditions which would minimize the risk of proliferation;

-- whether the nation has a security agreement or other important foreign policy relationship with the United States;

-- the nature and stability of the recipient's government;

-- the recipient's government's military and security position; and

(continued...)

The standard of timely warning applies explicitly to non-nuclear-weapon states because these countries have not previously been known to have detonated a nuclear explosive device. When reprocessing or the return of plutonium is authorized for a nuclear-weapon state, the country involved already has the capability and has detonated a nuclear explosive device. This element of unpredictability is removed from the evaluation in assessing increased risk. The only increase in risk would be that associated with the greater quantities of plutonium that the nuclear-weapon state would have to safeguard.

Although Japan is an advanced nuclear nation, it is a non-nuclear-weapon state. Therefore, the standards of the Act that apply to non-nuclear-weapon states must be applied to Japan. The Departments of State and Energy purported to apply the standards of section 131(b)(2) to the approvals authorizing reprocessing and the return of plutonium to Japan. These Departments determined that the approvals provided by the proposed Agreement "will not result in a significant increase" of the risk of proliferation. This determination applies over the 30-year period of the Agreement.

In considering timely warning, the Departments of State and Energy's analysis provided:

"The law is silent as to what specific information must be taken into account in considering, and determining whether the 'timely warning' requirement is met. In view of the prominence accorded timely warning in the law, it is clear that a broad range of technical, political, and other factors, including, but not limited to, safeguards and physical protection, can be relevant in detecting diversion, and should be considered." H.R. Doc. 100-128, supra, at p. 369.

The Departments of State and Energy's analysis considered the following factors in their timely warning evaluation:

- Japan's research, development and production programs' relevant capabilities
- Japan's industrial capabilities
- Japan's scientific and technical capabilities

16/(...continued)

-- the energy resources available to the cooperation party. S. Rept. No. 467, supra, at p. 12.

- The availability of special nuclear material in Japan, and

- Indicators of diversion-relevant activities including:

- safeguards --

- nuclear explosive-related indicators (i.e. mobilization of dedicated resources and their organization)

- political and economic trade indicators.
H.R. Doc. 100-128, supra, at pp. 369-386.

The analysis concluded that Japan is a technologically advanced country that has or could obtain a large part of the required technology, facilities, and equipment necessary to produce components for a nuclear explosive device. In addition, the analysis acknowledges that Japan has acquired sufficient special nuclear material to produce a nuclear explosive device, should it choose to do so. Clearly, from a strictly technical basis, Japan can hardly be distinguished from a nuclear-weapon state. However, the analysis contends that, if Japan were to change its policies and attempt to make an explosive device, it would require the redirecting of key personnel and the acquisition of unique equipment and production facilities not available from Japanese domestic sources. These actions would provide the United States with prior warning of a shift in Japan's nuclear policies to give the United States time to adequately respond. Further, the analysis states that the safeguards and other indicators of diversion-relevant activities would provide numerous "windows" on the program that would provide the United States with timely warning.

Although timely warning was not specifically defined in the Act, the Senate Report stated:

"... the standard of timely warning . . . is strictly a measure of whether warning of a diversion will be received far enough in advance of the time when the recipient could transform the diverted material into an explosive device to permit an adequate diplomatic response." S. Rept. No. 467, supra, at p. 11.

Neither the Act nor its legislative history strictly confine timely warning to a technical assessment. However, political and economic factors may be relied on only to the extent they contribute to intelligence information that would enable the executive branch to become aware of plans

for a possible diversion for nuclear materials prior to the diversion occurring or to the extent they could affect the timeliness of an adequate diplomatic response.

These factors cannot be used to avoid performing the technical assessment of the capability and proficiency of a recipient country to convert diverted material into a nuclear explosive device. This technical assessment of conversion time is crucial to the timely warning determination.^{17/} Timely warning is present only if the United States could effectively respond to a diversion before a recipient country could successfully convert diverted material into a nuclear explosive device.

It has been argued that the timely warning standard can only be applied on a request-by-request basis. However, the Act does not specifically require such a review. Nevertheless, the legislative history does provide that the timely warning standard was to be applied in an effective and systematic manner. Therefore, while a request-by-request review is not specifically mandated, the timely warning evaluation must be more than a projection of future events.

Although we think it is possible to make the necessary proliferation risk determination and timely warning judgment when the advance approval is limited to the retransfer of spent fuel for reprocessing to facilities in nuclear weapon states, we think it becomes particularly difficult to apply these substantive standards if the advance approvals involve reprocessing in or retransfer of plutonium to a non-nuclear-weapon state, such as Japan. In our view, it cannot be asserted with any degree of confidence that, over a 30-year period, technical capabilities of a cooperating party, anticipated conversion times, safeguards capabilities, United States political relationships with the cooperating party, etc. would all be such as to assure the existence of timely warning at all times or even ensure there would be no increase in proliferation risks over the 30-year period. This is even more so here, where the approvals are so broad

^{17/} Conversion time includes consideration of such things as the amount, type, form and location of the diverted material, the facilities available to convert the material to weapon-useable form and to assemble a nuclear explosive device, and the availability of personnel and other scientific and technical resources to design, test and manufacture the components of a nuclear explosive device.

and open-ended.^{18/} Accordingly, we do not think that the substantive standards can be applied to the blanket approvals at issue here.

CONCLUSION

We have concluded that the requirements of subsections 123(a)(5) and (7) are not met and the standard of timely warning cannot be achieved when applied to the broad, open-ended, blanket approvals that would be provided under the proposed Agreement.

According to the analysis of the Departments of State and Energy:

"The implementing agreement provides to Japan advance, long-term consent for specified reprocessing, transfers, alteration and storage of nuclear material subject to the agreement for cooperation, but only where the reprocessing and subsequent use of the recovered plutonium meet and continue to meet the criteria set out in U.S. law, including criteria relating to safeguards and physical protection. . . ." H.R. Doc. 128, supra, at pp. 258-259. (Emphasis added.)

As we previously stated, we do not believe the Act intended that the subsequent decision-making or oversight of the United States would be based on the executive branch's assessment of the implementation of the activities authorized by a one-time blanket approval for reprocessing activities and the subsequent return of plutonium to a non-nuclear-weapon state. Nor did the Act intend that United States oversight would be limited to our ability to terminate or suspend an agreement under certain extreme conditions.

Rather, we think that the Act anticipated effective United States control over reprocessing and retransfer activities that include an oversight role for both the Congress and the public.

^{18/} The consents and approvals provided by the Implementing Agreement would last the life of the Agreement. They apply to facilities within Japan not yet in existence and for which no safeguard concept has been developed. In addition the transfer back of plutonium from England and France would be over a yet undecided route. The plutonium itself will be shipped in casks that have not been designed and must before being used be certified to be crash-worthy.

As stated above, if the subsequent arrangement is associated with reprocessing, the Secretary of Energy must provide the cognizant congressional committees with a report containing his reason for entering into the arrangement, and a period of 15 days of continuous session must elapse before the arrangement can become effective.19/ If the subsequent arrangement involves reprocessing or the subsequent return of significant quantities of plutonium to a non-nuclear-weapon state, the report must include a proliferation risk determination and timely warning analysis.

The Secretary must also publish notice of any proposed subsequent arrangement at least 15 days before it becomes effective in the Federal Register along with his written determination that the arrangement will not be inimical to the common defense and security.20/

Under the proposed Agreement, the United States control over reprocessing within Japan and the subsequent return to Japan of significant quantities of plutonium is limited to the executive branch's monitoring of the implementation of these activities authorized in the Implementing Agreement. Based on that monitoring, the Agreement could be terminated or the Implementing Agreement suspended but only in the extreme

19/ The President can shorten the review period to 15 calendar days if he finds an emergency exists due to unforeseen circumstances requiring immediate entry into a subsequent arrangement.

20/ We note that the Secretary of Energy does not plan to publish in the Federal Register the notice or determinations regarding the consents and approvals provided by the proposed Agreement. It is believed by the Departments of Energy and State that:

"The requirement for public notice of proposed subsequent arrangements through publication in the Federal Register, . . . will be satisfied by publication in the Congressional Record of the Presidential transmittal of the proposed Agreement for Cooperation and by the publication as a House document of the Agreement along with all related documents." H.R. Doc. 100-128, supra, at p. 305.

We disagree. We do not think publication as a House document or in the Congressional Record satisfy a statutory requirement of publication in the Federal Register. The primary audience of the latter is the public in general and not just the Congress.

case. The Congress has no further oversight role and neither the public or the Congress receive further notice of how the activities are being implemented.

We recognize the need to be able to provide nuclear advanced nations that are close allies, such as Japan, with predictable, long-term, reliable use of the nuclear materials we provide. However, this need has to be balanced with our proliferation concerns and controls required by the Act.

We note that the Act does provide for a type of generic or programmatic approval process. Under subsection 131(a)(3), the terms and conditions necessary for approvals associated with reprocessing can be included in the Agreement for Cooperation. However, the actual approval is still provided under the subsequent arrangement process, but on an expedited basis.

In this context, we disagree with the statement in the NPAS that:

". . . There is no substantive difference between [a commitment in an agreement for cooperation to approve reprocessing or retransfer for reprocessing under specified conditions] and the proposed Agreement which makes the approval for reprocessing and alteration granted in the Implementing Agreement contingent upon the continued compliance with those same conditions."

H.R. Doc. 128, supra, at p. 227.

The procedures specified in the former, are of course, contemplated by subsection 131(a)(3) of the Act, but thereunder, congressional review may occur on a request-by-request basis under the subsequent arrangement process. In the procedure presented by the latter, subsequent decision-making on the implementation or suspension of the approvals in the Agreement for Cooperation lies with the executive branch alone, with no necessary notification or participation by the Congress or the public.

We think it is more in keeping with the purpose and intent of the Act to use the subsection 131(a)(3) mechanism when providing a non-nuclear-weapon cooperating party, such as Japan, with broad authority to use United States-supplied nuclear materials in activities associated with reprocessing.

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APPENDIX I - PERTINENT SECTIONS OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED**42 U.S.C. § 2153(a)(5)**

"a guaranty by the cooperating party that any material or any Restricted Data transferred pursuant to the agreement for cooperation and, except in the case of agreements arranged pursuant to section 2121(c), 2164(b), or 2164(c) of this title, any production or utilization facility transferred pursuant to the agreement for cooperation or any special nuclear material produced through the use of any such facility or through the use of any material transferred pursuant to the agreement, will not be transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States;"

42 U.S.C. § 2153(a)(7)

"except in the case of agreements for cooperation arranged pursuant to section 2121(c), 2164(b), or 2164(c) of this title, a guaranty by the cooperating party that no material transferred pursuant to the agreement for cooperation and no material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to the agreement for cooperation will be reprocessed, enriched or (in the case of plutonium, uranium 233, or uranium enriched to greater than twenty percent in the isotope 235, or other nuclear materials which have been irradiated) otherwise altered in form or content without the prior approval of the United States;"

42 U.S.C. § 2160(b)(2)

"the Secretary of Energy may not enter into any subsequent arrangement for the reprocessing of any such material in a facility which has not processed power reactor fuel assemblies or been the subject of a subsequent arrangement thereof prior to March 10, 1978, or for subsequent retransfer to a non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, unless in his judgment, and that of the Secretary of State, such reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time

that approval is requested. Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device;"

42 U.S.C. § 2160(a)(3)

"The United States will give timely consideration to all requests for prior approval, when required by this chapter, for the reprocessing of material proposed to be exported, previously exported and subject to the applicable agreement for cooperation, or special nuclear material produced through the use of such material or a production or utilization facility transferred pursuant to such agreement for cooperation, or to the altering of irradiated fuel elements containing such material, and additionally, to the maximum extent feasible, will attempt to expedite such consideration when the terms and conditions for such actions are set forth in such agreement for cooperation or in some other international agreement executed by the United States and subject to congressional review procedures comparable to those set forth in section 2153 of this title."

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APPENDIX II - PERTINENT SECTIONS OF THE PROPOSED JAPANESE AGREEMENT**Article 3 - Storage**

Plutonium and uranium-233 (except as contained in irradiated fuel elements), and high enriched uranium, transferred pursuant to this Agreement or used in or produced through the use of nuclear material or equipment so transferred, shall only be stored in a facility to which the parties agree.

Article 4 - Retransfer

Material, nuclear material, equipment and components transferred pursuant to this Agreement and special fissionable material produced through the use of such material, nuclear material or equipment may be transferred only to persons authorized by a receiving party or, if the parties agree, beyond the territorial jurisdiction of the receiving party.

Article 5 - Reprocessing and Alteration

1. Nuclear material transferred pursuant to this Agreement and special fissionable material used in or produced through the use of material, nuclear material or equipment so transferred may be reprocessed if the parties agree.

2. Plutonium, uranium-233, high enriched uranium and irradiated nuclear material transferred pursuant to this Agreement or used in or produced through the use of material, nuclear material or equipment so transferred may be altered in form or content by irradiation. Such special fissionable material may otherwise be altered in form or content if the parties agree.

Article 11 - Mutual Agreements Necessary to Satisfy the Requirements of Articles 3, 4 & 5.

In order to facilitate activities subject to Articles 3, 4 and 5 of this Agreement, the parties shall make,

consistent with the objective of preventing nuclear proliferation and with their respective national security interests, and perform in good faith separate arrangements that will satisfy the requirements for mutual agreement set forth in those Articles on a long-term, predictable and reliable basis, and in a manner that will further facilitate peaceful uses of nuclear energy in their respective countries.

Article 12 - Termination

1. If either party at any time following entry into force of this Agreement:

(a) does not comply with the provisions of Articles 3, 4, 5, 6, 7, 8, 9 or 11 of this Agreement or the decisions of the arbitral tribunal referred to in Article 14 of this Agreement; or

(b) terminates or materially violates a safeguards agreement with the Agency,

the other party shall have the rights to cease further cooperation under this Agreement, terminate this Agreement and require the return of any material, nuclear material, equipment or components transferred pursuant to this Agreement or any special fissionable material produced through the use of such items.

2. If the United States of America detonates a nuclear explosive device using material, nuclear material, equipment or components transferred pursuant to this Agreement, or nuclear material used in or produced through the use of such items, the Government of Japan shall have the same rights as specified in paragraph 1 of this Article.

3. If Japan detonates a nuclear explosive device, the Government of the United States of America shall have the same rights as specified in paragraph 1 of this Article.

4. Before either party takes steps to cease cooperation under this Agreement, to terminate this Agreement, or to require such return, the parties shall consult for the purpose of taking corrective steps and shall carefully consider the economic effects of such actions, taking into account the need to make such other appropriate arrangements as may be required.

5. If either party exercises its rights under this Article to require the return of any material, nuclear material, equipment or components, it shall compensate the other party or the persons concerned for the fair market value thereof.

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APPENDIX III - IMPLEMENTING AGREEMENT

**Implementing Agreement
Between the Government of
the United States of America
and the Government of Japan
Pursuant to Article 11
of Their Agreement for
Cooperation Concerning
Peaceful Uses of Nuclear Energy**

WHEREAS the Government of the United States of America and the Government of Japan (hereinafter referred to as "the parties") signed the Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy on November 4, 1987 (hereinafter referred to as "the Agreement for Cooperation");

WHEREAS Article 3 of the Agreement for Cooperation provides requirements for the storage of certain special fissionable material;

WHEREAS Article 4 of the Agreement for Cooperation provides requirements for the transfer of certain nuclear material;

WHEREAS Article 5 of the Agreement for Cooperation provides requirements for the reprocessing of certain nuclear material and for the alteration in form or content of certain special fissionable material;

WHEREAS Article 11 of the Agreement for Cooperation provides that to facilitate the peaceful uses of nuclear energy, the parties shall make, consistent with the objective of preventing nuclear proliferation and with their respective national security interests, and perform in good faith separate arrangements whereby the requirements for mutual agreement set forth in Articles 3, 4 and 5 will be satisfied on a long-term, predictable and reliable basis;

The parties, in fulfillment of Article 11 of the Agreement for Cooperation, have agreed as follows:

Article 1

1. (a) The parties hereby agree pursuant to Articles 3, 4 and 5 of the Agreement for Cooperation to the following activities:

- (i) reprocessing or alteration in form or content in the facilities within the territorial jurisdiction of either party which are listed in Annex 1;
 - (ii) storage in the facilities within the territorial jurisdiction of either party which are listed in Annex 1 or 2; and
 - (iii) transfer beyond the territorial jurisdiction of either party of irradiated nuclear material, except irradiated high enriched uranium and uranium-233, from facilities listed in Annex 1, 2 or 3 to facilities listed in Annex 1.
- (b) The parties hereby agree pursuant to Article 4 of the Agreement for Cooperation to the transfer beyond the territorial jurisdiction of either party of unirradiated source material and low enriched uranium to third countries designated in writing by the parties but not for the production of high enriched uranium.
2. (a) The parties hereby agree pursuant to Articles 3 and 5 of the Agreement for Cooperation to the following activities within each calendar year in each of the facilities within the territorial jurisdiction of either party designated in accordance with procedures agreed to by the parties:
- (i) alteration in form or content of plutonium, uranium-233 and high enriched uranium in an aggregate quantity not to exceed 1 effective kilogram of these nuclear materials and of irradiated nuclear material containing plutonium, uranium-233 or high enriched uranium in an aggregate quantity not to exceed 1 effective kilogram of these nuclear materials;
 - (ii) storage of plutonium and uranium-233 (except as contained in irradiated fuel elements) and high enriched uranium in an aggregate quantity not to exceed 5 effective kilograms of these nuclear materials; and
 - (iii) reprocessing of irradiated nuclear material containing plutonium or uranium-233 in an aggregate quantity not to exceed 500 grams of these nuclear materials.
- (b) The parties hereby agree pursuant to Article 4 of the Agreement for Cooperation to the transfer

within each calendar year of unirradiated nuclear material containing plutonium in quantities not to exceed 500 grams to each facility designated in writing by the parties within the territorial jurisdiction of a third country for irradiation and for its subsequent return to the territorial jurisdiction of the transferring party for testing and analysis. The transfer of unirradiated nuclear material shall take place in quantities not to exceed 500 grams of contained plutonium per shipment.

3. (a) Each party shall keep the government of a third country informed of the facilities within the territorial jurisdiction of that government which are listed in Annex 1 or which are designated pursuant to subparagraph (b) of paragraph 2 of this Article. Each party shall give the government of the third country its consent if required under its agreement with that government to:
 - (i) reprocessing, alteration in form or content and storage (in the case of facilities listed in Annex 1) and irradiation (in the case of facilities designated pursuant to sub-paragraph (b) of paragraph 2);
 - (ii) return of the nuclear material concerned (except recovered plutonium) to the territorial jurisdiction of the other party; and
 - (iii) return of the recovered plutonium concerned in quantities of two kilograms or more per shipment to the territorial jurisdiction of the other party in accordance with the following procedure: prior to each shipment the receiving party will provide the other party a written notification which shall include a statement advising that the measures arranged for the international transport are in accordance with the guidelines set forth in Annex 5 and a description of such measures.
- (b) When the procedure set forth in sub-paragraph (a)(iii) above is not to be followed, the return of the recovered plutonium may only take place upon consent of the non-receiving party under the applicable agreement.
4. Sub-paragraph (a) of paragraph 1 and paragraphs 2 and 3 above shall apply only where the recovered plutonium concerned is or will be located in a facility listed in Annex 1 or 2 or designated

pursuant to paragraph 2 of this Article, unless otherwise accepted in writing by the parties.

5. The additional procedural conditions for this Implementing Agreement are set forth in the Agreed Minutes to this Implementing Agreement.

Article 2

1. Annexes 1, 2, 3 and 4 of this Implementing Agreement may be modified in accordance with the procedures set forth in this Article and Annex 5 of this Implementing Agreement may be modified by agreement of the parties, without amendment of this Implementing Agreement.
2. Unless otherwise agreed by the parties, either party may add to or delete from Annex 1, 2, 3 or 4 a facility within its territorial jurisdiction only after notifying the other party in writing in accordance with the provisions of this Article and receiving a written acknowledgment which shall be limited to a statement that such notification has been received. Such acknowledgment shall be given no later than 30 days after the receipt of the notification.
 - (a) For an addition to Annex 1 or 2 of a facility listed in Annex 3 or 4, the notification shall contain:
 - (i) the name of the owner or operator of the facility, the facility name and the existing or planned capacity;
 - (ii) the facility location, the type of nuclear material involved, the approximate date of introduction of such nuclear material into the facility and the type of activity; and
 - (iii) a statement that a relevant safeguards arrangement (namely, a facility attachment or, in the case of ad hoc inspection, an arrangement therefor) has been agreed upon with the International Atomic Energy Agency (hereinafter referred to as "the Agency") and that physical protection measures as required by Article 7 of the Agreement for Cooperation will be maintained;
 - (b) In addition to the information specified in sub-paragraph (a) above, the notification shall contain the following information:

(i) For an addition to Annex 1 of a facility listed in Annex 4, except where sub-paragraph (b)(ii) is applicable, a statement affirming that the safeguards arrangement is in accordance with the relevant safeguards concept that has been agreed upon between the parties and a description of the key elements contained in the safeguards arrangement.

(ii) For an addition to Annex 1 of a facility listed in Annex 4, when safeguards applicable to that facility are already being applied at an Annex 1 facility within the territorial jurisdiction of the notifying party, a statement affirming that the safeguards arrangement will be in all significant respects the same as that being applied at the corresponding facility listed in Annex 1 and a description of the key elements contained in the safeguards arrangement.

(c) To delete a facility from Annex 1, 2, 3 or 4 or to add a facility to Annex 3 or 4 the notification shall contain the facility name and other relevant information available.

3. A facility within the territorial jurisdiction of the government of a third country may be added to or deleted from Annex 1 by agreement of the parties.
4. (a) When circumstances so require, the parties shall seek to develop as soon as possible a safeguards concept for a facility which is or will be listed in Annex 4 to avoid delaying its operation.
(b) When the Agency cannot administer safeguards in accordance with the safeguards concept that has been agreed upon between the parties with respect to a facility then listed in Annex 4, the parties shall make every effort to ensure that this does not delay the operation of the facility. For this purpose consultations shall take place between the parties or between either party and the Agency. The facility shall be added to Annex 1 pursuant to sub-paragraph (a) of paragraph 2 above on a provisional basis provided that the parties are satisfied that adequate safeguards of the Agency will be applied in the interim. The parties shall make every effort to modify, as may be necessary, the relevant safeguards concept to enable the Agency to administer safeguards in accordance therewith.

Article 3

1. This Implementing Agreement shall enter into force at the same time as the Agreement for Cooperation and shall remain in force in accordance with Article 11 of the Agreement for Cooperation for the same duration. The parties shall, at the request of either of them, consult with each other whether to amend this Implementing Agreement or to replace it with a new agreement.
2. Either party may suspend the agreement it has given in Article 1 of this Implementing Agreement in whole or in part to prevent a significant increase in the risk of nuclear proliferation or in the threat to its national security caused by exceptional cases such as a material breach by the other party of the Treaty on the Non-Proliferation of Nuclear Weapons or withdrawal therefrom, or a material breach by the other party of its safeguards agreement with the Agency, of this Implementing Agreement or of the Agreement for Cooperation. Any decision on such suspension would only be taken in the most extreme circumstances of exceptional concern from a non-proliferation or national security point of view, would be taken at the highest levels of government, and would be applied only to the minimum extent and for the minimum period of time necessary to deal in a manner acceptable to the parties with the exceptional case.
3. During the period of suspension the parties may agree on a case-by-case basis to the activities specified in Article 1 of this Implementing Agreement. Prior to any suspension the parties shall consult with each other to determine the facts of the matter and to discuss to what extent, if at all, a suspension is necessary. The suspending party shall carefully consider the economic effects of such suspension and shall seek to the maximum extent possible to avoid the disruption of international nuclear trade and the fuel cycle operations under this Implementing Agreement. The parties may agree in accordance with Article 14 of the Agreement for Cooperation to refer any of these questions to a third party for resolution.
4. The suspending party shall keep under constant review the development of the situation which caused the

suspension and shall withdraw the suspension as soon as warranted. The parties shall, at the request of either of them, consult with each other immediately to determine whether there is a basis for the withdrawal of such suspension.

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Digest

1. The General Accounting Offices finds that the proposed Agreement for Cooperation between the Government of the United States and the Government of Japan concerning Peaceful uses of Nuclear Energy (Agreement) does not meet the requirement of subsection 123(a)(5) and (7) of the Atomic Energy Act of 1954, as amended, or the timely warning standard of section 131.
2. To achieve the purpose of the Atomic Energy Act of 1954, as amended, if advance approvals associated with reprocessing are included in an agreement for cooperation both the statutory requirements of section 123 (dealing with agreements for cooperation) and section 131 (dealing with subsequent arrangements) must be met.

APPENDIX 28

**EXECUTIVE BRANCH COMMENTS ON FEBRUARY 29, 1988 REPORT BY THE
COMPTROLLER GENERAL OF THE UNITED STATES**11

The letter and legal memorandum are fundamentally flawed in two ways: (1) errors of fact or in characterization of the proposed Agreement; and (2) errors in analysis. The legal conclusions reached -- that the proposed Agreement does not meet the requirements of subsections 123a.(5) and (7) of the Atomic Energy Act (AEA)(42 U.S.C. 2160a. (5), (7)) or the timely warning standard of Section 131 of the Act (42 U.S.C. 2160b. (2)) -- are not supported by the analysis presented and are contrary to the views of all of the responsible Executive branch departments and agencies, as well as the Nuclear Regulatory Commission (NRC) and past precedent. These comments address the various assertions contained in the letter and memorandum.

I. Errors of Fact or in Characterization of the Proposed Agreement

1. Assertion: Past approvals for reprocessing have been provided to Japan only on a "request-by-request" basis. (p. 2 of letter) The practice prior to the Nuclear Non-Proliferation Act of 1978 (NNPA)(92 Stat. 120-151) was to provide approvals only on a "request-by-request" basis. (p. 11 of legal memorandum (hereinafter "memo"))

Response: The assertion that past practice has been limited to "request-by-request" approvals to Japan is either highly misleading or erroneous. Under the existing Agreement for Cooperation with Japan (Agreement for Cooperation Concerning Civil Uses of Atomic Energy, February 26, 1988, 9 U.S.T. 1383, 10 U.S.T. 70, 15 U.S.T. 282 (entered into force July 10, 1968)), reprocessing of United States-origin material requires "a joint determination of the Parties that the provisions of Article XI [relating to safeguards] may be effectively applied". (Article VIII C.) For Japan's currently operational reprocessing facility at Tokai-Mura, this determination was made initially for a two-year period in 1977 (prior to enactment of the NNPA). T.I.A.S. 8734. After extensions, a new determination was made in 1981 that covered a three-year period. T.I.A.S. 10294. That determination has been renewed on an annual basis in anticipation of new, longer-term arrangements. E.g., 51 Fed. Reg. 181 at 33107 (Sept. 18, 1986).

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2. Assertion: The new agreement provides Japan with "open-ended, blanket approvals" to reprocess, store and transfer nuclear material. (pp. 2-3 of letter; p. 13 of memo)

Response: The approvals contained in the Implementing Agreement are neither "open-ended" nor "blanket" in nature. The Implementing Agreement applies only to a defined Japanese program. Annexes 1, 2, and 3 list the facilities in Japan and Europe currently in operation for which United States consent rights are to be exercised; Annex 4 contains facilities in Japan which may be added to this approved program if acceptable safeguards, physical protection and other conditions are satisfactorily met.

-- In practice this means, for example, that reprocessing under the Implementing Agreement may only take place initially at Tokai-Mura and two facilities in Europe. A second reprocessing plant Japan is building may be added to the approved program later, but only if it is, inter alia, safeguarded in accordance with a safeguards concept that has been agreed to by the United States and subject to physical protection measures deemed adequate by the United States. Plutonium recovered through such reprocessing may only be further processed or used at facilities in Japan that are also part of the approved Japanese program set out in the Implementing Agreement. International transfers of United States-origin nuclear material, similarly, may only be made to specific countries and for specific purposes. In short, United States consent rights are not waived or exercised in a "blanket" fashion, but are carried out only for a carefully defined Japanese program.

-- The GAO gives the misleading impression, in particular, that U.S. approvals might apply to unknown, future facilities regardless of the applicable international safeguards (e.g., U.S. consents "apply to facilities within Japan not yet in existence and for which no safeguard concept has been developed", p.20 of memo). In fact, a facility on Annex 4 of the Implementing Agreement may be added to Annex 1 or 2 only if there are comparable facilities already in operation in Japan under safeguards acceptable to the United States, or the United States and Japan have agreed upon a relevant safeguards concept for the facility. As is true under the current agreement, United States approvals for new safeguards arrangements will be subject to the subsequent arrangement process under Section 131 of the AEA. Thus, in no case will the Implementing Agreement apply to facilities unless

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the United States has specifically approved the safeguards necessary for the use of United States-origin plutonium there.

3. Assertion: In the event of a problem, U.S. recourse is limited to terminating the Agreement for Cooperation or suspending the Implementing Agreement (p.3 of letter) and this is only possible if the approvals are not being properly implemented. (p.14 of memo)

Response: These assertions are incorrect. The purpose of the right of suspension is to provide the United States with greater flexibility to address situations of national security or non-proliferation concern than would ordinarily be true under the law of treaties. In the absence of a specific treaty provision, the primary bases for suspension of performance under the international law of treaties (as found in customary international law and codified in the Vienna Convention on the Law of Treaties) are material breach and fundamental change of circumstances. These grounds for suspension are limited: a material breach must be an important delict and does not include actions of third parties; a change of circumstances must be fundamental, not foreseen by the parties or caused by the party seeking to halt performance, and its effect must be to transform the extent of that party's obligations under the agreement. A change of circumstances ordinarily would not permit suspension of only part of an agreement.

-- The Implementing Agreement with Japan establishes a U.S. suspension right beyond that automatically conferred by the law of treaties. Its scope is tied to the statutory provisions underlying the U.S. approvals: Sections 123a. and 131a. of the AFA, which require agreements for cooperation and approvals pursuant to such agreements to be consistent with U.S. national security interests; and Section 131b. of the AEA, which requires consents for reprocessing and plutonium transfers to be based on a determination of no significant increase in the risk of proliferation. The suspension right set forth in Article 3 of the Implementing Agreement permits the United States to lift its consent to the extent necessary if circumstances should arise in which either of these standards is no longer met. This right may be exercised at any time, may be used to suspend some or all of the United States consents, and may be invoked to suspend any particular consent in whole or in part. The Implementing Agreement and its Agreed Minutes make clear that actions of Japan (whether lawful or unlawful), of private parties or of third countries may all provide the basis for a United States decision to suspend

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its consent. Moreover, suspension would not require termination of either the Agreement for Cooperation or the Implementing Agreement.

-- The Agreement for Cooperation itself also permits United States remedial actions short of termination. Under Article 12, the United States may cease cooperation in response to delineated Japanese actions (including material breach of the Agreement or detonation of any nuclear explosive device). In such circumstances the United States would also have the right to the return of all nuclear items transferred to Japan or produced through their use. Finally, at any time the United States has the right to institute bilateral consultations concerning any question concerning the application of the Agreement (Article 14 (2)). In short, the actual texts of the Agreement and Implementing Agreement make clear that United States recourse is in no way limited to terminating or suspending the agreements as a whole nor is a United States response confined to circumstances where the approvals in the Implementing Agreement are not being properly implemented.

4. Assertion: The President has failed to respond to the concerns of the cognizant congressional committees. (p. 6 of memo)

Response: Even by the time the GAO Report was issued, the President had entered into a dialogue with the committees. Through a variety of means, both before and since, the Administration has addressed the committees' concerns directly.

-- During the period of formal Congressional review, witnesses appeared on behalf of the Administration at hearings held by the Senate Foreign Relations Committee (SFRC) and the House Foreign Affairs Committee (HFAC). Extensive briefings were also provided to members and staff.

-- On January 20, 1988, prior to the expiration of the initial 30 day period of Congressional consultations on proposed Agreement, William L. Rall (Assistant to the President for Legislative Affairs) wrote the SFRC Chairman to report that the President had instructed the Executive departments and agencies to examine thoroughly the views and concerns expressed by the Committee and that the results of that study would be provided to the Congress. The letter pledged to continue a good-faith dialogue between the Administration and the Congress and described the benefits of the Agreement to the United States.

-- On January 29, 1988, the President sent a three page letter to the SFRC and HFAC members addressing the legal, transportation and non-proliferation policy points raised in their letters. He attached a nine page "Review of Congressional Legal Concerns About Agreement for Peaceful Nuclear Cooperation with Japan" which had been prepared at his direction by the legal offices of the Departments of State, Defense, and Energy and the Arms Control and Disarmament Agency (ACDA). Attached to that new analysis were also twelve pages of analysis prepared by those agencies in 1985 in response to questions posed by the General Accounting Office.

-- On May 26, 1988, after completion of the Congressional review period, Deputy Secretary of State John Whitehead wrote the SFPC and HFAC chairmen on behalf of the Administration to confirm a number of intentions and understandings regarding the Agreement. The letter covered such topics as plutonium shipments, suspension rights, the framework for the approvals contained in the Agreement, and additional steps the Administration would be taking to keep Congress informed of the implementation of the Agreement. On June 13, 1988, an additional explanatory paper was provided by the Administration to the committees concerning the suspension rights in the Agreement. Collectively, these actions in combination with the initial 452 page submission of the Agreement (H. Doc. 100-128, 100th Cong, 1st Sess. (Nov. 9, 1987)) provided the Congress with a thorough basis for deciding whether to permit the Agreement to enter into force.

5. Assertion: The NRC expressed concerns over the provisions for advance approval for plutonium use in future Japanese facilities. (p. 8 of memo)

Response: This statement is correct but highly misleading since it is cited in a way that suggests the NRC questioned the legality of those advance consents. The Chairman of the NRC testified before the HFAC on December 16, 1987 that he did not disagree with the Executive branch judgment that the proposed Agreement meets all statutory requirements.

6. Assertion: The Secretary of Defense has opposed the proposed Agreement. (p. 10 of memo)

Response: This statement is highly misleading since it is cited without reference to the basis for or extent of the Department of Defense's early opposition to some features of the Agreement or the evolution of the Department's views. The details remain classified. However, on January 29, 1988 Secretary Carlucci wrote an unclassified letter to members of

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the SFRC and HFAC as well as others in Congress, stating that the Department of Defense fully supports the proposed agreement (its earlier concerns having been resolved satisfactorily) and that the Department of Defense is confident that the Agreement fully protects United States interests.

7. Assertion: After the initial 30 day period the Agreement must lie before the HFAC and SFRC for 60 days. (p. 9 of memo)

Response: The Agreement must lie before the Congress for an aggregate period of 90 days of continuous session. An initial 30 day period is for consultations with the HFAC and SFRC concerning the consistency of the terms of the Agreement with the requirements of the AEA. (Section 123b. of AEA) During the succeeding 60 day period, the Agreement is first introduced to the Congress as a whole and then referred to the two Committees. (Section 123d. of AEA) However, the SFRC and HFAC must act on the Agreement within 45 days or they are automatically discharged (Section 130i.(4)). Thus, the Committees cannot frustrate the ability of other members of Congress to review the Agreement or to force a vote on a resolution of disapproval. (Section 130i.(5) of AEA)

-- In this case, the Senate as a body did vote on a joint resolution of disapproval concerning the Agreement. That resolution was defeated 53 to 30. (134 Cong. Rec. S 2677 (March 21, 1988)).

8. Assertion: Congressional review of an agreement for cooperation is "up to a total of 15 days". (p. 15 of memo)

Response: The period of Congressional review is 90 continuous session days, which in this case encompassed more than six calendar months.

9. Assertion: Non-nuclear weapon states are countries which have not previously been known to have detonated a nuclear explosive device. (p. 17 of memo)

Response: This is not the statutory test. Section 4(b) of the NNPA provides that the phrase "non-nuclear-weapon state" as used in that Act and the provisions of the AEA it amended has the same meaning as in the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) (done at Washington, London and Moscow on July 1, 1986, 21 U.S.T. 483). Article IX(3) of the NPT defines "nuclear-weapon state" to mean a state "which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to January 1, 1967" (i.e., the United States, the United Kingdom, France, China, and the USSR). All other states for purposes of the NPT, and therefore for the

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NNPA and AEA, are non-nuclear weapon states. Thus India, which detonated a nuclear explosive device in 1974, is treated as a non-nuclear weapon state for purposes of the AFA, as would any other state that should manufacture and detonate a nuclear explosive device for the first time.

10. Assertion: In assessing timely warning, political and economic factors may only be relied upon to the extent they contribute to "intelligence" information that would enable the executive branch to become aware of plans for a possible diversion for nuclear materials "prior to the diversion occurring" or to the extent they could affect the timeliness of an adequate diplomatic response. (p. 18-19 of memo)

Response: The Executive branch concurs in the interpretation that Section 131b. of the AEA does not confine the timely warning analysis to "technical factors", such as safeguards alone, and permits reliance upon political and economic factors in appropriate situations. However, the reference to "intelligence information" in the memo is misleading because it suggests that demonstrably public actions -- such as a revision of Japan's fundamental no nuclear weapons policy which is grounded in its constitution and the NPT -- could not contribute to timely warning. Further, the reference to information received in advance of a diversion is unduly restrictive since the timeliness of warning depends upon its receipt prior to final fabrication of a device and not whether warning is received prior to the initial diversion of material.

11. Assertion: Over a 30 year period "it cannot be asserted with any degree of confidence" that circumstances would "assure the existence of timely warning at all times or even ensure there would be no increase in proliferation risks over the 30-year period." (p. 19 of memo)

Response: This criticism incorrectly assumes that the Executive branch statutory determinations rest entirely upon "a projection of future events" (p. 19 of memo). It is true that the Implementing Agreement is based upon the close political, economic and security relationship between the United States and Japan, Japan's superlative non-proliferation credentials, the advanced, entirely peaceful nature of Japan's nuclear program, and the application of safeguards and physical protection acceptable to the United States to all nuclear material covered by the Implementing Agreement. However, the Agreement does not rest on the assumption that these or any other circumstances necessarily will remain the case. First, the Agreement imposes stringent requirements in all circumstances as a pre-condition for the Japanese to make use of the United States approvals. Second, the suspension clause,

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along with the Agreement's numerous provisions for consultation and revision, will enable the United States to address a serious degradation in the non-proliferation situation or a significantly increased threat to United States national security, as unlikely as that may be. This provides a stronger foundation than for ordinary subsequent arrangements, since they lack a right of suspension and thus do depend heavily upon a projection of future events.

-- The memo also seems to suggest that timely warning must be present as a pre-condition of United States approvals for reprocessing or plutonium transfers involving non-nuclear weapon states. In fact, the statutory standard is whether the activities proposed would create a significant increase in proliferation risk. (Section 131b. (2) of the AEA) The extent to which relevant circumstances would ensure timely warning must be reviewed in making that judgement, but both the language of the statute and its legislative history make clear that the requisite proliferation risk determination can be made even where timely warning would not be ensured (see, e.g., S. Rep. No. 467, 95th Cong. 1st Sess. at 12 (1977)).

12. Assertion: The transfer of plutonium from Europe to Japan would be over a yet undecided route and in casks that have not been designed. (p. 20 of memo)

Response: These assertions are made as part of the contention that the United States approvals are "open-ended." In fact, Annex 5 of the Implementing Agreement confines routing to a polar route or another route selected to avoid areas of natural disaster or civil disorder, i.e., routes which will maximize the physical protection of the material while in transit. The Administration informed Congress (and the Government of Japan) that it will not permit air shipments through the United States, except for emergency landings at remote military airfields. As a practical matter, this means that any air shipments under the Agreement are likely to transit the pole on a non-stop basis, never overflying the territory of any country except for the points of origin and arrival. Moreover, under the terms of Annex 5 Japan must secure the cooperation and appropriate assistance of the United States for its shipments, so the Agreement requires close coordination with the U.S. in selecting a route, security arrangements and contingency planning.

-- The material in transit must also be in casks which meet the Annex 5 standards ("designed and certified to maintain their integrity even in a crash of the aircraft"). Two such casks have already been certified by the NRC (PAT-1 and PAT-2). The Japanese have designed a third cask which is currently undergoing testing prior to certification. The Administration informed Congress (and the Government of Japan)

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that it will not permit emergency landings in the U.S. unless the casks also meet U.S. domestic legal standards for transit of the United States, including the applicable provisions of Section 5062 of the Omnibus Budget Reconciliation Act of 1987. Thus, cask certification requirements are not open-ended any more than the choice of routing.

13. Assertion: The Executive branch will not be giving adequate public notice of the consents and approvals contained in the Implementing Agreement. (p. 21 of memo)

Response: As described in I(7)-(8) above, the Implementing Agreement was before Congress for some six calendar months, during which public hearings were held, the President's transmittal message and floor debate were published in the Congressional Record, the House separately published all documents pertaining to the Agreement, and extended floor debate was conducted in conjunction with the Senate vote on a resolution of disapproval. Further, the Secretary of Energy, in announcing the subsequent arrangements associated with the Implementing Agreement in the Federal Register drew public attention to all the approvals and consents contained in the Implementing Agreement and the Congressional documents which provide a detailed explication of their terms and rationale. (53 Fed. Reg. 12975 (April 20, 1988))

14. Assertion: The Congress and the public will not receive notice of whether activities carried out under the Implementing Agreement raise proliferation concerns once it enters into force. (p. 22 of memo)

Response: Current law requires the Executive branch to keep both the Congress and the public informed of activities of other nations of potential proliferation concern.

-- First, under Section 601 of the NNPA, the President must submit an annual report to Congress on a broad range of developments pertaining to the behavior of cooperating partners and Executive branch efforts to ensure compliance with adequate non-proliferation controls. The Administration advised Congress that its reports will contain a description of the status of the Agreement, including its relationship to U.S. national interests and progress in developing safeguards technology for Japan's new nuclear facilities.

-- Second, under Section 602(c) of the NNPA, the Departments of State, Commerce, Energy and Defense and ACDA and the NRC must keep three Congressional Committees "fully and currently informed" with respect to their activities to prevent proliferation and "with respect to the current activities of

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foreign nations which are of significance from a proliferation standpoint."

-- Finally, in conjunction with NCR licensing of exports under Section 126 of the AEA, the Executive branch will be informing the Commission of "the extent to which the cooperating party has adhered to the provisions of the applicable agreement for cooperation." Relatedly, under Section 129 of the AEA the Executive Branch is charged with determining, at any time, whether a potential recipient of NRC-licensed exports has "materially violated an agreement for cooperation with the United States" or engaged in other activities of proliferation concern. Through all of these mechanisms, the Executive branch will be providing Congress and the public extensive information on the course of Japanese activities under the Implementing Agreement. As has been true in the past, the Executive branch also will be responding regularly to specific inquiries from interested members of Congress and Congressional committees, as well as the public.

II. Errors of Analysis

The GAO letter and memo reach several conclusions which support the legal approach taken in the Agreement: the AEA does not require a "request-by-request" review of each retransfer or instance of reprocessing and permits advance, long-term approvals for these activities (p. 3 of letter, p. 19 of memo); such approvals may be contained in an agreement for cooperation (p. 11-12 of memo); and, political and economic factors may be relied upon in making a "timely warning" assessment under Section 131b. of the AEA to the extent they can provide evidence of an intent to divert or affect the timeliness of an adequate diplomatic response (pp. 18-19 of memo). Given these premises, it is difficult to discern clearly why the GAO concludes that the proposed Agreement does not meet the requirements of subsections 123a.(5) and (7) of the AEA (p. 3 of letter; pp. 15 and 20 of memo) or the timely warning standard of Section 131 of the AEA (p.3 of letter; pp. 15 and 20 of analysis). For convenience, these comments will address three themes which appear in the analysis, although they are never developed fully or separately: (1) whether the Executive branch non-proliferation and national security judgments are sustainable as a matter of law; (2) whether the programmatic approvals for plutonium use in Japan are forbidden by law; and (3) whether the Executive branch complied with statutory procedures in making the determinations underlying the Agreement and will be complying with statutory procedures in carrying out the Agreement.

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1. The Executive branch non-proliferation and national security judgments.

The clearest substantive criticism of the Agreement appears in the GAO's statement that it believes it is "particularly difficult" to apply the applicable statutory standards to advance approvals for plutonium use by a non-nuclear-weapon state and that therefore it does "not think that the substantive standards can be applied to the blanket approvals at issue here" (e.g., p. 20 of memo)(emphasis added). Elsewhere, the GAO challenges whether the Agreement provides for "effective controls" to protect U.S. national security and non-proliferation interests. (p.3 of letter; p.20 of memo)(emphasis added)

The fundamental flaw in this criticism is that the question of whether the President and the Secretaries of Energy and State exceeded their statutory authority does not depend upon whether the GAO or anyone else agrees with their national security and non-proliferation judgments. Under governing Supreme Court precedent, the President and his senior Cabinet officers are to be accorded wide latitude in deciding how to balance the benefits and risks associated with different courses of action in the national security and foreign affairs field. See, e.g., Chicago & Southern Air Lines, Inc. v. Waterman Steamship Corp., 333 U.S. 103, 112 (1947); United States v. Curtiss-Wright Corp., 299 U.S. 304, 320 (1936); Curran v. Laird, 420 F.2d 122, 131 (D.C. Cir. 1969). In this case the President and his two cabinet officers applied the general standards of the AEA to the terms of the Agreement, in light of this country's close security relationship with Japan and its outstanding non-proliferation credentials. (The Presidential determination under Section 123b. is printed in H.Doc. 100-128, p. 201; the determinations of the Secretaries of Energy and State under Section 131a. are at p. 259; their determinations under Section 131b.(2) are also at p. 259). The analysis underlying their substantive judgments, which has been shared with both Congress and the public, clearly provides an adequate legal basis for their conclusions, including their conclusions that the Act's substantive standards can be applied to the approvals in the Agreement and that the Agreement establishes effective controls to protect the pertinent U.S. national interests. (See H. Doc. 100-128 at 285-436, analysis of Departments of Energy and State; id. at 205-256, NPAS prepared by ACDA).

To the extent the GAO's contrary conclusion derives from an alleged "open-ended, blanket" character of the approvals in the Implementing Agreement (e.g., p. 19 of memo), parts I(2),

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I(3), and I(11) above point out the flaws in this characterization.

2. Possible a priori prohibition on making these non-proliferation and national security judgments.

At times the GAO's analysis suggests, alternatively, that there is a flat statutory prohibition on the judgments made by the President and his cabinet officers. The analysis would appear to tie this prohibition to the fact that the Agreement provides for plutonium use in Japan, a non-nuclear-weapon state (see pp. 2-4 of letter; pp. 3, 15, and 19-20 of memo).

There are a number of problems with this approach:

-- a. The distinction drawn by the GAO between different kinds of programmatic arrangements is not found in the language of the AEA. Where Congress has not directly addressed an issue, an agency is entitled to rely upon "a permissible construction of the statute", Chevron U.S.A. v. Natural Resources Defense Council, Inc., 467 U.S. 837, 843 (1984), even if the agency's reading is not that which would have been made if the issue had not first been addressed by the agency. Japan Whaling Assn. v. American Cetacean Society, 92 L. Ed. 2d. 166, 181 (1986).

-- b. The Executive branch has long asserted and based its non-proliferation policy abroad on the view that these judgments are not precluded a priori and "considerable weight should be accorded to an executive department's construction of a statutory scheme it is entrusted to administer." Chevron, 467 U.S. at 844; Red Lion Broadcasting Co. v. FCC, 395 U.S. 367, 381 (1969) (court must follow agency interpretation unless "compelling indications it is wrong"). This is particularly true in the foreign affairs field when the Executive branch has openly asserted its interpretation and Congress has failed to revise it by legislative action. See Haig v. Agee, 453 U.S. 280, 290-91 (1981); Zemel v. Rusk, 381 U.S. 1, 11 (1965).

(The Executive branch reliance on the view that there is no a priori bar to the approvals in the Japan Agreement goes back to the Carter Administration, when its chief non-proliferation negotiator was authorized to explore a new agreement with Japan containing long-term approvals for plutonium use in Japan (see, e.g., Ambassador Gerard Smith, "A Sound Nuclear Accord," Wash. Post, Feb. 19, 1988). The Reagan Administration afterwards announced that programmatic consent to plutonium use in Japan and EURATOM would be a fundamental premise of its negotiations on new agreements with these countries (see, e.g., Report of the President to Congress under Section 601(a) of the NNPA, at 8-9, I-6 (Jan. 1983)).

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Administration officials regularly testified before Congress to this effect during the course of their negotiations (e.g., Hearings on Legislation to Amend the Nuclear Non-Proliferation Act of 1978 Before the House Committee on Foreign Affairs and House Subcommittee on International Security and Scientific Affairs and on International Economic Policy and Trade, 97th Cong., 2d Sess. (Sept. 9, 1982); Hearing on Plutonium Use Policy Before the Subcommittee on Energy, Nuclear Proliferation and Government Processes of the Senate Committee on Government Affairs, 97th Cong., 2d Sess. (Sept. 9, 1982); Hearing Before the Subcommittee on Arms Control, International Security and Science and the Subcommittee on International Economic Policy and Trade of the House Committee on Foreign Affairs (July 24, 1985); Hearing Before the Subcommittee on Energy, Nuclear Proliferation and Government Processes of the Senate Committee on Governmental Affairs (April 10, 1986); and Hearing Before the Senate Committee on Governmental Affairs (Feb. 25, 1987)). The Administration also formally communicated this policy to the wider public directly, including to the community of Nations at large. See e.g., Secretary of State George Shultz, "Preventing the Proliferation of Nuclear Weapons," Department of State Current Policy No. 631, Nov. 1, 1984 (address before the United Nations Association). Congress has been aware of this construction and has failed to revise the applicable statutory criteria, notwithstanding the conclusion of three earlier agreements with this feature and other amendments to the AEA.)

-- c. To view Congress as permanently binding an agency with a conclusive factual presumption is to ignore the usual relationship between Congress and the Executive, in which expert agencies apply Congressional policy to changing facts (see e.g., United States v. Shimer, 367 U.S. 374, 382 (1961)). Since the GAO agrees that long-term approvals are not *per se* precluded from agreements for cooperation, it is particularly difficult to discern a specific Congressional intent to foreclose a subset of such approvals from Presidential consideration. Long-term approvals for reprocessing have already been accorded to Japan without Congressional opposition (see I(1) above), and Section 131a.(3) of the AEA expressly authorizes approvals for reprocessing in non-nuclear-weapon states for material "proposed to be exported". Since in the normal course of reactor operation material exported from the United States may not be reprocessed for as long as nine years, this evidences an affirmative Congressional intent that the requisite statutory judgments for plutonium use can be made over long periods.

-- d. Providing consent for reprocessing and plutonium use as part of a structured program neither "nullifies" nor "qualifies" the guaranties required by subsections 123(a)(5)

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and (7) of the AEA (see p.3 of letter, pp.13, 15, and 20 of memo). Articles 3 and 5 of the proposed Agreement unambiguously provide the United States with rights of prior approval over reprocessing and retransfer of United States-origin nuclear materials. The GAO memo states there is a "problem", however, because "the agreement of the parties referenced in these two articles is provided in advance, by means of the Implementing Agreement submitted as part of the Agreement for Cooperation itself." (p. 13 of memo) The analysis fails to explain why this is, per se, a "problem". If the AEA permits advance, long-term approvals to be contained in an agreement for cooperation (which the GAO concedes), then the fact that approvals are given in the Implementing Agreement cannot be a legal basis for concluding that the requisite consent rights do not exist. If, on the other hand, the "problem" is that the statutory judgments for exercising these particular consent rights are difficult to make, the GAO's objection is no different than the argument considered above under II(1).

-- e. The availability of Section 131a.(3) of the AEA does not create an a priori bar to the consents contained in the Agreement (see p.4 of letter, p.22 of memo).

Section 131a.(3) provides as follows:

The United States will give timely consideration to all requests for prior approval, when required by this Act, for the reprocessing of material proposed to be exported, previously exported and subject to the applicable agreement for cooperation, or special nuclear material produced through the use of such material or a production or utilization facility transferred pursuant to such agreement for cooperation, or to the altering of irradiated fuel elements containing such material, and additionally, to the maximum extent feasible, will attempt to expedite such consideration when the terms and conditions for such actions are set forth in such agreement for cooperation or in some other international agreement executed by the United States and subject to congressional review procedures comparable to those set forth in section 123 of this Act.

The GAO asserts that this provision would permit the terms and conditions necessary for approvals associated with reprocessing to be included in an agreement for cooperation but that "the actual approval is still provided under the subsequent arrangement process, but on an expedited basis." (p.22 of memo) Implicitly, the GAO appears to challenge the approvals in the Agreement because they are provided to a

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non-nuclear-weapon state without following this statutory pattern.

This is another case of inconsistency in the GAO's analysis. Section 131a.(3) does not draw a distinction between nuclear-weapon and non-nuclear-weapon states. If, in the GAO's view, this Section should have been relied upon for the Agreement with Japan, then logically it should have been applied in the previous three agreements containing programmatic consent to reprocessing. Moreover, even if Section 131a.(3) were applicable to the Japan Agreement, the Executive branch has carried out its requirements: terms and conditions for approval have been set forth in the Agreement and approvals have been provided in accordance with those terms and conditions in an Implementing Agreement in response to Japan's "request for prior approval." The Senate Report on this section stresses that "any such agreement should include sufficient flexibility to enable the U.S. to respond to changed circumstances, as such shifts could drastically alter U.S. expectations concerning the intentions of the recipient." S. Rep. No. 95-467, 95th Cong., 1st Sess. at 10-11 (1977). See also S. Rep. No. 95-467 at 24 (prior approval of enrichment in an agreement in accordance with Section 402(a) of NNPA should permit later U.S. responses to changed circumstances). The Implementing Agreement's suspension clause permits the United States to respond to such changed circumstances, and in this sense gives greater substantive protection to United States interests than a one-time judgment that a stipulated set of conditions would guarantee United States approvals in the future.

3. Executive branch compliance with statutory procedures. The GAO at various points seems to suggest that even if the Executive branch judgments were supportable as a matter of law, and even if they were not barred by statute, the AEA and NNPA set forth procedures which the Executive has or will be ignoring.

The letter and memo provide scant support for a claim that the Agreement has been processed improperly. The memo takes issue with the statement in a Department of Energy/Department of State analysis that publication in the Congressional Record satisfies Section 131's requirement for public notice for subsequent arrangements (p. 21 of memo). This point is addressed in I(13) above. The memo also discusses whether the Agreement should have been withdrawn by the President upon receipt of the SFRC's request. However, the memo concludes that "these actions are not mandatory" under the statute (p.9 of memo), so failure to withdraw the Agreement cannot be considered a procedural defect.

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The letter and memo also criticize the fact that the Section 131 subsequent arrangement procedure will not be used during the implementation of the Agreement to evaluate Japanese activities governed by the Agreement's long-term approvals. The GAO contends, in particular, that "the Act anticipated effective United States control over reprocessing and retransfer activities that include an oversight role for both the Congress and the public" (p. 20 of memo), and suggests this can only be provided through individual subsequent arrangements.

Aside from the inconsistency of this position with the GAO's acceptance of the programmatic approvals for "reprocessing and retransfer activities" in three prior agreements, this assertion begs the underlying question. The mere possibility that the Executive branch could decide to exercise United States consent rights through a series of small subsequent arrangements, each subject to separate public notice, does not dictate, as a matter of law, that Executive branch approvals may only take that form. The decision of how to exercise United States consent rights in an agreement for cooperation has to take into account a variety of factors: whether the statutory findings can be made; whether the cooperating partner will accede to broader United States controls if they are exercised on a long-term basis; whether the cooperating partner will turn to other suppliers if the United States is unwilling to provide satisfactory assurances; whether the United States will have sufficient flexibility to revoke its consents if circumstances radically change. The AEA provides a framework for substantive decision-making, within which the Executive is charged with making its best judgment as to how to advance these different interests. The AEA does not provide for Congressional approval of these Executive branch decisions, but does require public notice and the opportunity for Congressional review at the time of the decision.

The GAO concedes that approvals need not be confined to "request by request" processing (e.g., p. 11 of memo). It furthers the fundamental policies of the Act for advance or long-term approvals to be included in an agreement for cooperation, rather than through a simple subsequent arrangement on a one-time basis or serially. To satisfy Section 123, an agreement for cooperation must be supported by: a heightened Presidential finding that the approvals will "promote, and will not constitute an unreasonable risk to, the common defense and security"; the submittal of the approvals to Congress for 90 continuous session days of review rather than 15; mandatory Congressional hearings; automatic and expedited consideration of Congressional resolutions of disapproval; and the mandatory preparation of an NPAS by the Director of ACDA and submittal by the NRC of a statement of views and

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recommendations to the President. This form of public ventilation of the policy issues at stake ensures that the important commitments that programmatic approvals entail will be thoroughly considered before the United States commits itself on the international plane. In this case, as described above, the Agreement was before the Congress for some six calendar months and the Senate voted 53 to 30 not to disapprove the Agreement.

As described above in I(14), the Congress and public will be kept fully apprised of any developments of proliferation significance arising out of the Agreement. Moreover, any changes in the terms and conditions for the Japanese activities, such as a revision in the required safeguards or physical security measures, will continue to be subject to the subsequent arrangement procedure under Section 131 (see I(2)).

Conclusion

The contention that the proposed Agreement does not provide the requisite degree of "effective control" over the Japanese program (p.4 of letter; p. 20 of memo) assumes the conclusion that the GAO sets out to prove. The President and the Secretaries of Energy and State have determined that the Agreement will provide precisely the kinds of guaranties and controls necessary to promote the national security and protect against a significant increase in the risk of proliferation. They have done so on the basis that providing programmatic approvals to a close ally, subject to a right of suspension, will give the United States greater influence over the Japanese program and ensure that activities with U.S.-supplied nuclear materials will be carried out in a way that will set a model for all advanced countries.

In the absence of the new Agreement, the United States could well sacrifice even its existing controls over Japanese activities, since Japan might be forced to shift to more reliable nuclear cooperation partners. At the same time, the United States would lose the opportunity to enhance the guaranties and assurances in the existing agreement, contrary to Section 404(a) of the NNPA. The NNPA and AEA were not intended to compel these outcomes. The AEA provision for subsequent arrangements stresses that "nothing in this Section is intended to prohibit, permanently or unconditionally, the reprocessing of spent fuel owned by a foreign nation which has been supplied by the United States." (Section 13d.) The NNPA, which added this provision, similarly stressed that one of its purposes was to "authoriz[e] the United States to take such actions as are required to ensure it will act reliably in meeting its commitments to supply nuclear reactors and fuel to

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nations which adhere to effective non-proliferation policies." (NNPA, Section 3(b))

In this case, the Executive branch complied with the procedural and substantive standards of the NNPA and AEA in making the national security and non-proliferation judgments necessary for entering into the new Agreement. Congress then had the opportunity to exercise its statutory prerogative to override the Executive branch judgments and prevent entry into the agreement through a joint resolution of disapproval. It failed to do so. The issues raised by the programmatic approvals in the proposed Agreement are thus ones of policy, not law; the AEA did not prohibit the President from presenting the Agreement to Congress, nor did it require Congress to reverse the President's judgment that the Agreement would advance United States interests.

APPENDIX 29

LETTER FROM HON. JOHN C. WHITEHEAD, ACTING SECRETARY OF STATE, TO CHAIRMAN FASCELL, CONCERNING ADMINISTRATION'S INTENTIONS REGARDING IMPLEMENTATION OF THE PROPOSED AGREEMENT, MAY 26, 1988

May 26, 1988

Dear Mr. Chairman:

On behalf of the Administration, I wish to confirm a number of intentions and understandings regarding the Agreement for Cooperation Between the Government of the United States and the Government of Japan Concerning Peaceful Uses of Nuclear Energy and the Implementing Agreement.

1. Plutonium Shipments Pursuant to the Implementing Agreement

The Administration will not allow air shipments of plutonium pursuant to the Implementing Agreement to overfly or land in the United States--except in the case of aircraft emergency. Any transportation plan in which the Administration would be willing to cooperate providing for such emergency landing sites would restrict them to remote military bases. Moreover, the Administration will require in connection with any such transportation plan providing for emergency landings in the United States that containers for air shipment of plutonium comply with the legal standards for transit of the United States, including the provisions of Section 5062 of the Omnibus Budget Reconciliation Act of 1987 concerning the development and testing of casks for transporting plutonium.

As confirmed in the side letters exchanged in connection with the Implementing Agreement, the cooperation and appropriate assistance of the United States must be secured for any air transport of plutonium to Japan pursuant to the Implementing Agreement. The Administration will only provide such cooperation and appropriate assistance if, among other considerations, it is satisfied that U.S. national security, non-proliferation and environmental interests and the health and safety of the American people are fully protected.

The Honorable
Dante B. Fascell, Chairman,
Committee on Foreign Affairs,
House of Representatives.

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The Administration will consider programmatic shipment of plutonium by sea under adequate physical security pursuant to the Implementing Agreement. Such an arrangement would be treated by the Administration as a subsequent arrangement in accordance with Section 131 of the Atomic Energy Act.

The Administration will keep the Chairman and ranking minority members of the Senate Foreign Relations Committee and the House Foreign Affairs Committee apprised of developments regarding the certification of a plutonium container for air shipment. The Administration also will inform the Chairmen and ranking minority members of these committees as to transportation plans for air or sea shipment and their implementation, including United States cooperation and assistance under such plans.

2. Suspension Rights

Pursuant to the first sentence of Article 3(2) of the Implementing Agreement, the United States has the unilateral and unambiguous right to suspend its consent in order to prevent a significant increase in the risk of proliferation or threat to its national security. The remainder of Article 3 and paragraph 7 of the Agreed Minutes to the Implementing Agreement does not detract from the right of the United States to make such judgments, but rather affirms the nature of this right and specifies procedures which are to be followed in its exercise.

The provision that suspension decisions would be taken in the most extreme circumstances of exceptional concern from a non-proliferation or national security point of view and would be taken at the highest levels of government appropriately reflects the seriousness with which the United States should approach any invocation of its suspension rights in this agreement with Japan, a close ally with excellent non-proliferation credentials.

The provision stating that the parties will implement their consent rights to avoid hampering, delaying or unduly interfering in the nuclear activities in the two countries is equivalent to provisions in international safeguards agreements and is fully reciprocal. It in no way diminishes the right of the United States to suspend approval to prevent a significant increase in the risk of proliferation or in the threat to its national security.

The language that each party will carefully consider the economic effect of suspension in no way inhibits the right of

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the United States to suspend consent on non-proliferation or national security grounds. It is intended only to highlight the seriousness of this step and to ensure that it is not undertaken so as to risk inflicting gratuitous damage on another nation's economy.

The Administration will suspend the approval given in Article 1 of the Implementing Agreement promptly and to whatever extent is required to prevent a significant increase in the risk of proliferation or in the threat to national security. The Administration will promptly report to the Chairmen and the ranking members of the SFRC and HFAC if it concludes that such suspension is necessary.

3. Programmatic Approvals

The United States approvals for the use of plutonium provided in Article 1 of the Implementing Agreement are based *inter alia* on the premise that adequate safeguards and physical protection measures--as required by the Agreement and the Implementing Agreement--are being applied to existing facilities and will be applied to future facilities when they are added to Annex 1 or 2.

As provided for in the safeguards concepts (House Document 100-128, p. 98 ff), in Japan's letter on non-proliferation policy submitted to the U.S. in connection with the Agreement (p. 189 ff) and in the Safeguards Agreement between Japan and the International Atomic Energy Agency in connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/255), Japan will cooperate to enable use of the most advanced safeguards technology available for safeguards on nuclear material subject to the Agreement.

4. Additional Steps To Apprise Congress

In order to keep Congress informed concerning the implementation of the Agreement, the Administration will include a description of the status of the U.S.-Japan Agreement in the President's Annual Report to Congress on Nonproliferation, pursuant to Section 601 of the Nuclear Non-Proliferation Act of 1978. This description will contain, among other things, a) an explanation of why the statutory criteria for the approvals for reprocessing and related activities given in Article 1 of the Implementing Agreement continue to be met, b) a report on the status of future facilities which are intended to be placed on Annexes 1 and 2, and c) the status of the development of safeguards technology and safeguards techniques to be applied in such facilities,

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with particular attention to the expected capabilities of nuclear material accounting.

5. Future Facilities

Within 45 days of receiving the notification from the Government of Japan required by Article 2 of the Implementing Agreement and paragraph 5 of the Agreed Minutes thereto concerning the addition of a facility to Annex 1 or 2, the Administration will inform the Chairmen and ranking members of the SFRC and HFAC of the notification and will provide a report (classified if necessary) containing a description of the safeguards to be applied and any other facts relevant to the conclusion that the use of nuclear material subject to the Agreement at that facility will not result in a significant increase in the risk of proliferation or be inimical to the common defense and security of the United States.

Whenever safeguards measures are adopted or modified in accordance with Article 2(4) of the Implementing Agreement, the Administration will process these actions as subsequent arrangements in accordance with Section 131 of the Atomic Energy act.

6. Other Matters

The entry-into-force of the Agreement does not oblige the United States to grant any other country or any group of countries treatment equal to or better than that provided to Japan in the Agreement.

The Administration will not approve any substitution for, "swapping" of, or other disposition of nuclear material subject to the Agreement which would undermine U.S. non-proliferation or national security objectives.

Sincerely,

John C. Whitehead
Acting Secretary

APPENDIX 30

DEPARTMENT OF STATE ANALYSIS OF SUSPENSION RIGHTS UNDER THE PROPOSED AGREEMENT

Suspension Rights in Proposed Agreement with Japan Concerning Peaceful Uses of Nuclear Energy and its Associated Implementing Agreement1. Two provisions relate to "suspension"

-- Article 12 of the basic Agreement for Cooperation (H.Doc. 100-128 at p.16) establishes the grounds for either party to suspend cooperation or terminate the Agreement for Cooperation for cause. The effect of Article 12 is to provide for suspension of the operation of the Agreement for Cooperation at the request of a party prior to its expiration date (which is specified in Article 16(2) as six months after written notice, beginning 30 years from the Agreement's entry into force). One result of suspension under Article 12 is that the terminating Party would have a right to the return of previously exported items.

-- Article 3 of the Implementing Agreement (H.Doc. 100-128 at pp.43-45) provides that the Implementing Agreement will be of the same duration as the Agreement for Cooperation. However, it also permits:

"either party [to] suspend the agreement it has given in Article 1 of this Implementing Agreement in whole or in part to prevent a significant increase in the risk of nuclear proliferation or in the threat to its national security caused by exceptional cases such as a material breach by the other Party of the Treaty on the Non-Proliferation of Nuclear Weapons or withdrawal therefrom, or a material breach by the other Party of its safeguards agreement with the [International Atomic Energy] Agency, of this Implementing Agreement or of the Agreement for Cooperation."

This means that without terminating the Agreement for Cooperation and Implementing Agreement, the U.S. could for reasons of non-proliferation or national security suspend the U.S. consents for reprocessing, alteration, storage, and international transfer of nuclear material provided for in the Implementing Agreement .

2. Why was a suspension right provided for in the Implementing Agreement?

-- In the absence of a specific treaty provision, the primary bases for suspension under the international law of treaties (as found in customary international law and

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codified in the Vienna Convention on the Law of Treaties) are material breach and fundamental change of circumstances. These grounds for suspension are limited: a material breach must be an important delict and does not include actions of third parties; a change of circumstances must be fundamental, not foreseen by the parties or caused by the party seeking to terminate the agreement, and its effect must be to transform the extent of that party's obligations under the agreement. A change of circumstances ordinarily would not permit suspension of only a part of an agreement.

-- These rights of suspension provided under the law of treaties may not be broad enough to cover all situations of national security or non-proliferation concern to the United States that could arise in connection with nuclear cooperation with a foreign nation. Accordingly, U.S. nuclear cooperation agreements with programmatic consents, including the proposed Agreement with Japan, have included specific provisions establishing a U.S. suspension right beyond that automatically conferred by the law of treaties. The scope of this supplementary suspension right has been based on the statutory provisions underlying the U.S. approvals contained in the agreements.

-- Under Sections 123a. and 131a. of the Atomic Energy Act, entry into agreements for cooperation and the exercise of approval rights in agreements must be consistent with U.S. national security interests. Under Section 131b. of the Atomic Energy Act, consents to reprocessing or subsequent transfers of recovered plutonium to non-nuclear-weapons states must be based on a determination that these activities will not create a significant increase in the risk of proliferation.

-- These twin standards of national security and non-proliferation are embodied in the suspension right set forth in Article 3 of the Implementing Agreement with Japan. The effect of this provision is to permit the United States to lift its consent to the extent necessary if circumstances should arise in which either of these standards are no longer met. This right will be present whether or not the U.S. right of termination in Article 12 of the basic Agreement for Cooperation is applicable, and whether or not the law of treaties confers a right of suspension in the circumstances.

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3. What circumstances are encompassed within the U.S. suspension right?

-- The Implementing Agreement does not give an exhaustive listing of either the specific developments or the specific categories of developments that constitute a basis for suspension. This is because it is impossible in advance to identify all the situations that might threaten U.S. national security or significantly increase the risk of proliferation.

-- Nevertheless, the Implementing Agreement does identify at least seven categories that could be pertinent:

- a. A material breach by Japan of a bilateral obligation to the United States (e.g., of the Agreement for Cooperation or Implementing Agreement; see Article 3(2) of Implementing Agreement);
- b. A material breach by Japan of a multilateral obligation (e.g., of the Treaty on Non-Proliferation of Nuclear Weapons (NPT); see Article 3(2) of Implementing Agreement);
- c. A material breach by Japan of a bilateral obligation to parties other than the United States (e.g., of its safeguards agreement with the International Atomic Energy Agency; see Article 3(2) of Implementing Agreement);
- d. Withdrawal by Japan from a non-proliferation treaty in accordance with its terms (e.g., withdrawal from the NPT; see Article 3(2) of Implementing Agreement);
- e. An action in Japan, including by third parties, that creates a special proliferation or national security risk (e.g., a risk that pertains solely to a particular facility or activity; see paragraph 7 of Agreed Minutes to Implementing Agreement -- H.Doc. 100-128 at 61);
- f. An action by a foreign government that creates a risk associated with the Japanese nuclear program (see paragraph 7 of Agreed Minutes to Implementing Agreement); and
- g. An event beyond the territorial jurisdiction of Japan that creates a risk associated with the

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Japanese program (see paragraph 7 of Agreed Minutes to Implementing Agreement).

As noted above, the events, activities and situations described by these categories may exceed the range of situations that would give rise to a right of suspension under the law of treaties. They serve to illustrate how national security or proliferation risks could arise.

4. Does the Agreement set an artificially high threshold of severity before any of these cases would warrant suspension?

-- No. The fundamental test is one of increased risk -- either risk of proliferation or of threat to U.S. national security interests. Should any "case" create a situation in which continuation of an approved Japanese activity would create this increased risk, then the suspension right is available.

-- There need not be actual proliferation or damage to U.S. national security interests for the suspension right to apply. The purpose of the suspension clause is to enable the United States to address increased risks before such events occur.

-- Article 3(2) of the Implementing Agreement does state that a decision to suspend consent "would only be taken in the most extreme circumstances of exceptional concern from a non-proliferation or national security point of view. . ." This is a recognition of the outstanding non-proliferation credentials of the Government of Japan, the rigorous requirements in the Agreement for the conduct of Japan's nuclear program, and Japan's status as a stable ally and important security partner. Any instance of significantly increased proliferation or national security risk in the case of Japan would inevitably arise out of "extreme circumstances of exceptional concern."

5. Does use of the suspension right require Japan's agreement?

-- No. Article 3(2) of the Implementing Agreement makes it clear that "[e]ither party" may suspend its consent. Once this unilateral suspension right has been exercised, the suspending party need not lift its suspension until it has been possible "to deal in a manner acceptable to the parties with the exceptional case." The phrase "acceptable to the parties" means acceptable to both parties, i.e., to the United States as well as Japan. Thus, until the United States is satisfied with

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the situation, it need not reinstate its consent.

-- In those cases in which the agreement of both parties is required for an action under the Agreement or Implementing Agreement that requirement is made explicit. In addition to the language in the suspension clause requiring mutuality to lift a suspension, other examples of required mutual agreement may be found in Articles 1(e), 1(g), 1(j), 2(1)(a)(ii), 2(4)(b) and (c), 3, 4, 5, 6, 10, 11, 14(3), and 15 of the Agreement for Cooperation, and Articles 1(4), 2(1), 2(2), 2(2)(b)(i), 2(3), and 2(4) of the Implementing Agreement.

-- The unilateral character of the suspension right is reinforced by the dispute resolution clause in Article 14 of the underlying Agreement for Cooperation (H.Doc. 100-128 at 18). Paragraph two of this article establishes a duty for each party to consult at the request of the other concerning the interpretation or application of the Agreement. In contrast, paragraph 3 of Article 14 states that in the event the parties are unable to resolve a dispute they "may agree" to submit the dispute to an arbitral tribunal. This language leaves it to the discretion of each party whether to agree to refer the dispute to another institution for resolution.

-- It should be borne in mind that with a close ally like Japan -- which has outstanding non-proliferation credentials -- it is extremely unlikely that the United States would ever need to invoke a suspension right. The Agreement and Implementing Agreement contain numerous provisions for mandatory consultations between the two governments, during which the United States would identify any concerns to Japan so that rectifying measures could be taken. Moreover, the Agreement and Implementing Agreement set forth the strictest safeguards and physical protection controls of any U.S. Agreement for Cooperation and this will help ensure that activities under the Agreement can proceed smoothly without interruption. Nevertheless, Article 3 of the Implementing Agreement unambiguously reserves to each party the right to withdraw its consent to protect its non-proliferation and national security interests, and this decision is not subject to third-party dispute resolution absent the agreement of both parties.

6. Does the Agreement require prior consultations which would enable Japan to delay any U.S. decision to suspend?

-- Paragraph 3 of Article 3 of the Implementing Agreement calls upon the parties to consult, prior to suspension,

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concerning the situation and the necessity of suspension. It does not, however, set any minimum duration to these consultations nor require a particular outcome.

-- Prior consultation is in the interest of both parties, since it affords an opportunity for the identification of rectifying measures short of suspension, and may reveal additional information obviating the need for suspension altogether.

-- The nature of the consultations, however, will have to be determined by the exigency of the situation. In no event does this provision permit either party to refuse to consult or to insist upon unacceptably long consultations as a basis for frustrating the invocation of the suspension right.

7. Does the Agreement impermissibly restrict the scope of suspension once a decision to suspend has been made?

-- No. The applicable principle is that U.S. consent may be suspended to prevent a significant increase in the risk of proliferation or in the threat to U.S. national security. If continuation of an activity would give rise to such an increased risk, suspension is an available remedy to the full extent required. This is made clear in the first sentence of Article 3(2) of the Implementing Agreement which ties the right of suspension to fulfillment of the purpose of preventing such significantly increased risks.

-- The Implementing Agreement also refers to this principle by negative implication in four other places.

a. Paragraph 2 of Article 3 states that a suspension "would be applied only to the minimum extent and for the minimum period of time necessary to deal in a manner acceptable to the parties with the exceptional case." This means that in its breadth and its duration the suspension should match the case presented; at the same time, it confirms that the suspension need not be any narrower than is necessary to address the case adequately.

b. Paragraph 3 of Article 3 states that the parties "shall seek to the maximum extent possible to avoid the disruption of international nuclear trade and the fuel cycle operations under this Implementing Agreement." The phrase "to the maximum extent possible" is an explicit recognition that the goal

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to be achieved -- the avoidance of proliferation or national security risk -- takes preeminence, but should be furthered in ways which avoid economic disruption where possible.

c. Paragraph 7 of the Agreed Minutes to the Implementing Agreement identifies two situations -- where a risk relates solely to a particular facility or activity, or where a risk relates to actions of third countries or events beyond the parties' territorial jurisdiction -- and then specifies that suspension is available only to the extent these situations give rise to the requisite proliferation or national security risk. This formulation again stresses that the principle adopted is that suspension may be as wide as the cases demand.

d. Finally, paragraph 4 of Article 3 states that "The suspending party shall keep under constant review the development of the situation which caused the suspension and shall withdraw the suspension as soon as warranted." This simply confirms that the duration, like the scope, of the suspension should be tailored to the case of concern, but need not be any shorter than required.

In sum, each of these four clauses reinforces the principle that the suspension right has a purpose, and where that purpose can be fulfilled without causing gratuitous harm, it should be. This is not an impediment to invoking the right as necessary, but an understandable requirement not to use the broad suspension authority to cause needless adverse effects.

8. Must economic interests be balanced against non-proliferation and national security interests when determining whether to suspend consent?

-- No. Paragraph 3 of Article 3 states that "The suspending party shall carefully consider the economic effects of such suspension. . . ." By its own terms, this does not require those effects to be balanced against non-proliferation or national security concerns. Instead, the purpose of this phrase is linked to the following phrase: "and shall seek to the maximum extent possible to avoid the disruption of" activities under the Agreement. Taken as a whole, the two phrases mean that the economic effects of a suspension should be considered by a suspending party to permit an assessment of the effects of the various possible alternatives so that gratuitous

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economic damage can be avoided.

-- In no event does this provision require a suspending party to consider alternatives that would not satisfy the non-proliferation or national security objectives to be protected through suspension. Rather, this provision is another reflection of the principle that the suspension clause is available to serve its purpose but should not be used in a way to cause unnecessary injury.

APPENDIX 31

DEPARTMENT OF DEFENSE ANALYSIS, "TRANSPORTATION ALTERNATIVES FOR THE SECURE TRANSFER OF PLUTONIUM FROM EUROPE TO JAPAN"

EXECUTIVE SUMMARY

1. Introduction. This study is a technical evaluation of alternate modes of transporting large quantities of plutonium from France and the United Kingdom to Japan. Ensuring the security of separated plutonium in transit is of fundamental importance. Although primarily a Japanese concern, US law requires that the Department of Defense be fully consulted to ensure that physical security measures are adequate. Two basic transportation modalities are available to transfer plutonium from Europe to Japan--by air and by sea. The Office of the Secretary of Defense, Joint Staff, and Services have concluded that air shipment via the polar route is preferable to sea shipment in accomplishing this mission. With appropriate security measures, sea shipment can also provide adequate security, although at a higher cost to military readiness.

2. Air Shipment. The first, preferred modality is air shipment. Alternatives for shipment of plutonium by air include: (a) the near-term feasibility of non-stop flights of civilian cargo aircraft; (b) civilian cargo aircraft refueling on the ground; (c) military cargo aircraft refueling on the ground; and (d) military cargo aircraft refueling in the air. Below is a table summarizing the relative strengths and weaknesses of each alternative. (Grades range from the most favorable rating of A to the least favorable rating of E.)

Air Transportation Alternatives
(Note: A = best; E = worst)

	I Civ. Air non-stop	II Civ. Air grnd refuel	III Mil. Air grnd refuel	IV Mil. Air air refuel
Threat Assessment	A	A	A	A
Adequacy of Security	A	A	A	A
Impact on US Military Readiness	A	A	C	D
Time in Transit	A	A	A	A
Costs per Shipment	B	B	B	C
Frequency of Shipments	C	C	C	C

3. Sea Shipment. The second modality is sea shipment. Alternatives for shipment of plutonium by sea include: (a) civilian cargo vessel without escort; (b) civilian cargo vessel with US Government escort; (c) civilian cargo vessel with foreign escort; and (d) military cargo vessel without escort. Below is a table summarizing the relative strengths and weaknesses of each alternative. (Grades range from the most favorable rating of A to the least favorable rating of E.)

Sea Transportation Alternatives
(Note: A = best; E = worst)

	V Civ. Sea w/o escort	VI Civ. Sea US escort	VII Civ. Sea foreign escort	VIII Mil. Sea w/o escort
Threat Assessment	D	B	B	B
Adequacy of Security	D	B	B	C
Impact on US Military Readiness	B	D*	B	D
Time in Transit	E	E	E	D
Costs per Shipment	B	D	D	C
Frequency of Shipments	A	A	A	A

Footnote:

* Upgraded to B if US Coast Guard escort is used.

4. Discussion. The Department of Defense has evaluated each of these transportation alternatives and concluded that Alternatives I and II under the air transport modality are preferable. The following pages discuss both the air and sea modalities and four alternatives under each. Since several of the options would have a significant impact on military readiness, the Joint Staff and the Services have indicated further study may be required. Moreover, this is not a final transportation plan. The United States and Japan will develop a detailed transportation plan prior to each shipment.

AIR TRANSPORTATION ALTERNATIVES

1. Introduction. Annex 5 of the pending agreement anticipates that the plutonium will be transported from Europe to Japan "by dedicated cargo aircraft . . . via the polar route or other route selected to avoid areas of natural disaster or civil disorder." The Department of Defense believes that air transport is the preferable transportation modality, and that Alternatives I and II are preferable to all other alternatives. This discussion will focus first on concerns common to all of the air alternatives and then turn to the specifics of each.

2. Possible Routes. There are several possible air routes. The best polar route (approx. 6600 nautical miles (NM)) is almost entirely over water, and it avoids overflying the United States. It extends directly north from France or Britain across the Norwegian Sea, off the east coast of Greenland, across the North Pole, continuing through the Bering Strait, and then turning south-southwest off the east coast of the USSR to Japan. Air France and Japan Air Lines now have direct flights from Paris to Tokyo which largely follow this route, diverting a bit to the east to refuel in Anchorage, Alaska. The shortest route (approx. 5600 NM) describes a great circle across Scandinavia, continuing across Soviet arctic territory, and on to Japan. A final polar option, although considerably longer (approx. 8300 NM), crosses Greenland and then the island archipelago of northern Canada, stops to refuel at one of the military facilities in Alaska, and continues on to Japan. The only advantage of this route is that the plane would remain on ground radar for much of the way. Either route would require the consent of all the states to be overflowed; the Soviet route would force reliance on Soviet cooperation to ensure security.

3. Threat Assessment. Military, transportation, intelligence, and counter-terrorism experts consider air transport the preferred option from a security perspective. These experts consider airports, especially military airfields, to be the most secure transfer points available. Under the agreement, the planes will take off from and land at the most secure airfields possible. The primary threat to a cargo plane is sabotage. One possible scenario would be an attempt to down the aircraft during takeoff or landing with man-portable anti-aircraft weapons. Once the plane has gained sufficient altitude after takeoff until it approaches landing, it would be invulnerable to such missiles. Another threat is that a terrorist might seek to plant an explosive device on the plane. If the security measures listed in the agreement are followed, this could not succeed. The only way an outside agent could actually acquire the plutonium cargo would be to hijack the plane, either through force or with inside assistance. Again, appropriate security measures could avert either threat. Following a polar route

would further reduce the chance a hijacking or diversion attempt could succeed. Only a small number of states have the ability to intercept and threaten an aircraft in flight; very few could do it over the arctic regions. The primary disadvantages are the relatively limited payload and the greater number of flights which would be required in comparison to sea shipment.

4. Adequacy of Physical Security Protection. The primary reasons air transport is the most secure transportation mode are that the materials are in transport only a short time and offer few opportunities for interdiction. Thus, many experts believe future long-distance shipments of plutonium will be only by air on specially chartered aircraft with private or military guards and following strict security guidelines. The agreement itself provides a comprehensive list of security guidelines. To ensure the security of air shipment, the various steps listed in Annex 5 are essential. These include: (a) keeping the time and route of the shipment secret; (b) providing armed escorts; (c) ensuring the reliability of the crew and security personnel; (d) loading and offloading the cargo at secure airfields; (e) ensuring the crashworthiness of shipment casks and equipping them with individual transponders; (f) equipping the aircraft with reliable and redundant communications equipment; and (g) developing detailed contingency plans to assure adequate and coordinated responses in any emergency, including identifying adequate military response forces. Several US military airfields along the polar route would be available in case of an emergency.

5. Costs and How They Should be Allocated. The Japanese would bear the direct costs of equipping, manning, and operating the cargo aircraft, whether civilian or military. Costs associated with a routine commercial shipment will result in little, if any, cost to US forces. If military cargo aircraft (C-5 or C-141) are used, the operating costs would be higher. Added to these would be the costs of tanker operation if in-flight refueling is used. In the event of an emergency involving the cargo plane, a tanker, or both, the United States would respond with costs running \$350,000 to \$700,000 or more. The Japanese would be expected to pay all the quantifiable costs for the use of US military assets.

6. Impact on US Military Readiness. Since the duration of the flight would be short (about 12-16 hours) and the likelihood of any problems very low, any adverse impact would be of limited duration and manageable. Only in the unlikely event an emergency occurred during a shipment would there be any adverse impact on the mission readiness of US units for the first two alternatives. For Alternatives III and IV, where military aircraft and refueling resources might be used, there would be an adverse impact on military readiness. Either alternative would divert a major military cargo plane and crew from its

primary military mission for several days for each mission. Moreover, Alternative IV would require the availability of an Air Force tanker and crew. US Air Force tanker assets are scarce and play a critical role in US strategic response capabilities. Employing either alternative would have an adverse impact on US military readiness and would require further evaluation within the Department of Defense.

7. Air Transportation Alternatives. Alternatives for shipment of plutonium by air include: (a) the near-term feasibility of non-stop flights of civilian cargo aircraft; (b) civilian cargo aircraft refueling on the ground; (c) military cargo aircraft refueling on the ground; and (d) military cargo aircraft with in-flight refueling. The particulars of each alternative are discussed below:

a. Alternative I -- Civilian Cargo Aircraft (Non-Stop).

Assuming an appropriate cargo aircraft were available, a non-stop flight from Europe to Japan would be an extremely safe and secure alternative for transporting plutonium. While no such aircraft currently exists, contact with Boeing experts indicates a cargo version of the Boeing 747-400 extended-range passenger plane, with a range of well over 7,000 nautical miles, should be available within the near future. Moreover, Boeing Company representatives indicate at least two airlines have ordered the large, long-range cargo variant of the aircraft capable of performing the mission for delivery in March, 1989. The purchase price of the Boeing 747-400 will be approx. \$125 million, although the Japanese will be able to charter such a plane for much less. There are other options as well, including refurbishing an existing 747 cargo plane with the most modern, fuel-efficient engines and additional fuel capacity.

b. Alternative II -- Civilian Cargo Aircraft (Ground Refueling).

The next best transportation mode would also use dedicated commercial cargo planes flying the polar route. The difference is that the plane would be refueled on the ground. (While in-flight refueling of a civilian cargo plane is possible, it is unacceptable to the Department of Defense in view of the safety risks and adverse impact on military readiness.) Assuming current air cargo range capability and to ensure an adequate fuel reserve, the aircraft would have to refuel en route. Any refueling stop complicates somewhat the transportation and physical security problems. To ensure security on the ground, refueling could be done at a military facility in Alaska. These facilities include: (a) Galena AFB; (b) Shemya AFB; (c) Adak NAS; (d) Eielson AFB; and (e) Elmendorf AFB. Although the initial leg would be over 600-800 NM farther than landing at Eielson, Elmendorf, or Galena, refueling at either Shemya or Adak could avoid over

flying mainland North America. Moreover, while both Shemya and Adak have outstanding safety records, periodic bad weather conditions would require backup options to refuel on the mainland. Galena AFB, with excellent facilities and consistently good flying weather, is located in north central Alaska, far from any population centers, and would be an ideal refueling airfield.

c. Alternative III -- Military Cargo Aircraft (Ground Refueling). The third alternative mode is to use military cargo planes (C-5 or C-141) to transport the plutonium via the polar route. (French or British cargo planes might also be used.) The operating costs for military cargo aircraft are high; nearly \$600,000 for a C-5 and over \$225,000 for a C-141. (Operating costs for French or British planes are probably comparable.) The Japanese would also have to pay to get the plane from its operational base to the point of departure, and back to base after completing the mission. Refueling could be accomplished at military facilities along the route. As with civilian cargo planes, the primary threat to military cargo aircraft would continue to be sabotage, especially from terrorists using anti-air missiles during takeoff and landings. The security protection for military transportation of plutonium would be more than adequate. The military would have to verify security precautions on the ground at the points of origin and delivery, probably insisting upon using military airfields at each end. This alternative could have an adverse impact upon US military readiness by diverting a major military cargo plane and crew from its primary military mission for several days for each mission.

d. Alternative IV -- Military Cargo Aircraft (In-Flight Refueling). The fourth alternative is to use US military cargo planes to transport the plutonium via the polar route. Refueling would be accomplished by in-flight refueling from a KC-135 or KC-10 tanker en route. In addition to the normal operating costs listed in Alternative III, in-flight refueling would add about \$40,000 per trip in tanker costs. In-flight refueling raises the possibility of a mid-air accident. Even with highly trained personnel and fully tested equipment, mid-air refueling operations, although routine, are considered "notsafe" and are undertaken only when essential to a military mission. This increased risk is only nominally offset by eliminating the slight risks of accident or terrorist attack during an additional takeoff and landing necessary for a ground refueling operation.

8. Additional Comments. Civilian air transportation over the polar route is cost-effective, is environmentally sound, provides a high level of safety, and, with proper precautions, ensures adequate security with little adverse impact on military

readiness. Before the Department of Defense could provide military assets, however, the Joint Staff and Services would have to study the matter in detail.

SEA TRANSPORTATION ALTERNATIVES

1. Introduction. Sea transportation is another possible mode. There is precedent for this sea shipment method. In the latter half of 1984 the United States approved the shipment of 253 kilograms of plutonium from France to Japan aboard a dedicated, specially prepared cargo vessel. The United States, France, and Japan coordinated escort services to protect the cargo ship for much of the trip. The logistical problems were significant and there was an adverse impact on military readiness to ensure adequate security protection for that shipment. Indeed, following the 1984 experience, the Department of Defense felt that sea shipment was not the preferred permanent solution to the problem. This discussion will focus first on concerns common to all of the sea alternatives and then turn to the specifics of each.

2. Possible Routes. There are several possible routes for sea shipment. These include: (a) across the Atlantic, through the Panama Canal, and across the North Pacific to Japan (the route used in 1984); (b) across the Mediterranean Sea, through the Suez Canal, across the Indian Ocean, and north to Japan; (c) across the Atlantic, around South America, and on to Japan across the Pacific; and (d) around southern Africa, across the Indian Ocean, and on to Japan. The latter two routes, despite their increased distance, have the advantage of avoiding "choke points."

3. Threat Assessment. There are several basic problems with any sea shipment modality. First, in contrast to the high level of security associated with airports, normal civil port security is notably lax. Of course, every effort would be made to provide the most secure sea transshipment point available, perhaps even utilizing naval bases. Moreover, France or Britain would be responsible for port security until the vessel is well underway and Japan would be responsible once the ship arrived in Japan. Nevertheless, port security could be a significant concern. Under some conditions, it would be difficult to keep the details of the voyage secret and to protect the vessel while in port. Second, sea shipment is slow, with the total transit time between 35 and 75 days. Third, the vessel is accessible and vulnerable throughout the voyage, particularly when the vessel is passing through channels, straits, and other restricted waterways ("choke points"), or when it is near the coast. Special precautions would need to be taken at all vulnerable points. Fourth, a vessel would make a more

attractive target than an aircraft flying a polar route to a terrorist group. Armed escorts and other security measures would need to be taken to deter and defeat any terrorist threat. Fifth, since a ship has a larger crew and the time of the voyage is much longer, greater efforts would be required to guarantee crew security. Disaffected or disloyal crew members could attempt to sabotage the cargo or ship. Under inducement or coercion such crew members could assist outside terrorists to try to board and hijack the vessel or sabotage the cargo. Moreover, unless adequate response forces were available in the immediate area to deter and defeat such an effort, hijackers might well succeed by transferring the material to another vessel or diverting the ship to a "friendly" port. Properly secured, removal or transfer of the cargo to another vessel while the ship is underway would be quite difficult. However, with enough time and equipment, it could be done.

4. Adequacy of Physical Security Protection. To enhance the security of surface shipment by civilian cargo vessel, various steps are essential. A reasonable baseline standard is the security package applied to the 1984 shipment. In that case the United States approved the shipment of plutonium from France to Japan aboard a dedicated, specially prepared cargo vessel. France, the United States, and Japan provided a combatant ship escort and other security services for much of the trip. Essential security precautions include: (a) maintaining secrecy of the route, date and time of departure and arrival, and the nature of the cargo; (b) modifying the ship to make removal of the plutonium at sea more difficult; (c) assigning independent and specially trained security personnel; (d) installing weapons and other equipment to defend the craft and cargo against terrorists and other threats; (e) conducting background investigations of all crew and security team members; (f) maintaining real-time, redundant communications to monitor the location and security status of the vessel for the voyage; (g) providing continuous backup support for the vessel by military security assets; and (h) providing sufficient fuel capacity to permit the completion of the voyage with no intermediate stops. The Department of Defense believes that to adequately "deter" theft or sabotage, it would be necessary to provide a dedicated surface combatant to escort the vessel throughout the trip. While rapid response by long-range military aircraft is possible in some contingencies, the ability to deter or interdict a terrorist act from the air is limited. Whether France or the United Kingdom would be willing to provide naval escort services all the way to Japan, or within 1000 miles of Japan before turning over escort responsibility to the Japanese, is undetermined. The 1984 experience might provide an acceptable model to divide escort responsibility during the course of the voyage. Finally, even if the most careful precautions are observed, no one could guarantee the safety of the cargo from a security incident, such as an attack

on the vessel by small, fast craft, especially if armed with modern anti-ship missiles. Adequate security measures, however, could ensure that nothing short of an effort by a major naval power could divert the ship or acquire the cargo. In any case, the Department of Defense would have to carefully scrutinize any security plans to ensure they are adequate to deter attack and protect the plutonium.

5. Costs and How They Should be Allocated. Under the agreement, Japan would bear all the identifiable security-related costs. These would include extensive modifications to the ship, such as extra fuel capability and self-defense weapons, and other special equipment to meet the requirements discussed above. The costs to the US Government would be to monitor, inspect, and certify security procedures are adequate to the degree of risk. The Japanese would also pay for the normal shipping costs, fuel, other provisions, and crew costs, totaling between \$900,000 and \$1.4 million per voyage. In addition, the Japanese would be expected to bear all the quantifiable costs of having the US naval forces ready to respond to a crisis involving the ship, such as an attack or a hijacking attempt at sea, as well as the cost of contingency response forces to deter any such attack during a transit of any choke points. Such preparation would be expensive, especially where military assets would have to be prepositioned to ensure rapid response. If a US, French, or British Navy or Coast Guard vessel (or any combination of these) provided the escort services, additional costs could exceed \$2.8 million for the voyage. Moreover, reimbursement for all US costs would be required for the entire period the escort vessel was diverted from its primary operational area.

6. Impact on US Military Readiness. Surface transportation would have an adverse impact on US military readiness. Depending on the route, several CINCs, their staffs, and some of their units would have to divert planning resources and emergency response assets from their primary mission responsibilities to ensuring the protection of this ship over a period of 6 to 10 weeks for each voyage. The US military would have to ensure an adequate response capability to cover a wide variety of contingencies. Military units would have to be prepared to respond to any crisis with minimal notice. The expense and the impact upon naval missions if the US Navy were to assign a surface combatant to accompany the cargo ship would be significant, since such an escort ship would be unavailable for other military missions. Finally, if there were any attempt to seize or sabotage the vessel or its cargo, the adverse impact and expense would go up dramatically as the United States took action to protect and, if necessary, recover the crew, vessel, and cargo.

7. Sea Transportation Alternatives. Alternatives for shipment of plutonium by sea include: (a) civilian cargo vessel without

escort; (b) civilian cargo vessel with US Government escort; (c) civilian cargo vessel with foreign escort; and (d) military cargo vessel without escort. The particulars of each alternative are discussed below:

a. Alternative V -- Civilian Cargo Vessel (Without Escort).

The first sea transportation alternative is to ship the material by sea on a civilian cargo vessel without escort. To maximize security, the Japanese would be expected to take all of the steps discussed in paragraph 4 above. This would include extensive modifications to the vessel's security and other equipment to meet the special needs. The Japanese would also pay for the normal shipping costs, fuel, provisions, and pay for the crew at a total cost of approx. \$1.2 million per trip. The Department of Defense believes these steps might not adequately "deter" a terrorist incident and ensure the security of the shipment. While this would be the least expensive sea transportation alternative, if there was an incident, the costs and impact on military readiness would go up dramatically. More significantly, the security of the plutonium cargo could be in jeopardy, with all the enormous risks which that entails.

b. Alternative VI -- Civilian Cargo Vessel (With US Government Escort). A more secure sea transport alternative is to ship

the material by sea on a dedicated civilian cargo vessel with a US Navy or Coast Guard escort. Again, the Japanese would be expected to modify the vessel to comport with the security requirements discussed above. In addition to the costs of operating the civilian cargo vessel, they would bear all the quantifiable costs of having the US Navy or Coast Guard vessel accompany the cargo ship. If a US Navy ship were to escort the civilian vessel, costs would run about \$45,000 per day, which would add between \$1.8 and \$2.8 million for each voyage. A US Coast Guard vessel would cost somewhat less, about \$16,200 per day, due to its smaller crew size, for a total of between \$650,000 to \$1.1 million. Moreover, use of a Coast Guard vessel would impose a far lower impact on military readiness. (Coast Guard vessels, while not part of the peacetime Navy, are important mobilization assets.) Whether the United States can best utilize its limited Coast Guard resources in this manner, however, needs to be evaluated, given the increasing demands being made in the areas of drug interdiction, fishery management, and illegal immigration. Moreover, while the Coast Guard indicates it is willing and able to perform the mission if assigned, the two crucial elements to any Coast Guard participation are availability and complete financial reimbursement.

c. Alternative VII -- Civilian Cargo Vessel (Foreign Escort).

Yet another alternative is for the French or British navies, or Japanese Maritime Safety Agency, to provide some or all of the escort services. This alternative has two advantages: it

places primary security responsibility with those countries most directly involved in the shipments; and it provides adequate protection. However, there are several problems. First, the employment of a British or French frigate would detract directly from their regional commitments in Europe, perhaps requiring the United States to assume greater naval responsibilities there. Second, whether France or the United Kingdom would be willing to provide naval escort services all the way to Japan, or to within 1000 miles of Japan before relinquishing escort responsibility to the Japanese, is undetermined. It could have an adverse impact on their military flexibility. Third, there are major logistical problems associated with such a mission. An escort vessel would need to be refueled and replenished in both directions. The total costs for such a naval escort operation could be in excess of \$2.8 million or more per mission. Finally, the United States would still need to be ready to respond to any incident which might take place during the voyage, impacting adversely on US military readiness. Pursuit of this alternative would require discussions through diplomatic channels with the British, French, and Japanese.

d. Alternative VIII -- Military Cargo Vessel. The final transportation alternative is using US naval cargo vessels to transport the plutonium from Europe to Japan. (French or British military cargo vessels, if available, might also be used.) With modifications, several different types of ships could carry such a cargo. The only time that the plutonium would be at any real risk of theft or sabotage would be during the port transfer process before it is loaded or after it has been off-loaded. While protesters could obstruct the ship in restricted waters or a terrorist craft could even damage the ship with rocket-propelled grenades or anti-ship missiles, nothing short of a major naval power could divert the ship or acquire the cargo. The key question is whether security would be adequate at the transshipment ports. The cost of using a naval cargo vessel would be quite high. Japan would have to pay industrial rates for such transportation, recompensing the United States for fuel, wages of the officers and men, consumables, and other expenses. For an ammunition replenishment vessel (AE or AOE), total costs could be over \$2.8 million for a 35-day voyage. A dedicated Military Sealift Command (MSC) vessel, because of a much smaller crew, would cost only about \$1.4 million. Japan would also have to pay for the ship's return to its area of operations, perhaps doubling the total costs. Costs of other emergency response requirements discussed above would be largely eliminated since such ships could provide their own defense against most threats. The fundamental problem involves diverting military units from their primary missions. Using naval vessels in this manner would have an adverse impact upon US military readiness, diverting a major

replenishment ship or logistical support vessel from its primary mission for as much as ten weeks each shipment.

8. Additional Comments. As in the 1984 sea shipment, security for the voyage could be provided through a combined effort by those nations concerned and the United States. The operational impact of any of these alternatives is such that the Department of Defense would have to study in detail if any sea shipment alternative were contemplated seriously. While sea shipment provides a possible modality, in the opinion of the Department of Defense, any sea alternatives should be pursued only if air alternatives are not available.

APPENDIX 82

**PREPARED STATEMENT OF DR. BERTRAM WOLFE, VICE PRESIDENT,
NUCLEAR ENERGY, GENERAL ELECTRIC COMPANY, BEFORE THE SEN-
ATE FOREIGN RELATIONS COMMITTEE, DECEMBER 15, 1987**

Mr. Chairman and Members of the Committee:

I am Bertram Wolfe, the Vice President and General Manager for Nuclear Energy of the General Electric Company. I received my B.A. in Physics from Princeton University in 1950, and my Ph.D. from Cornell University in 1955. I entered the nuclear energy field in 1955, and have been engaged in that field continuously since then, all but two years of that time at General Electric. During those three decades, I have worked in nearly every phase of nuclear energy, from reactor design to development of new nuclear reactor concepts. Until recently, I was the General Manager of GE's Nuclear Technologies and Fuel Division, a position which included the responsibility for technology licensing and exchange activities for General Electric nuclear power reactors worldwide. In my present position, I am responsible for the whole scope of GE's civilian nuclear energy activities.

I am and have been an active participant in a number of national organizations dedicated to the improvement of U.S. technology and capability. I am a member of the National Academy of Engineering and the Energy Research Board. I am also the immediate past president of the American Nuclear Society and remain on its Board of Directors. I am, in addition, a member of the Board of Directors of the American

Nuclear Energy Council (ANEC) and am pleased to appear before you today on the Council's behalf. The nuclear industry, which ANEC represents, strongly supports the proposed new U.S.-Japan nuclear cooperation agreement and welcomes the opportunity to set forth the reasons for that support for the Committee's consideration.

The new agreement, in a real sense, reflects the maturing of the Japanese nuclear power program and of the cooperative relationship between our two countries in related technology development and non-proliferation policies. The first U.S.-Japan nuclear cooperation agreement was signed in 1958. It was part of President Eisenhower's "Atoms for Peace" program, which was intended to limit the spread of nuclear weapons by providing for transfers of civilian nuclear power technology and materials in exchange for governmental pledges that the technology and materials would be used only for peaceful purposes. The Atoms for Peace program proved to be a highly successful response to the concern over nuclear weapons, expressed by President Eisenhower in 1953, that "the knowledge now possessed by several nations will eventually be shared by others -- possibly all others."

Since 1958, the U.S. and Japan have engaged in a long and mutually beneficial nuclear trade relationship; indeed, the nuclear field remains one of the relatively few areas in which the U.S. has a highly favorable trade balance with Japan. Importantly, moreover, Japan has been a strong and consistent supporter of U.S. non-proliferation objectives within the IAEA and elsewhere, an early and firm adherent to the Nuclear Non-Proliferation Treaty, and has conducted its own massive nuclear power program in a manner which has scrupulously adhered to Japan's safeguards commitments. Further, the Japanese nuclear power program is among the world's leaders in efficiency, economy and safety.

I personally have been involved with nuclear power activities in Japan for nearly twenty years, most recently as the leader of GE's commercial nuclear activities in that country. Accordingly, I believe I have some insights which may be useful in the Committee's consideration of the proposed new Agreement for Cooperation.

I am not a disinterested observer on nuclear power issues. I believe that nuclear energy constitutes a necessary and desirable part of the energy mix of modern, industrialized nations and that it can make, and is making, an enormous contribution to the well-being of our country and others. But

I am not an uncritical advocate of any and all nuclear uses, or users, and I am a strong supporter of the need for effective non-proliferation controls. The proposed agreement, in my judgment, realistically and practically accommodates those considerations.

Focusing on its most essential characteristics, what this new agreement does is enlarge the scope of U.S. non-proliferation controls -- in response to the requirements of the Nuclear Non-Proliferation Act of 1978 -- and provide means for their application which are predictable and practicable for both parties. The new agreement substitutes a programmatic U.S. approval regime for the current case-by-case, shipment-by-shipment U.S. control of Japanese fuel cycle activities. This programmatic approval regime would set the boundaries on reprocessing of Japanese spent fuel and on plutonium use activities in Japan, the bases for U.S. revocation of consents given, and the steps for and consequences of revocation. The agreement also provides for the development and application of safeguards satisfactory to the U.S. and for safeguards inspections by the U.S. and the International Atomic Energy Agency (IAEA).

As long as the Japanese stay within the "envelope" set by the programmatic approval, and comply with their other obligations under the agreement (and under the Nuclear Non-Proliferation Treaty and their agreements with the IAEA), they can proceed with the approved recycling activities -- activities which they clearly perceive as crucial to their long-term energy security.

As in any negotiated bargain between co-equal parties, the agreement responds to the needs of each side. The Japanese agree to the significantly expanded U.S. control requirements set forth in our Nuclear Non-Proliferation Act of 1978. For its part, the U.S. will supplant its shipment-by-shipment approval regime -- which, the Japanese have made clear they are unwilling to continue to accept -- with a programmatic approach.

Is this a good bargain for the U.S.? My knowledge and experience tell me that it is. Indeed, perhaps it is the only realistic bargain available with the Japanese. Let me explain why. Until the early 1970's, the U.S. held a pre-eminent position in light water reactor technology and a virtual Free World monopoly on fuel enrichment capacity. All that has changed. Our monopoly in enrichment was ended in the 1970's by the French and by a British-Dutch-German consortium. In the same period, while civilian reprocessing in the U.S. ground to

a halt (essentially in response to the changes in U.S. Government policy toward reprocessing of spent fuel), the British and French went ahead with large civilian power reprocessing endeavors, including agreements to reprocess Japanese spent fuel. In the field of nuclear power plants, the reactors built by the Germans, French, Swedes and the Japanese -- based on U.S. light water technology -- match the performance of the best reactors in this country.

I believe that the U.S. still has a lead in nuclear power capability and technology. But the hard fact is that a nation such as Japan, should it perceive itself to have compelling reasons to cease nuclear trade with the U.S., can find necessary nuclear capabilities, equipment, services and other supplies elsewhere. In the case of Japan, many of these are already available, or could soon become so, within its own borders.

In sum, the Japanese no longer need to obtain from the U.S. those very goods and services which create the basis for exercise of U.S. control over their fuel cycle activities. If we continue under the existing agreement, with its case-by-case fuel cycle activity approvals by the U.S., it is my firm belief that that agreement will progressively become a "dead letter" -- with the Japanese either turning to others for the goods,

services and technology they have heretofore obtained from the U.S. or developing the capacity to provide these for themselves. That is the reality of the situation. This same reality leads to the conclusion that what we should seek is to retain our constructive influence on the Japanese nuclear program and a degree of overall control consistent with legitimate Japanese energy security goals. That, Mr. Chairman, is what this proposed agreement provides.

As a result of my work in Japan, I have gotten to know the Japanese nuclear leaders. I have listened to their arguments on reprocessing and the recycling of plutonium in light water reactors. Their views are heavily influenced by the fact that Japan has a very limited indigenous supply of energy. Obtaining energy from plutonium in breeder reactors is a high priority for them, and they see recycling in light water reactors as a step on their path to the breeder. Some may believe that plutonium recycle in light water reactors is the wrong approach for the Japanese -- and I have expressed my own doubts to them on commercial grounds -- but it is clear that only when the Japanese decide, for their own economic and energy policy reasons, that such recycle is a poor choice will they change their current program.

Any U.S. attempt to block or micro-manage Japanese plutonium use would be doomed to failure given the size and sophistication of Japan's nuclear power program, its vital role in the Japanese economy and Japan's determination to achieve energy security. Realism, and a U.S. self-interest, argue for providing reasonable flexibility to the Japanese who, it's worth emphasizing, have an unimpeachable non-proliferation record.

Our continued cooperation with Japan, on terms of mutual respect, would set an example for the rest of the world that we are serious about our commitments to both nuclear non-proliferation and reliable nuclear supply arrangements. It will also help improve America's trade deficit with Japan. Aside from the significant nuclear trade between Japanese companies and utilities and U.S. commercial organizations such as Westinghouse and GE, each year Japanese utilities purchase about \$300 million in uranium enrichment services from the Department of Energy, representing around one-fourth of DOE's uranium enrichment sales. In addition to the trade balance effects, without this Japanese support DOE's enrichment prices would inevitably rise as its costs would have to be spread among fewer utility customers. This would result in higher electricity costs to U.S. ratepayers.

In summary, without continuation of a constructive U.S. relationship with Japan, which the new agreement embodies, the U.S. would lose:

- much of its remaining influence over non-proliferation policies and practices in Japan,
- contact and exchange with advanced Japanese nuclear technology, and
- a very substantial amount of trade with Japan, which helps to counterbalance our trade deficit with that country.

The proposed U.S.-Japan agreement provides an effective way for this country to influence and monitor Japanese plutonium use programs and the safeguards put in place to assure that they serve peaceful purposes only. It will also reinforce our energy and security relations with our most important ally in the Far East. In our own national interest, the Congress should allow this agreement to go into effect without change.

APPENDIX 33

**LETTER OF TRANSMITTAL AND SUBSEQUENT ARRANGEMENT REGARDING
RETRANSFERS TO JAPAN OF MATERIAL PREVIOUSLY TRANSFERRED
FROM JAPAN TO EITHER EURATOM OR NORWAY, IN ACCORDANCE
WITH SECTION 131 OF THE ATOMIC ENERGY ACT OF 1954, AS AMEND-
ED, SUBMITTED BY THE DEPARTMENT OF ENERGY, APRIL 15, 1988**

APR 15 1988

Honorable Dante B. Fascell
 Chairman, Committee on
 Foreign Affairs
 House of Representatives
 Washington, D.C. 20515

Dear Mr. Chairman:

In accordance with Section 131 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2160, (the Act) notice is hereby given of a subsequent arrangement under the Additional Agreement for Cooperation between the United States and EURATOM, and the Agreement for Cooperation between the United States and Japan, and a subsequent arrangement under the Agreement for Cooperation between the United States and Norway, and the Agreement for Cooperation between the United States and Japan.

The subsequent arrangements to be carried out under the above-mentioned agreements involve the prior consent of the United States for the retransfer to Japan of nuclear material previously transferred from Japan to either EURATOM or Norway in accordance with the U.S.-Japan agreement, and in accordance with the U.S. exchange of notes with EURATOM and Norway.

As stated in his letter of transmittal of the proposed new U.S.-Japan Agreement for Cooperation to the Congress, "These subsequent arrangements are designed to give effect to certain provisions of the United States-Japan Implementing Agreement and will enter into force only after the Implementing Agreement enters into force".

It has been determined that these subsequent arrangements will not be inimical to the common defense and security (Section 131 a(1) of the Act). The Secretary of Energy has reached the judgment pursuant to Section 131 b. of the Act that approval of these subsequent arrangements will not result in a significant increase in the risk of proliferation. In reaching this judgment, "foremost consideration" was given to "whether or not the...retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." The enclosed analysis evaluates factors relevant to the above action.



This letter of transmittal, together with the enclosed analysis, constitutes the report to the Committee on Foreign Affairs as required by Section 131 of the Act. Also, as required by the Act, an identical report has been provided to the Committee on Foreign Relations of the Senate.

Sincerely,

for E. W. Waller

**David B. Waller
Assistant Secretary for
International Affairs
and Energy Emergencies**

Enclosure

DEPARTMENT OF ENERGY

Assistant Secretary for International Affairs
and Energy Emergencies

PROPOSED SUBSEQUENT ARRANGEMENT

Pursuant to Section 131 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2150) notice is hereby given of a proposed "subsequent arrangement" under the Additional Agreement for Cooperation between the Government of the United States of America and the European Atomic Energy Community (EURATOM) Concerning Peaceful Uses of Atomic Energy, as amended, and the proposed Agreement for Cooperation between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy, and the Implementing Agreement Pursuant to Article 11 thereto ("Implementing Agreement"). (The proposed Agreement and the Implementing Agreement were transmitted to Congress by the President on November 9, 1987 by means of a letter, the text of which was published in the Congressional Record on November 9, 1987 at page H 9841 and on November 10, 1987 at page S 16092).

The subsequent arrangement to be carried out under the above-mentioned agreements will fulfill the undertaking of the United States in the Implementing Agreement to facilitate certain transfers of specified nuclear material from EURATOM to Japan. In particular, the subsequent arrangement involves approval for the return to Japan of: (a) nuclear material recovered from irradiated nuclear material transferred from Japan to designated

EURATOM facilities for reprocessing, and (b) irradiated nuclear material for testing and analysis transferred to designated EURATOM facilities from Japan as fuel samples containing plutonium in quantities not to exceed 500 grams per year per facility.

The designated facilities for reprocessing are: the Sellafield Plant, United Kingdom and the La Hague Plant, France. The designated facilities for sample fuel irradiation are the BR2 and BR3 Reactors, Belgium, The DR3 Reactor, Denmark, the Phenix Reactor, France, the GKN Dodewaard Reactor, Netherlands, and the SGHWR Reactor and Dounreay PFR Reactor, United Kingdom. Plutonium recovered from reprocessing must be transferred in accordance with detailed guidelines set forth in the Implementing Agreement, unless otherwise agreed by the United States. A complete analysis of this subsequent arrangement as well as the other approvals provided by the Implementing Agreement was provided with the President's submission of the proposed Agreement and the Implementing Agreement to Congress, and published in House Document 100-128, 100th Congress, 1st Session, (November 9, 1987).

In accordance with Section 131 of the Atomic Energy Act of 1954, as amended, it has been determined that this subsequent arrangement will not be inimical to the common defense and security.

This subsequent arrangement will take effect no sooner than fifteen days after the date of publication of this notice and after fifteen days of continuous session of the Congress, beginning the day after the date on which the reports required by section 131(b)(1) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2160) are submitted to the Committee on Foreign Affairs of the House of Representatives and the Committee on Foreign Relations of the Senate. The two time period referred to above shall run concurrently.

Date: APR 15 1988

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Edward V. Badolato
Acting Assistant Secretary
for International Affairs
and Energy Emergencies

DEPARTMENT OF ENERGY
Assistant Secretary for International Affairs
and Energy Emergencies
PROPOSED SUBSEQUENT ARRANGEMENT

Pursuant to Section 131 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2160) notice is hereby given of a proposed "subsequent arrangement" under the Revised Agreement for Cooperation between the Government of the United States of America and the Government of Norway concerning Peaceful Uses of Nuclear Energy and the proposed Agreement for Cooperation between the Government of the United States of America and the Government of Japan concerning Peaceful Uses of Nuclear Energy, and the Implementing Agreement pursuant to Article 11 thereto, ("Implementing Agreement"). (The proposed Agreement and the Implementing Agreement were transmitted to Congress by the President on November 9, 1987 by means of a letter, the text of which was published in the Congressional Record on November 9, 1987 at page H 9841 and on November 10, 1987 at page S 16092).

The subsequent arrangement to be carried out under the above-mentioned agreements will fulfill the undertaking of the United States in the Implementing Agreement to facilitate certain transfers of specified nuclear material from Norway to Japan. In particular, the subsequent arrangement involves approval for the return to Japan for testing and analysis of irradiated nuclear material transferred to the Halden reactor, Institute for Energy

Technology, from Japan as fuel samples containing plutonium in quantities not to exceed 500 grams per year. A complete analysis of this subsequent arrangement as well as the other approvals provided by the Implementing Agreement was provided with the President's submission of the proposed Agreement and the Implementing Agreement to Congress and published in House Document 100-128, 100th Congress, 1st Session (November 9, 1987)

In accordance with Section 131 of the Atomic Energy Act of 1954, as amended, it has been determined that this subsequent arrangement will not be inimical to the common defense and security.

This subsequent arrangement will take effect no sooner than fifteen days after the date of publication of this notice and after fifteen days of continuous session of the Congress, beginning the day after the date on which the reports required by section 131 (b)(1) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2160) are submitted to the Committee on Foreign Affairs of the House of Representatives and the Committee on Foreign Relations of the Senate. The two time periods referred to above shall run concurrently.

Date: APR 15 1988

(S)

Edward V. Badolato
Acting Assistant Secretary
for International Affairs
and Energy Emergencies

OFFICIAL FILE COPY

Analysis of Consents and Approvals Agreed Upon In Conjunction With the Proposed New Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy

August, 1987

OVERVIEW

Introduction and Framework of Analysis

In conjunction with the proposed new Agreement for Cooperation with Japan several consents and approvals will be granted by the United States. These consents and approvals will be granted either under the terms of the new Agreement for Cooperation with Japan or pursuant to the terms of the agreements for cooperation that the United States has in effect with the European Atomic Energy Community (EURATOM) and the Government of Norway.

This special analysis prepared in support of the new U.S. Agreement with Japan and associated subsequent arrangements reviews these various consents and approvals in light of relevant applicable provisions of the U.S. Atomic Energy Act of 1954, as amended (hereinafter the "AEA").

More specifically, all of the proposed consents and approvals are reviewed to ensure that they would not be inimical to the common defense and security; those for which the considerations in Section 131t of the AEA are relevant are further reviewed to ensure that their approval by the United States would not result in a significant increase in the risk of proliferation.

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Among the factors considered in making the latter judgment, foremost consideration is given to whether the activities will take place under conditions ensuring timely warning to the United States of any diversion well in advance of the time at which Japan or any other relevant non-nuclear-weapon state could convert diverted material into a nuclear explosive device.

As a broader consideration, this analysis considers whether these approvals and consents meet the test of Section 123b of the Atomic Energy Act, so that the President will be able to make the required determination, after receiving the views and recommendations of the Secretaries of State and Energy and other specified officials, that performance of the Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security.

Finally, this analysis also reviews the physical security measures applicable to cooperation under the proposed new agreement for cooperation and associated arrangements.

In addressing these questions this report covers the following topics:

- The major factors that have led to the negotiation of the proposed new Agreement for Cooperation with Japan and how they relate to the policy of the United States concerning foreign reprocessing and plutonium use.

- An introductory description of Japan's nuclear power program with emphasis on Japan's dependence on nuclear power and especially on those activities that relate to the new Agreement for Cooperation and Implementing Agreement.
- A description of the consents and approvals included in the Agreement for Cooperation and the associated Implementing Agreement and exchanges of diplomatic notes. This section also includes a description of associated U.S. consents to EURATOM and Norway for activities in support of the Japanese nuclear program. This section of the analysis describes both the approvals that will become immediately operative once the new Agreement for Cooperation comes into force and those that will become operative at a later time when specified conditions are met.
- A comprehensive evaluation using the criteria set forth in the AEA, including those concerning whether the agreement would result in a significant increase of the risk of proliferation. More broadly, this portion of the analysis also evaluates the statutory criterion that a new Agreement for Cooperation will promote, and not constitute an unreasonable risk to, the common defense and security.

Major Features of the Agreement for Cooperation

The proposed Agreement for Cooperation with Japan has been designed to achieve two important objectives. First, it has been formulated to strengthen and modernize the terms of U.S.-Japanese civil nuclear cooperation to reflect the nonproliferation conditions set forth in the U.S. Nuclear Non-Proliferation Act of 1978 (hereafter the "NNPA"). Under the terms of the NNPA these additional conditions are to be incorporated in all new agreements for cooperation. In this context, for the past several years the United States and Japan have held intensive discussions on this specific issue. The new Agreement for Cooperation meets all of the requirements of the NNPA.

Second, the new Agreement for Cooperation, together with the accompanying Implementing Agreement, agreed minutes and exchanges of notes, has been designed to provide substantially greater certainty to Japan that various civil activities subject to U.S. consent rights will be allowed to proceed over a period of years on a stable, predictable basis. Under the formulations that have been developed this enhanced predictability is to be achieved through the granting of long-term U.S. approval for activities at specified facilities as well as at future facilities when certain objective tests are met. In this connection it should be noted that Article 11 of the Agreement provides (*inter alia*):

"...[T]he parties shall make...and perform in good faith separate arrangements that will satisfy the requirements for

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mutual agreement...on a long-term, predictable and reliable basis..."

This article of the Agreement therefore forms the basis for the consents and approvals contained in the Implementing Agreement and associated arrangements. Article 11 of the Agreement does not itself authorize these activities, but establishes the parties' undertaking to do so "consistent with the objective of preventing nuclear proliferation, and with their respective national security interests."

The major activities requiring U.S. consent that are to derive the benefit of these new long-term U.S. approvals include:

- . reprocessing at the existing Tokai-Mura pilot reprocessing plant and a larger-scale commercial Japanese plant to follow;
- . storage of plutonium in designated facilities in Japan;
- . transfers of irradiated spent fuel from Japan to the UK and France for reprocessing;
- . the return of recovered plutonium from the U.K. and France to Japan, for subsequent use in the designated Japanese program;
- . the transfer from Japan to specific facilities in Norway

of small research quantities of plutonium for irradiation and return to Japan for testing and analysis; and

- the transfer of source and low enriched uranium to designated countries.

These activities -- especially those pertaining to reprocessing at Tokai-Mura and the shipment of spent fuel to the United Kingdom and to France for reprocessing and the return of recovered plutonium to Japan -- have been subject to case-by-case approval by the U.S. over recent years. This approach has created a substantial degree of uncertainty about the reliability of the United States as a nuclear partner. The new Agreement is designed to rectify this situation. In this regard, it is viewed as a milestone in the policy relating to nuclear cooperation with Japan and Western Europe adopted in 1981 and 1982. While the United States discourages the spread of sensitive nuclear materials and technology to unstable regions or to nations which do not share our commitment to nonproliferation, it also has recognized the important role that reprocessing and advanced reactor development continue to play in the programs of certain advanced nations with outstanding nonproliferation credentials.

On July 16, 1981, President Reagan stated that:

"We must reestablish this nation as a predictable and reliable partner for peaceful nuclear cooperation under adequate safeguards. This is essential to our non-proliferation goals. If we are not such a partner, other countries will tend to go their own ways and our

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influence will diminish. This would reduce our effectiveness in gaining the support we need to deal with proliferation problems."

With respect to activities such as the ones that are the subject of this analysis, the President further stated:

"The Administration will also not inhibit or set back civil reprocessing and breeder reactor development abroad in nations with advanced nuclear power programs where it does not constitute a proliferation risk."

As is explained more fully in the detailed analysis that follows, this new Agreement serves to implement the decisions adopted by the President in 1981 and 1982 by working out a long-term solution with Japan on the question of approving the reprocessing of spent fuel that is subject to U.S. consent.

A key part of the Agreement permits the U.S. to suspend its consent in whole or in part in exceptional circumstances to prevent a significant increase in the risk of nuclear proliferation or threat to U.S. national security. Although it is anticipated that such a suspension need never occur, the suspension process reflected in the proposed Agreement is designed to be a prudent one that will take into account an unforeseen change in the current circumstances.

The principal mechanism for granting the consents which are analyzed in this report is the "Implementing Agreement" and its associated documents. The long-term programmatic consents and

approvals are contained in Article 1 of the Implementing Agreement. Article 2 of the Implementing Agreement delineates mechanisms for applying long-term approvals to additional facilities when certain procedures are followed. These approvals in the Implementing Agreement are not "subsequent arrangements" within the terms of Section 131 of the NNPA since they are to be granted as part of the approval of the Agreement for Cooperation. However, they are analyzed in light of the criteria specified for "subsequent arrangements" set forth in Sections 131b(2) and 131b(3) of the AEA. This includes the question of whether granting the subject approvals will result in a significant increase of the risk of proliferation beyond that which existed when the approval was considered.

Two of the proposed long-term approvals evaluated in this report are subsequent arrangements within the meaning of the AEA, since they will be granted pursuant to existing agreements for cooperation with the European Community (EURATOM) and with Norway. The U.S.-proposed approvals to EURATOM will permit the return of Japanese plutonium recovered from reprocessing in EURATOM to Japan. Approvals would also be given to EURATOM and Norway to allow research quantities (not to exceed 500g) of irradiated plutonium subject to U.S. consent at designated facilities to be returned to Japan. The analysis of these two approvals is comparable to those made in the past for other subsequent arrangements.

Before the subsequent arrangements become operative, all statutory requirements, including suitable notification in the Federal Register, will be completed. This report will serve to notify Congress of these arrangements pursuant to Section 131b(1) of the Act.

The detailed analysis reviews the wide variety of factors that are relevant to whether the proposed approvals in conjunction with the new Agreement with Japan will meet the statutory criteria noted above. These include a discussion of the IAEA safeguards arrangements that apply to the key activities being approved; a discussion (where applicable) of the physical protection measures that will apply to activities and materials involved; and a comprehensive evaluation of all additional major factors that relate to whether granting the new approvals will result in a significant increase of the risk of proliferation and will promote, and not constitute an unreasonable risk, to the U.S. common defense and security.

Conclusions

This analysis concludes that the consents and approvals described in this report will not be inimical to the common defense and security, and will not result in any significant increase in the risk of proliferation as contemplated in Section 131 of the AEA. More broadly, it is concluded that granting these

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approvals will further the interests of the United States in nonproliferation, international energy cooperation, international trade, and good relations with a close U.S. ally. The arrangements will promote, and will not constitute an unreasonable risk to, the common defense and security. The Departments of Commerce and Defense, the Arms Control and Disarmament Agency and the Nuclear Regulatory Commission (NRC) have reviewed this analysis.

Analysis of Consents and Approvals to be Agreed Upon In
Conjunction With the Proposed New Agreement for Cooperation
Between The Government of the United States of America and the
Government of Japan Concerning the Peaceful Uses of Nuclear
Energy

DETAILED ANALYSIS

1. Introduction and Background

The proposed new U.S.-Japan Agreement for Cooperation, including the Implementing Agreement, with its associated accompanying documents, is the product of several years of intensive negotiations. The existing Agreement for Cooperation, which entered into force in 1968, superseded an earlier agreement which was first concluded in 1958. The existing Agreement, as amended in 1972, together with Japan's safeguards agreement with the IAEA pursuant to the NPT and physical protection assurances, has satisfied all of the criteria for export licenses under Section 127 of the U.S. Atomic Energy Act.

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(AEA). As directed by Section 404(a) of the Nuclear Non-Proliferation Act of 1978 (NNPA), the U.S. undertook to negotiate a new Agreement for Cooperation that would meet all of the criteria added by the NNPA for new or amended agreements for cooperation. Similar efforts are underway with other cooperating nations or groups of nations.

Following an extensive interagency review of this issue, the United States announced in 1982 a policy applicable to negotiations with Japan. This policy was designed to overcome Japan's resistance to renegotiating the existing bilateral "Agreement for Cooperation. In particular, it was decided that the U.S. would be prepared to grant long-term approvals of specific fuel cycle activities to Japan in the context of a new agreement for cooperation, provided they met our strict statutory standards.

The consents and approvals discussed in this paper were negotiated in the light of the following passage from the Joint Communique, issued on May 8, 1981, between Prime Minister Suzuki and President Reagan:

"14. The Prime Minister and the President, in recognition of the vital importance of preventing nuclear weapons proliferation, reaffirmed the need to continue to promote international efforts to this end. They shared the view, on the other hand, that the role of nuclear energy ought to be further expanded under appropriate safeguards to meet the increasing energy needs of the world and that Japan and the United States have a special responsibility to cooperate further in promoting the peaceful uses of nuclear energy. In this connection, the President endorsed the view of the

Prime Minister that reprocessing is of particular importance to Japan. The Prime Minister and the President thus agreed that the two governments should promptly start consultations with a view to working out a permanent solution at an early date on such pending issues as the continued operation of the Tokai Reprocessing Facility and the construction of an additional reprocessing plant in Japan." (emphasis added).

The Reagan-Suzuki Communique was an important background consideration in formulating the 1982 policy covering these negotiations.

Before enactment of the NNPA, the U.S. and Japan had negotiated an agreement of limited duration and scope applying to the reprocessing of U.S.-controlled spent fuel at the Japanese pilot reprocessing facility at Tokai-Mura. The Agreement called for joint efforts to improve the safeguards techniques applied there. Approval for reprocessing at Tokai has periodically been extended, with some modifications, but in each case for limited periods. Over recent years, and as an outgrowth of the Reagan-Suzuki Communique and the President's 1982 policy decision, the U.S. and Japan have engaged in extensive discussions and negotiations aimed at reaching a longer term, more stable understanding on this matter. The most recent short-term extension covering the Tokai-Mura plant was processed in 1986 pursuant to Section 131 of the AEA and covers the calendar year 1987. The proposed longer-term U.S. consent to reprocessing at Tokai-Mura, which is one of the important U.S. approvals discussed in this report, would obviate the need for repetitive extensions of such limited duration.

II. Legal Basis For the Evaluations and Processing of the Consents and Approvals Covered by this Report

The legal framework for this analysis, and for the processing of the consents and approvals discussed herein, is provided by the Atomic Energy Act of 1954, as amended (AEA), and the Nuclear Non-Proliferation Act of 1978, as amended (NNPA). Section 123 of the AEA provides standards and procedures for the conclusion of new or amended agreements for cooperation. Section 131 of the AEA provides standards and procedures for the conclusion of subsequent arrangements under an agreement for cooperation. The proposed new U.S.-Japan Agreement for Cooperation, and the Implementing Agreement and associated documents, constitute an "agreement for cooperation" for purposes of Section 123 of the AEA. Thus, with the consents and approvals they contain, they must be determined to "promote, and...not constitute an unreasonable risk to, the common defense and security," (Section 123b of the AEA). The subsequent arrangements under other agreements for cooperation that are needed to carry out certain provisions of the Implementing Agreement must, pursuant to Section 131a, be determined "not to be inimical to the common defense and security," and, in the case of the arrangement with EURATOM for the return to Japan of plutonium in quantities greater than 500 grams, must be judged not to result "in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested," (Section 131b of the AEA). (In making the last of these judgments,

Section 131b provides that foremost consideration is to be given to the "timely warning" factor quoted in (6) below.)

Furthermore, the advance consent approval arrangements contained in the agreement for cooperation would constitute a subsequent arrangement under Section 131 of the AEA if agreed to separately from the Agreement for Cooperation. They therefore are evaluated to ensure they meet all the substantive and procedural requirements of Section 131. This approach guarantees (1) that the specific statutory findings ordinarily required for such arrangements will be met and will underlie the decision to provide advance approvals and consents in an agreement for cooperation;

and (2) that the appropriate agencies will have an opportunity to participate in that decision-making process. This approach has been implemented for the consents and approvals in the proposed Agreement for Cooperation, including the Implementing Agreement, in the following manner:

- (1) The requirement that the Secretary of Energy determine that a subsequent arrangement "not be inimical to the common defense and security," in Section 131a of the AEA, will be fulfilled in the Presidential determination pursuant to Section 123a that the Agreement for Cooperation will "promote, and will not constitute an unreasonable risk to, the common defense and security."

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- (2) The requirement in Section 131b that subsequent arrangements not take effect until the Secretary of Energy has provided the House Foreign Affairs and Senate Foreign Relations Committees "a report containing his reasons for entering into such arrangement and a period of 15 days of continuous session...has elapsed" will be satisfied by following the procedures of section 123, which include a Presidential submittal of the proposed agreement (together with associated documents, including a copy of this analysis) to those committees, for an aggregate waiting period before Congress of 90 continuous session days, and a provision for Congressional hearings;
- (3) The requirement for public notice of proposed subsequent arrangements through publication in the Federal Register, Section 131a(1), AEA, will be satisfied by publication in the Congressional Record of the Presidential transmittal of the proposed Agreement for Cooperation and by the publication as a House document of the Agreement along with all related documentation. Those activities with Norway and EURATOM which do constitute "subsequent arrangements" will be subject to publication in the Federal Register for a notice period of 15 calendar days before they become effective.

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- (4) The discretionary authority of the Director of the Arms Control and Disarmament Agency (ACDA) to submit an unclassified Nuclear Proliferation Assessment Statement to the Secretary of Energy in conjunction with a proposed subsequent arrangement (Section 131a(2)) has been preserved, since he is submitting such a statement as required by Section 123a with respect to the proposed new Agreement for Cooperation that covers all its associated documents.
- (5) Both subsequent arrangements and agreements for cooperation require the substantive approval of the Secretaries of State and Energy and consultation with ACDA and the Nuclear Regulatory Commission (NRC). However, subsequent arrangements, unlike agreements for cooperation, also require consultation with the Secretary of Defense (Sections 131a(1) and 133 of the AEA). Therefore, the proposed Agreement package has been reviewed by the Secretary of Defense.
- (6) Section 131b (2), unlike Section 131a, further requires a separate determination that a "subsequent arrangement" will not result in a significant increase of the risk of proliferation beyond that which exists at the time the approval is requested. "Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or

retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device." The Secretaries of State and Energy have applied this standard to those consents and approvals contained in the proposed agreement and have reached the conclusion that, taken together, the arrangements give evidence that the U.S. would have timely warning as envisioned in that Section.

- (7) Finally, whereas subsequent arrangements are not subject to a formal procedure for Congressional review, Section 123a specifically provides for hearings and for expedited Congressional procedures for consideration of pertinent joint resolutions. Taken together, with the other points, this indicates that incorporating the advance consent approval arrangements into the agreement for cooperation will provide Congress a far more complete opportunity for review than would be provided if these arrangements were processed under Section 131 as

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"subsequent arrangements."

In sum, the consents and approvals contained in the proposed Agreement for Cooperation and associated documents have been reviewed so as to meet all the relevant requirements for determinations and procedural steps in Sections 123, 131, and 133 of the AEA.

PART ONE

DESCRIPTION AND ANALYSIS OF PERTINENT FACTS AND
PROVISIONS IN THE AGREEMENT PACKAGEIII. Overview of Japan's Energy Resources and Nuclear Program
with Pertinent Observations on Japan's Current PlansA. Japan's Overall Energy Situation and Strategy

As a nation largely lacking in indigenous energy resources, Japan has the highest degree of dependence on imported energy sources of any of the principal allies and trading partners of the United States. Imports supply over 80% of Japan's primary energy consumption. Of this amount, over 70% is met by imported petroleum, much of which originates in the Middle East. Japan also imports significant amounts of coal from the United States and Australia, and has sizeable liquified natural gas contracts with, among others, Indonesia. Virtually all of the uranium used in Japan is of foreign origin. For well over a decade, Japanese energy strategy has emphasized reducing vulnerability to disruption of energy supply by diversifying both the types of fuels utilized by the Japanese economy and the supply sources for those fuels; achieving security of supply from specific suppliers by reliance on long-term contracts and, where appropriate, direct

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investment and other forms of participation in projects supplying fuels to Japan; and achieving independent capabilities wherever possible. Japan believes that nuclear power is the only near-term energy source which offers significant long-term, assurance of energy security. Accordingly, Japanese efforts to develop and commercialize light water reactors, the liquid metal breeder reactor and related fuel cycle technologies have had the priority and status of truly "national" projects.

Although there remains a continued high degree of import dependence, there has been a structural shift underway since 1973 in the utilization of fuels in the electric power sector in Japan. This shift has dramatically increased the importance of nuclear power to the Japanese economy. External factors, most importantly the problems of oil supply security and oil price increases associated with the Arab oil embargo of 1973 and its aftermath, have encouraged greater reliance on coal, natural gas (LNG), and nuclear power. This shift has been carried out as part of a conscious strategy of reducing energy vulnerability by diversifying both fuel types as well as sources of supply. In achieving this diversification, Japan is pursuing a course taken by many industrialized states, including the United States.

An important feature of this structural shift in the Japanese electric power sector is the displacement of oil from base load

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power production, and the substitution of nuclear energy as the principal source of base load capacity. Large scale coal-fired and LNG fuel plants supplement nuclear energy in the base load role. Hydroelectric plants (primarily pumped storage) and existing oil fired plants cover peak load. In the 1985 Japanese fiscal year, nuclear power provided 26% of total electricity supply, as opposed to 25% supplied by oil fired plants, even though nuclear plants constituted 12.7% of total installed capacity. By the year 2010, nuclear energy could supply over 45% of Japan's total electricity generated in that year. As the Japanese industrial base becomes increasingly electricity-intensive, the strategic significance of nuclear energy, as the bulwark of electricity supply, will increase considerably over the initial thirty year period covered by the proposed new U.S.-Japan Agreement for Cooperation.

B. Japan's Nuclear Program and Plans

Japan's nuclear power program has been in existence for over 25 years, and encompasses all elements of the nuclear fuel cycle ranging from enrichment to reprocessing. With 32 power reactors on line, Japan has the fourth largest nuclear power program in the world.

Although the first commercial Japanese power reactor to enter service (in 1966) was a United Kingdom-supplied gas cooled reactor, all subsequent reactors have been of the light water type employing

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technology originally licensed from U.S. vendors. In 1985, installed nuclear capacity reached 24,500 MW. By the year 2010, that capacity could reach 77-87,000 MW, depending upon the growth in demand.

In developing and commercializing a program of this substantial magnitude, Japanese firms and institutions have emerged from being initially dependent on foreign technology to becoming leaders in the development of nuclear technology. Japanese firms play leading roles in existing international cooperative ventures with U.S. companies that are aimed at developing advanced versions of pressurized as well as boiling light water reactors, and the expectation is that these advanced LWRs will be commercially deployed first in Japan. In addition, the Japanese have designed and built within Japan an indigenous, heavy water moderated, boiling light water cooled reactor based on a concept known as the "Advance Thermal Reactor" or ATR. The first reactor of this type (the 165 MWe "Fugen" reactor) is in operation, and construction of a 600 MWe version is also planned. Japanese firms are also establishing a foothold in international markets for supplying reactor pressure vessels and other major components.

The long term Japanese reactor strategy relating to thermal reactors emphasizes the further improvement of existing LWR technologies, to be followed by development of a "next generation" high conversion LWR, which might be commercialized

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early in the next century. The maintenance and improvement of heavy water reactor technologies such as the ATR or Fugen concept would then be given relatively lesser prominence.

Japan also has devoted considerable effort to developing fast breeder technology and this endeavor is expected to continue. Success in this undertaking is perceived as all the more important within the context of Japan's high degree of energy dependence. The Power Reactor and Nuclear Fuel Development Corporation (PNC) has carried out research and development related to the breeder as a national endeavor since 1967. Construction on the 100 MW JOYO experimental breeder reactor was initiated in 1969, and it began operation in 1977. With the financial assistance of the Japanese utilities, PNC is now constructing a 260 MWe prototype loop-type breeder reactor known as the MONJU which is scheduled to come into operation about 1992.

The current Japanese strategy for achieving the commercialization of the breeder visualizes the construction of two to three additional breeder demonstration reactors, following MONJU. The goal is to reduce the cost differential between breeder reactors and light water reactors so that the first commercially competitive breeder reactor can be brought on line about the year 2030. The principal responsibility for achieving this goal has been placed on the Japanese utility industry which is to have research and development support of the PNC.

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The Japanese also have been studying the merits of using plutonium fuels in their light water reactors and have conducted some test irradiations of such fuels in the Mihama 1 and Tsuruga reactors. However, it is not expected that mixed plutonium/uranium oxide fuels will be put to extensive commercial use in Japan for several years to come. In support of its efforts in the fields of reactor development and deployment, Japan has also been actively developing a full fuel cycle capability.

The development of an autonomous uranium enrichment activity was undertaken as a national project in 1972. A pilot-scale enrichment plant which was initiated in 1977 entered into operation in 1982. Also, a prototype plant whose construction began in November 1985 is scheduled to enter service in 1991. The objective in the enrichment sector is to supply at least one-third of the total Japanese national demand by the end of this century. In the meantime, 75% of Japanese enrichment needs are being met by long-term contracts with the U.S. Department of Energy (DOE) (about 20% of DOE's total enrichment sales are to Japan). Another 20% of Japan's needs for enrichment are being met by the French firm COGEMA. Research and development on both advanced gas centrifuges and laser isotope modes of uranium enrichment are being pursued.

It is Japanese policy that all spent fuel should be reprocessed. Provision for removal of spent fuel from the power reactor site is a precondition for the granting of a reactor operating license in Japan. Current reprocessing requirements are satisfied largely

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on the basis of existing contracts with COGEMA and British Nuclear Fuels Limited.

Japan has been shipping spent fuel abroad for reprocessing since the late 1960's. Although the retransfer and reprocessing of most of this spent fuel has been subject to U.S. prior consent under the terms of the existing U.S.-Japanese Agreement for Cooperation, a growing share of Japanese spent fuel will not be subject to such U.S. controls due to the use of non-U.S. origin enriched uranium. In addition, almost 1,000 tons of uranium have been discharged from the British-supplied gas cooled reactor at Tokai. This material must be reprocessed in a reasonably prompt manner due to the nature of the fuel, and spent fuel from this reactor has been shipped to the U.K. for reprocessing since the late 1960's.

As is the case for enrichment, Japan's dependence on foreign reprocessing services will eventually be supplanted, to a significant extent, by more extensive indigenous capacity. Construction of the 210 ton per year pilot reprocessing plant at Tokai-Mura began in June 1971. Full operation was achieved in January 1982. The Tokai plant is associated with plutonium conversion and mixed oxide fuel fabrication facilities; Japan has years of experience in the fabrication of such mixed oxide fuels. Reprocessing of U.S.-origin spent fuel at the Tokai plant was the subject of a U.S.-Japan joint safeguards determination made in 1977 for an initial two year period. Since enactment of the

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NNPA, "subsequent arrangements" extending that joint determination have been approved on several occasions, most recently for one additional year until December 31, 1987. The first commercial-scale reprocessing plant is currently planned for construction at a nuclear fuel complex being constructed in Aomori Prefecture by 1995 (which will include enrichment, reprocessing, and waste treatment/disposal). In addition, Japan anticipates that the development of a fast breeder fuel reprocessing capability will be needed.

In 1984 the United States approved the retransfer of 189 kg of plutonium from France to Japan for use in Japan's JOYO fast breeder reactor. This approval, as well as the U.S. approvals of the reprocessing of U.S.-origin spent fuel at Tokai-Mura and the U.S. approval of subsequent arrangements for transferring U.S.-origin spent fuel from Japan to the U.K. and France for reprocessing, have been directly supportive of the successful effort to negotiate the proposed new U.S.-Japanese Agreement for Cooperation to include all provisions of Section 123 of the AEA. Although Japanese nuclear energy strategy places considerable emphasis on achieving a significant measure of autonomy and assuring energy security, international cooperation has been and remains of major importance to the Japanese program. U.S. companies are integrally involved in the technical consortia developing advanced light water reactors and they are also actively involved in reactor design studies supportive of the Japanese breeder program. PNC and DOE have cooperated for a

number of years in the breeder and advanced reactor areas, and this collaboration, which is of value to the United States as well as Japan, is continuing. Japanese firms anticipate enhanced roles in international technical cooperation and export activities.

C. General Observations

In summary, a number of features of the Japanese nuclear program merit emphasis from the perspective of this analysis. First, a considerable degree of technological autonomy already has been achieved in the program, in both the reactor and fuel cycle areas. Second, a significant amount of the special nuclear material in this program is not subject to U.S. prior consent rights, and this will increase over time. Third, although the achievement of greater Japanese autonomy of supply, particularly in the fuel cycle, is an important energy security objective, international cooperation, particularly with the United States, remains an important component of the Japanese program.

The Japanese strategy calls for a steady step-by-step approach to further development and deployment of complex and costly technologies, as well as continued utilization of existing ones. The 2030 target for deployment of a commercially competitive breeder reactor stretches the planning horizon over 43 years, during which a number of highly capital intensive reactor and fuel cycle facilities must be put in place. Several tens of

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billions of dollars will be invested over the course of this period.

As this effort involves several major technological and commercial risks, there is a correspondingly high premium in Japan on stabilizing the political environment within which construction decisions and financial investments must be made. The proposed new U.S. Agreement for Cooperation with Japan, and especially the U.S. long-term programmatic approvals that are now visualized for several activities, seek to address this very important problem by establishing a stable and predictable series of nonproliferation conditions that will apply to important aspects of the Japanese program. They also will serve to eliminate the uncertainties and delays that have been associated with the U.S. case-by-case approval process in recent years.

IV. The Types of Consents and Approvals Included in the U.S. "Implementing Agreement" with Japan and Associated Documents

As noted above, the consents and approvals included in the "Implementing Agreement" are in furtherance of the policy established under Article 11 of the Agreement for Cooperation.

The various types of consents and approvals intended to become effective upon the entry into force of the proposed new U.S.-Japan Agreement for Cooperation are all either embodied in, or called for by, Article 1 of the Implementing Agreement. The

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principal consents and approvals contained in the Implementing Agreement apply to facilities listed in Annexes to that Agreement, which were compiled on the basis of a thorough assessment by the U.S. and Japan of the needs of Japan's nuclear program. Thus, it is essential to understand the nature and content of those Annexes.

The first three Annexes list existing facilities of the following types that are helping to support the Japanese program:

Annex 1 - Facilities for reprocessing, alteration in form or content and storage, including the reprocessing plant and associated facilities at Tokai-Mura and the French and British reprocessing plants at La Hague and Sellafield, respectively.

Annex 2 - Other facilities where separated plutonium is located, including the Fugen ATR, the JOYO FBR, two LWRs at which mixed uranium-plutonium oxide fuel is present, and three critical assemblies.

Annex 3 - LWRs from which spent fuel may be sent to Annex 1 facilities.

Annex 4 - Facilities which are planned or under construction in Japan, and which are intended to be added to

Annexes 1, 2 or 3 (and thus have the benefit of pertinent consents and approvals) when so needed. These include the following classes of facilities, and specifically list those indicated below:

- . Reprocessing facilities - the planned Rokkasho Commercial Reprocessing Facility in Aomori Prefecture.
- . Plutonium fuel fabrication facilities - the proposed Tokai plutonium fuel Fabrication Plant, with a capacity of 45 t/year.
- . Reactors: ATR's - Ohma; FBR's - MONJU; LWRs - 18 that are under construction or planned.
- . Other facilities - The Nuclear Fuel Cycle Safety Engineering Research Facility (NUCEF), and the FBK Fuel Recycling Pilot Plant being planned by PNC.

All of the programmatic consents and approvals included in the Implementing Agreement can be extended to additional facilities

provided certain procedures are followed. (These mechanisms are described below).

Article 3 of the Implementing Agreement deals with the right to suspend such consents and approvals. The Implementing Agreement is accompanied by its own Agreed Minutes and a number of associated documents, including a proposed exchange of notes between the United States and EURATOM which contains the consents under the U.S.-EURATOM Additional Agreement for Cooperation. The most important of these is a proposed long-term U.S. programmatic consent for the return to Japan of separated plutonium that is called for in the Implementing Agreement. As will be explained further, this long-term consent will only apply when Japan is in a position to advise the United States that special rigorous physical security measures will be applied to the plutonium.

In the paragraphs that follow, the activities to be carried out under the consents and approvals contained in the Agreement package are grouped under two headings:

- those activities for which the consents and approvals would be immediately applicable;
- those activities for which consents and approvals would become effective at a later time.

A. Immediately Applicable Consents and Approvals

1. Consents to Reprocessing, Retransfers for Reprocessing and Retransfers of Plutonium

Upon entry into force of the new Agreement for Cooperation, the Implementing Agreement and associated subsequent arrangements provide that the following consents and approvals would be immediately applicable to existing facilities listed in specified Annexes to the Implementing Agreement.

(a) Consent to the Retransfer of U.S.-origin Spent Fuel from Japan to Designated Facilities in France and the United Kingdom for Reprocessing

After the Agreement for Cooperation comes into force, case-by-case approval of Japanese retransfers of U.S.-origin spent fuel for reprocessing at the La Hague facility in France or the Sellafield facility in the United Kingdom would cease to be necessary, and thereafter future transfers of such fuel to those facilities for reprocessing would have the consent of the U.S. under the following conditions: (1) EURATOM will hold the material under the terms and conditions of the U.S.-EURATOM Agreement; (2) Japan must notify the U.S. of such transfers; and (3) Japan must assure that procedures are in effect so that material goes only to those facilities designated in Annex 1 of the Implementing Agreement. This consent would last for the

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duration of the Agreement for Cooperation unless the facility were removed from the Annex or if consent was suspended by the United States as discussed below. If this consent were a "subsequent arrangement," rather than an integral part of the Agreement package, it would be given within the scope of Section 131b of the U.S. Atomic Energy Act, as amended. Therefore, this action is assessed from the standpoint of whether granting long-term approval would result in a significant increase in the risk of proliferation, giving foremost consideration to the criterion of "timely warning." Section VI of this report adopts this approach and assesses the risks and benefits that would be associated with the granting of the various types of approvals.

(b) Consent to the return of the Recovered Plutonium from France and the United Kingdom to Japan

The terms and conditions required for U.S. consent to such return shipments are spelled out in Article 1(3)(a)(iii) of the "Implementing Agreement" and Annex 5 thereto, and the proposed exchange of notes with EURATOM. They relate primarily to the physical protection measures that will be applicable to such shipments. These measures are designed to provide stringent precautions against theft, seizure or hijacking of the plutonium, including the application of appropriate routing, physical protection, monitoring, communications and emergency response measures. The use of dedicated aircraft to ship the material is

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accompanied by armed escorts, the United States Government will be advised that physical protection arrangements will be in accordance with Annex 5, and will be provided a description of how this is to be accomplished. Moreover, like all of the long-term consents provided for in the Agreement package, this consent is subject to a U.S. right to suspend an approval if serious unforeseen circumstances so require.

The granting of this approval will entail exercise of the right of the United States to consent to retransfers under the U.S.-EURATOM Additional Agreement for Cooperation, as amended. As such, it is therefore a "subsequent arrangement" under sections 131b(2) and 131b(3) of the AEA.

(c) Consent to Reprocessing of U.S.-origin Spent Fuel at Tokai-Mura

The Agreement grants a long-term approval to reprocessing at the Tokai-Mura facility, subject to the reserved U.S. right of suspension referred to above.

2. Immediately Applicable Consents of Types Not Subject to Analysis under Section 131b of the AEA

The following consents and approvals in the Agreement package

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are of types that, if they were "subsequent arrangements," would not be subject to the special requirements of Section 131b of the AEA, but only to Section 131a thereof:

(a) Approval of Enrichment up to 20% U-235

Section 402(a) of the Nuclear Non-Proliferation Act of 1978 provides that, except as specifically provided in an agreement for cooperation, no nuclear material exported from the United States may be enriched without prior U.S. approval. Article 6 of the proposed new Agreement for Cooperation with Japan authorizes the enrichment of uranium transferred pursuant thereto, or used in or produced through the use of material or equipment so transferred, to less than 20% in the isotope U-235.

(b) Approval of Storage of Plutonium, U-233
or High Enriched Uranium

One of the provisions in the proposed Agreement for Cooperation is the requirement - mandated by the 1978 revision of Section 123 of the AEA - for a U.S. right of approval of facilities in which plutonium, U-233 or high enriched uranium is stored. The Implementing Agreement permits such storage in significant quantities only in facilities listed in Annex 1 or Annex 2 thereto. Thus, fuels containing unirradiated plutonium may be located only at facilities listed in those Annexes. Upon entry into force of the Agreement for Cooperation,

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the only reactors that will be included in Annex 2 will be the Fugen ATR, the JOYO FBR, and the following two LWRs at which experimental plutonium recycle is taking place: the Mihama 1 PWR and the Tsuruga 1 BWR.

(c) Consents to Alteration in Form or Content of Plutonium, U-233, High Enriched Uranium, or other Irradiated Nuclear Materials.

This consent, together with approval of storage at the facility site, would be required for plants fabricating fuel containing any of these sensitive materials. This advance consent is confined to facilities listed in Annex 1, which initially include only certain facilities at Tokai Mura.

(d) Consent to Retransfer of Unirradiated Source Material or Low Enriched Uranium from Japan to Designated Third Countries (but not for the Production of High Enriched Uranium)

Pursuant to an exchange of notes this consent to retransfers initially will be applicable only to the following countries in EURATOM: Belgium, Denmark, Federal Republic of Germany, France, Netherlands, and the United Kingdom; and the following other countries: Australia, Austria, Canada, Norway and Sweden. Any additions will require U.S. approval.

(e) Consent to Reprocessing of Small Quantities (less than 500 g) of Plutonium in Designated Japanese Facilities.

Although the Implementing Agreement makes provision for consent to these activities, it will not become immediately operative, since no facility is designated for this purpose in the Agreement package.

(f) Consents to the Retransfer of Small Quantities of Unirradiated Nuclear Material Containing up to 500 g of Pu to Designated Facilities in Third Countries for Irradiation and to Subsequent Return to Japan for Testing and Analysis

This provision initially will apply only to the Halden reactor in Norway and to designated facilities in the following EURATOM

countries: United Kingdom, France, the Netherlands, Denmark and Belgium. Through exchanges of notes with Norway and EURATOM the U.S. will authorize the materials return. No further facilities may be included under this provision without U.S. consent.

B. Mechanism For Adding New Facilities to Those Covered by the Programmatic Consents and Approvals

In providing for long-term consents and approvals it was necessary to develop a mechanism that would permit new facilities to come under their scope as they enter into operation, while ensuring that the safeguards and physical protection arrangements for the new facilities will meet specified criteria agreed to by the United States.

In this connection it is important to note that the most significant consents and approvals in the Implementing Agreement -- those relating to reprocessing or alteration in form or content of significant quantities of nuclear materials, storage of separated plutonium, and the retransfers of irradiated nuclear materials to facilities in third countries for reprocessing -- apply only where the facilities involved are listed in Annex 1 or Annex 2 to that Agreement. The mechanism for adding facilities to these Annexes is established by Article 2 of the Implementing Agreement and paragraph 5 of the Agreed Minutes thereto. The Annexes may be so modified without amending the Implementing Agreement itself.

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Additions or deletions to these Annexes of facilities within Japanese territorial jurisdiction may be made after notification and U.S. acknowledgement of the receipt of such notification, but further requirements must be met for the addition to Annex 1 or 2 of a facility listed in Annex 3 or 4.

When LWRs are to be added to the list of facilities that may receive and store plutonium, the notification must include specified information about the facility and associated nuclear material, and a statement that a safeguards facility attachment (or arrangement for ad hoc inspection) has been agreed upon with the International Atomic Energy Agency (IAEA), and that the physical protection required by the Agreement for Cooperation will be maintained.

This procedure for allowing light water reactors to be added to the list of those that may receive plutonium is based on the fact that well-understood IAEA safeguards procedures can be effectively applied to light water reactors that use recycled plutonium or contain experimental test irradiations of plutonium-bearing mixed oxide fuels. For example, if a light water reactor has fresh MOX at the reactor site of eight kilograms or more it is to be inspected by the IAEA once a month if the IAEA's inspection goals are to be met. In all other respects (including

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inspection of spent fuel, low enriched uranium, etc.), the inspection regime applied by the IAEA is the same as for a conventional light water reactor operating on low enriched material.

A different procedure applies to adding reprocessing facilities to Annex 1. This more elaborate approach also is to apply to procedures for putting the MONJU and Ohma reactors on the list of those facilities where plutonium can be located.

For example, in the case of the planned Rokkasho Commercial Reprocessing Plant (which is now listed in Annex 4), its addition to Annex 1 may be made only if Japan provides the U.S. with a notification which contains confirmation that the safeguards arrangement with the IAEA "is in accordance with the relevant safeguards concept that has been agreed upon between the parties and a description of the key elements in the safeguards arrangement." A detailed, agreed safeguards concept intended to cover the planned Rokkasho Commercial Reprocessing Plant and associated facilities is set forth in a proposed exchange of notes in the Agreement package and is discussed below.

The procedures for adding facilities to Annexes 1 and 2 require either the confirmation cited above or, in the case of a facility in Annex 4 for which the safeguards being applied at a facility in Japan already listed in Annex 1 are applicable, "a statement affirming that the safeguards arrangement will be in all significant respects the same as that

being applied at the corresponding facility listed in Annex 1, and a description of the key elements contained in the safeguards arrangement."

These special procedures reflect a general approach to ensuring that facilities posing unique safeguards considerations will only be authorized to operate and to store plutonium if the U.S. can be assured that they will be safeguarded in accordance with criteria or standards established by prior agreement with the United States.

The Implementing Agreement also provides that when the International Atomic Energy Agency cannot administer safeguards in accordance with the safeguards concept that has been agreed upon between the two parties for a facility then listed in Annex 4:

"The parties shall make every effort to ensure that this does not delay the operation of the facility. For this purpose consultations shall take place between the parties or between either party and the Agency. The facility shall be added to Annex 1 pursuant to sub-paragraph (a) of paragraph 2 above on a provisional basis provided that the parties are satisfied that adequate safeguards of the Agency will be applied in the interim. The parties shall make every effort to modify, as may be necessary, the relevant safeguards concept to enable the Agency to administer safeguards in accordance therewith."

Finally, to add or delete from Annex I a facility in a third country, agreement of the parties is required. The government of the third country or EURATOM would have to be notified.

C. The Right of Suspension

The programmatic consents contained in the Implementing Agreement for the new U.S.-Japan Agreement for Cooperation and related subsequent arrangements are subject to suspension in certain circumstances. The provisions for suspension strike a balance between meeting the objective of long-term reliability and predictability and reserving a right of suspension when and if justified by major changes in the facts or circumstances on which the granting of such programmatic consents was based. This balance is reflected in Article 3 of the Implementing Agreement. This provision reads as follows:

"Either party may suspend the agreement it has given in Article 1 of this Implementing Agreement in whole or in part to prevent a significant increase in the risk of nuclear proliferation or in the threat to its national security caused by exceptional cases such as a material breach by the other party of the Treaty on the Non-Proliferation of Nuclear Weapons or withdrawal therefrom, or a material breach by the other party of its safeguards agreement with

the Agency, of this Implementing Agreement or of the Agreement for Cooperation."

In connection with this provision, the Agreed Minute to the Implementing Agreement states that:

"...it is confirmed that should a significant increase in the risk of nuclear proliferation or in the threat to the national security of the suspending party pertain solely to a particular facility or activity, the agreement given in Article 1 of the Implementing Agreement may only be suspended for that facility or activity. It is further confirmed that actions of governments of third countries or events beyond the territorial jurisdiction of a party may not be invoked as grounds for suspension of the agreement given in Article 1 of the Implementing Agreement to activities or facility operations within that party's territorial jurisdiction unless due to such actions or events those activities or facility operations would clearly result in a significant increase in the risk of nuclear proliferation or in the threat to the national security of the suspending party."

Article 3 of the Implementing Agreement also provides that:

"Any decision on such suspension would only be taken in the most extreme circumstances of exceptional concern from a

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nonproliferation or national security point of view, would be taken at the highest levels of government, and would be applied only to the minimum extent and for the minimum period of time necessary to deal in a manner acceptable to the parties with the exceptional case."

Paragraph 3 of this Article further provides:

"Prior to any suspension the parties shall consult with each other to determine the facts of the matter and to discuss to what extent, if at all, a suspension is necessary. The suspending party shall carefully consider the economic effects of such suspension and shall seek to the maximum extent possible to avoid the disruption of international nuclear trade and the fuel cycle operations under this Implementing Agreement. The parties may agree in accordance with Article 14 of the Agreement for Cooperation to refer any of these questions to a third party for resolution.

The Implementing Agreement also provides that:

"During the period of suspension the parties may agree on a case-by-case basis to the activities specified in Article 1 of this Implementing Agreement."

With respect to nuclear material and equipment subject to the provisions of the previous Agreement for Cooperation (i.e. the

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U.S.-Japan Agreement for Cooperation dated July 20, 1968, as amended, which is currently in force but is to be superseded by the proposed new Agreement for Cooperation), Article 13 of the proposed new Agreement for Cooperation provides that:

"Should the separate arrangements called for in Article 11 of this Agreement be suspended with respect to such nuclear material or equipment, they shall be subject to the provisions of this Agreement during the suspension only to the extent covered by the previous Agreement."

Finally, the last paragraph of Article 3 of the Implementing Agreement provides that:

"The suspending party shall keep under constant review the development of the situation which caused the suspension and shall withdraw the suspension as soon as warranted. The parties shall, at the request of either of them, consult with each other immediately to determine whether there is a basis for the withdrawal of such suspension."

These provisions reflect a compromise between the need to provide Japan with a substantially greater degree of predictability than it now enjoys while permitting the U.S. to suspend an approval once given if necessary in light of intervening developments.

The standards for suspension (nonproliferation and national security concerns) are identical to those provided in Sections 123 and 131 of the AEA. Thus, the U.S. will always be in a position to ensure that the applicable statutory standards are met.

D. Recapitulation

In summary, the new arrangements being proposed with Japan would have the following major effects:

- . The existing joint determination for reprocessing at Tokai-Mura would be replaced by a long-term U.S. approval lasting for the duration of the Agreement for Cooperation. Long-term approval is also given for plutonium conversion and fuel fabrication facilities at Tokai.
- . Retransfers of spent fuel from Japan to Europe for reprocessing that until now have been subject to case-by-case approval also would receive long-term U.S. approval for the duration of the agreement.
- . EURATOM would receive long-term U.S. approval to transfer recovered plutonium back to Japan, provided certain conditions are met.

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- . Additional light water reactors in Japan could receive the benefits of long-term U.S. approvals upon notification to the U.S. that an appropriate IAEA facility attachment or ad hoc inspection regime was in effect and that the levels of physical protection required by the Agreement for Cooperation would be maintained at such facilities.
- . Several future bulk handling facilities that are part of the Japanese national plan, and that involve unique safeguards considerations, would benefit from the applicable long-term U.S. approvals at a later time, upon U.S. notification of receipt of assurances that the IAEA safeguards will be applied to such facilities in conformance with safeguards concepts agreed to by the U.S. and Japan and that adequate physical protection measures will be in effect.
- . Further, the U.S. would have the right to suspend its consent should serious and extraordinary adverse circumstances so require.

In Part Two of this report, we evaluate the implications of these (and the other applicable) proposed consents from the standpoint of the two key statutory tests that were noted at the outset.

V. Controls and Assurances on Activities Involving Plutonium or HEU or the Transfer of Technology or Facilities for their Production

The provisions of the proposed Agreement package impose significant controls on activities involving plutonium or high enriched uranium beyond the basic guarantee of no military or explosive use, the provisions providing for the application of "full-scope" IAEA safeguards over the entire Japanese program and maintenance of adequate levels of physical protection. In particular:

- (a) The provisions do not authorize the transfer to Japan of Restricted Data or Sensitive Nuclear Technology (as defined in the Nuclear Non-Proliferation Act), neither of which could be transferred without further amendment of the Agreement for Cooperation.
- (b) With respect to the long-term U.S. consent to the retransfer of plutonium to Japan from third countries, only plutonium resulting from the reprocessing of spent fuel that had been sent by Japan to the United Kingdom or France for reprocessing with the agreement of the United States could be returned to Japan. In addition, unirradiated material containing only up to 500 grams of plutonium may be transferred to designated facilities in third countries by Japan and subsequently returned to Japan for testing and analysis.

- (d) The Government of Japan must obtain U.S. consent before any nuclear material subject to the Agreement for Cooperation may be enriched to or beyond 20% in the isotope U-235. No such consent is included in the Implementing Agreement.
- (e) The provisions require U.S. consent before any high enriched uranium or separated plutonium subject to the Agreement for Cooperation is transferred beyond the jurisdiction of Japan. The Agreement package contains no such consent with respect to high enriched uranium or separated plutonium (with the exception of small quantities of plutonium discussed in (b) above). The consent to the retransfer of plutonium contained in irradiated spent fuel will be limited to transfers to specified facilities in France or the United Kingdom.
- (f) The return from EURATOM of recovered plutonium in quantities of 2 kgs or more per shipment is subject to the specific physical protection measures set forth in Annex 5 to the Implementing Agreement.

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- (g) The consent in the Implementing Agreement to transfers of unirradiated source material and low enriched uranium to designated third countries does not authorize such transfers for the production of high enriched uranium.

PART TWO**EVALUATION OF THE CONSENTS AND
APPROVALS IN LIGHT OF STATUTORY CRITERIA**

This part of the analysis will evaluate the proposed major consents to determine:

- Whether granting those consents for which Section 131b of the AEA is relevant will result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested (giving foremost consideration to the "timely warning" factor cited above).
- Whether all of the consents will be consistent with a finding by the Secretary of Energy that the granting of such consents is not inimical to the common defense and security, and whether the activities to be approved will be consistent with the determination which the President is called upon to make that the performance of the proposed Agreement for Cooperation with Japan will promote, and will not constitute an unreasonable risk to, the common defense and security.

VI. Some Basic Elements of the Evaluation**A. Relationship to Japan's Programmatic Requirement**

The major programmatic consequences for Japan of the consents may be summarized as follows:

1. Authority to continue reprocessing of U.S.-origin spent fuel at Tokai-Mura, to retransfer U.S.-origin spent fuel to designated facilities in France or the United Kingdom for reprocessing, and to return to Japan (under stringent physical protection standards established in the Agreement package) plutonium recovered from such reprocessing for fuel for the Fugen ATK and the JOYC FBR and two LWRs using MOX fuel. At such time as additional light water reactors in Japan, in addition to the Mihama I and Tsuruga I reactors, elect to use MOX fuel then they may be added to the list in Annex I, following notification that applicable IAEA safeguards arrangements are in force and specified levels of physical security will be maintained. Also, if and when the planned Rokkasho Commercial Reprocessing Facility is built it may reprocess U.S.-origin spent fuel provided such levels of physical security will be maintained and the associated safeguards arrangements

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meet safeguards concepts agreed to by both parties and specified in the Agreement package.

2. The consent to enrichment up to 20% in U-235 recognizes that Japan is developing a modest-sized commercial uranium enrichment capability, and may wish to re-enrich the uranium recovered from reprocessing
3. The consent to alteration in form or content of items specified in Article 5.2 of the Agreement recognizes the need for fabrication of MOX fuel in Japan for the JOYO FBR, the Fugen ATR, and for LWRs at which experiments using modest amounts of such fuel are being conducted. These consents will also cover the fabrication of fuel for the follow-on advanced thermal and fast breeder reactors (Ohma and MONJU respectively) provided the associated IAEA safeguards arrangements for these two reactors meet the safeguards criteria specified in the Agreement package and specified levels of physical security will be maintained.

4. The approval of designated facilities for the storage of plutonium and high enriched uranium is carefully tailored to apply only to facilities having a need for such storage, and is subject to specified safeguards and physical security requirements.
5. The consent to retransfers to designated third countries of unirradiated source material and low enriched uranium recognizes Japan's nuclear cooperation with other States, but is confined to non-sensitive materials and is made subject to the condition that such exports not be for production of high enriched uranium.
6. The consents involving small quantities of plutonium, HEU and U-233 recognize Japan's advanced program of research, development and testing of civil, non-explosive applications of nuclear energy.

B. Major Aspects of the Safeguards Regime

1. General Considerations

As a non-nuclear-weapon state party to the Non-Proliferation Treaty (NPT), Japan undertook to conclude an agreement with the International Atomic Energy Agency (the IAEA, also referred to as

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"the Agency") providing for safeguards on all source or special fissionable material in all peaceful nuclear activities within Japan's territory, under its jurisdiction or carried out under its control anywhere. It concluded such a full-scope NPT safeguards agreement with the IAEA in 1977, and has an excellent record of cooperation with the IAEA in its implementation, including the establishment of an outstanding national system of nuclear materials accounting and control, the negotiation of subsidiary arrangements with respect to its nuclear facilities (as discussed below), and active participation in programs (with the IAEA, the United States and others) to develop improved safeguards instrumentation and techniques.

Article 2 (2) (a) of the proposed U.S.-Japan Agreement for Cooperation provides that any transfer to Japan of nuclear material under the Agreement will be subject to the application of IAEA safeguards "with respect to all nuclear material in all nuclear activities within the territory of Japan, under its jurisdiction or carried out under its control anywhere," adding that implementation of the NPT safeguards agreement referred to above will be considered as fulfilling this requirement. In order to ensure compliance with the guarantees in the Agreement for Cooperation against use for any nuclear explosive or military purpose, Article 9(1)(a) of the proposed new Agreement for Cooperation provides that:

"Nuclear material transferred to the territorial

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jurisdiction of the Government of Japan pursuant to this Agreement and nuclear material used in or produced through the use of material, nuclear material, equipment and components so transferred shall be subject to the agreement referred to in sub-paragraph (a) of paragraph 2 of Article 2 of this Agreement."

Article 12 of the proposed new Agreement for Cooperation provides that if Japan at any time after entry into force of that Agreement does not comply with Article 9 (and certain other articles) or terminates or materially violates a safeguards agreement with the IAEA, or detonates a nuclear explosive device, the United States would have the right to cease further cooperation under the Agreement, terminate the Agreement, and require the return of items transferred pursuant thereto and special nuclear material produced through the use of such items.

The Agreement package also contains a number of provisions designed to facilitate the effective application of safeguards and provisions for fallback safeguards rights. The basic provision on the latter subject is in Article 9(2) of the proposed new Agreement for Cooperation, which reads as follows:

"If either party becomes aware that for any reason the Agency is not or will not be applying safeguards as required by paragraph 1 of this Article, the parties

shall forthwith consult to take rectifying measures and, in the absence of such rectifying measures, shall immediately enter into arrangements which conform to safeguards principles and procedures of the Agency and provide effectiveness and coverage equivalent to that intended to be provided by the safeguards required pursuant to paragraph 1 of this Article."

With respect to exports to any other non-nuclear-weapon state for peaceful purposes, Japan is of course, bound by Article III(2) of the NPT, which requires IAEA safeguards on all such exports of (a) source or special fissionable material or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material. Japan has subscribed to the Zangger Committee Guidelines with respect to the implementation of this obligation and the Nuclear Suppliers' Guidelines, which contain additional standards for exports of nuclear materials, equipment and technology. Finally, Article 4 of the proposed Agreement requires U.S. consent for any retransfers of material, nuclear material, equipment and components subject to the Agreement.

2. Major Safeguards Features To Apply To Facilities

Covered by Programmatic Approvals

(a) Safeguards Arrangements With Respect to Existing Facilities in Japan

Annexes 1, 2 and 3 to the Implementing Agreement list by categories existing Japanese facilities that are relevant to the consents and approvals contained in the Implementing Agreement. Described below are the safeguards arrangements with respect to the facilities currently listed in those categories. With the few exceptions specifically noted below, Japan has negotiated with the IAEA in implementation of its NPT safeguards agreement, subsidiary arrangements (including detailed facility attachments) with respect to each of the facilities listed in those Annexes, and those subsidiary arrangements are in full force. In all other cases, the IAEA has the right to conduct ad hoc inspections under Japan's NPT safeguards agreement. It should also be noted that the IAEA maintains a team of inspectors resident in Japan.

Japanese Facilities Listed in Annex 1 (Existing Facilities for Reprocessing, Storage and Fabrication of Sensitive Materials)

Tokai Reprocessing Plant and Associated Facilities

The Tokai-Mura reprocessing plant, with a design capacity of 210 MTHM per year, was completed in 1974. Under the existing U.S.-Japan Agreement for Cooperation a joint determination that the safeguards provisions in the Agreement could be effectively applied to its operation was required before spent fuel from U.S.-origin material could be reprocessed there. In September, 1977, a joint determination was made by the U.S. and Japan, allowing the reprocessing at Tokai-Mura of up to 99 tonnes of U.S.-origin spent fuel in the following two-year period. At that time, the Japanese agreed to cooperate with the U.S. and the IAEA in the improvement of measures designed to reduce the risks associated with the plant's production of separated plutonium and in improving the safeguards instrumentation and techniques applied to the facility. The Japanese diligently pursued such activities, and the joint determination was extended (by several successive joint determinations) to October 31, 1981, with certain modifications, including an increase in the total amount of U.S.-origin fuel authorized to be reprocessed through that date to 149 tonnes.

After President Reagan's nonproliferation policy statement of July 16, 1981, a new joint determination was negotiated. This was accompanied by a joint communique and other associated documentation. That package authorized the

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reprocessing of U.S.-origin spent fuel through December 31, 1984, in amounts up to the design capacity of the Tokai facility. Under this arrangement, plutonium separated in the plant is co-converted to a mixed oxide product at the Tokai plutonium conversion facility. The primary contemplated uses of the MOX product are for the Fugen reactor (as noted earlier, a 165 MWe heavy-water moderated, light-water-cooled demonstration reactor) and the JOYO reactor (a 100 MWe sodium cooled experimental FBR), both of which had begun operating in 1978, and which have had a combined requirement of about 300 kg of plutonium per year. It is also recognized that Japan will require substantial additional quantities of plutonium for the fueling of its follow-on prototype breeder reactor, "MONJU", and its follow-on ATR, the Ohma reactor -- neither of which is yet in operation.

As an integral part of this 1981 determination, Japan agreed to continue to afford the IAEA full opportunity to apply safeguards effectively and efficiently at the Tokai facility and to continue to improve safeguards implementation. In particular, Japan agreed to continue to:

- . Support improvements in safeguards effectiveness at Tokai through follow-up work to the Tokai Advanced Safeguards Technology Exercise (TASTEX)* and to support the IAEA in other research and development activities for the improvement of

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Agency safeguards including those relating to shipping containers, the identification of stored spent fuel assemblies, and systematic safeguards approaches for reprocessing plants.

- Cooperate with the IAEA in incorporating into the existing safeguards measures at Tokai the results of research and development activities, including those of the TASTEX* program and follow-on work to that program.
- Cooperate with the IAEA in facilitating and improving the application of effective safeguards at the Tokai reprocessing Facility.
- Cooperate with the IAEA in facilitating the application of safeguards at the co-conversion facility then under construction.

*A joint Japan, U.S., France, IAEA program for research, development, testing and evaluation of advanced technologies for safeguarding reprocessing plants.

As previously noted, the 1981 joint determination has since been extended on an annual basis to cover the period through calendar year 1987. The subsidiary arrangements in force with the IAEA under Japan's NPT safeguards agreement reflect these safeguards improvements, and ensure that the Tokai-Mura reprocessing plant will be subject to continuous inspection during reprocessing campaigns. The plant is divided into three material balance areas: input area, process area, and product storage and waste treatment area. The plutonium conversion area is not part of the reprocessing plant, but rather of the fuel fabrication plant, but the IAEA conducts simultaneous inventory verification at the two plants. To supplement nuclear material accountability the IAEA inspectors use safeguards instrumentation and techniques developed under the TASTEX program. Containment and surveillance measures include: at the input storage area, the use of closed circuit television, seals, film cameras and radiation monitors; in the process area, seals and the use of electromanometers at the storage tanks; and in the plutonium nitrate storage area, monitoring the electromanometers connected to the storage tanks. When the plant is in a shutdown the IAEA conducts weekly checks of the contained material. This includes the taking of samples for destructive analysis, the performance of electromanometer and plant control instrumentation readings as well as visual

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observation, including confirmation of the absence of assembly chopping activities at the plant.

Japanese Facilities Listed in Annex 2 (Other Existing Facilities Where Plutonium is Located)

(i) The JOYO Fast Breeder Experimental Reactor

Japan has negotiated and there are now in force subsidiary arrangements (including a detailed facility attachment) with the IAEA for the implementation of safeguards at this facility under Japan's NPT safeguards agreement. These are designed to achieve a short detection time, and are consistent with the safeguards approach for fast breeder reactors described in IAEA/SG/INF/6, which is based on an item accounting system for fuel assemblies, complemented by extensive containment and surveillance measures. Under this approach, fresh fuel assemblies are verified carefully at the fuel fabrication plant and transferred to the power plant under seal. Direct item accounting, identification and nondestructive analysis measurement of fresh fuel assemblies are performed at locations within the accessible nuclear fuel handling areas. Under this approach, the IAEA normally performs inspections of the fresh fuel assemblies every 3 or 4 weeks. Because of the high radiation levels, the reactor core is not directly accessible; the irradiated assemblies must be remotely handled enroute to the irradiated fuel storage areas, and even in the storage areas

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remain submerged for a long period. For inaccessible areas, this safeguards approach involves verifying the input and output flow of nuclear material in conjunction with the application of containment and surveillance measures. These measures are supplemented by the checking of operating records. Before shipment, irradiated fuel and blanket assemblies are verified visually and/or by non-destructive analysis, on a random basis, placed into the shipping container and sealed. These shipments are, of course, rechecked by the IAEA upon their arrival at their next destination.

(ii) The Fugen ATR

Japan has negotiated, and there are now in force, subsidiary arrangements (including a detailed facility attachment) with respect to this facility under Japan's NPT safeguards agreement. The safeguards approach for the MOX fuel is the same as that described above in connection with the JOYO FBK and the overall safeguards approach spelled out in the exchange of notes embodying an agreed safeguards concept for the planned Ohma ATR.

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(iii) LWRs at which plutonium in the form of mixed oxide fuel is located

There are two reactors currently listed in this class: Mihama 1 and Tsuruga 1. Japan has negotiated, and there are now in force, subsidiary arrangements (including detailed facility attachments) for the implementation of safeguards at these facilities under Japan's NPT safeguards agreement. When MOX fuel elements containing more than 8 kg of plutonium are introduced into such thermal reactors, the IAEA is normally expected to inspect the fresh fuel inventories of MOX fuels once a month. In all other respects the safeguards regime is the same as that applicable to a light water reactor that does not utilize such fuels.

(iv) Other Facilities

The only existing Japanese facilities currently listed under this portion of Annex 2 are the following three critical assemblies:

JAERI Tank Type (200 wt)

JAERI Fast Critical Assembly (2000 wt)

PNC Deuterium Critical Assembly (1000 wt)

Japan has negotiated, and there are now in force, subsidiary

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arrangements (including detailed facility attachments) with respect to the implementation of safeguards at all three of the critical assemblies, with inspection effort geared to the quantities of high enriched uranium or plutonium present. The safeguards measures provided for are consistent with the description of the safeguards approach to such facilities in the IAEA publications cited above, and are designed to achieve short detection time. This approach places particular emphasis on containment and surveillance systems for monitoring access routes to the assemblies and to storage locations.

(b) Agreed Safeguards Concepts For Future Facilities

As noted earlier, the addition of new facilities to Annex 1 or Annex 2 of the Implementing Agreement requires:

- (i) a statement affirming that the safeguards arrangements applicable thereto are in accordance with the relevant safeguards concept that has been accepted by the United States and Japan, and a description of the key elements contained in the safeguards arrangement; or
- (ii) in the case of a facility for which the safeguards being applied at a facility in Japan.

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already listed on the relevant Annex are applicable, a statement affirming that the safeguards arrangement will be in all significant respects the same as that being applied at the corresponding facility listed in Annex 1, and a description of the key elements contained in the safeguards arrangement.

The Agreement package contains mutually agreed "safeguards concepts" for the following classes of facilities in Annex 4 that may be listed in Annex 1 or Annex 2 when completed:

- Commercial size reprocessing plants, including associated storage and conversion areas (the one candidate plant involved, as already noted, is the proposed Rokkasho reprocessing plant).
- Plutonium fuel fabrication plants, including associated storage and conversion areas.
- Plutonium storage facilities.
- The Nuclear Fuel Cycle Safety Engineering Research Facility (NUCEF), the proposed second FBR (MONJU)

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and the proposed second experimental ATR (Ohma) (the latter two are expected to be added to Annex 2 when completed).

These "safeguards concepts" consist of two parts: (1) a statement of agreed "General Principles," including provisions on such matters as the maintenance of an appropriate state system of accounting and control and cooperation with the IAEA; and (2) agreed "Safeguards Approaches" to the particular class of facility described. These safeguards concepts ensure that the safeguards on such new facilities will meet appropriately exacting standards which have been established in advance with U.S. acceptance, with provision for the application of new and improved safeguards techniques as they are developed and proven.

For example, the agreed safeguards concept that will apply to the planned Rokkasho Commercial Reprocessing facility includes the following elements, among others:

1. Not only an understanding that the facility will be designed and operated as far as practicable to facilitate the application of safeguards measures, but specific illustrations of what this entails, both in terms of the safeguards measures to be accommodated and of interaction with the IAEA. In the latter connection, it calls for: providing

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the IAEA, at an early stage in the design of the facility, with safeguards-relevant features of the design to identify the key techniques and measures for implementing the agreed safeguards approach; discussion with the IAEA to enable mutual agreement on these specific features early enough to be taken into account in the facility design; and preexamination and verification by the IAEA of the safeguards-relevant information beginning early in facility construction and continuing thereafter, to enable the IAEA to have confidence that the safeguards-relevant features of the facility conform to the information provided.

2. Provision for the establishment of specific accounting and operating records to be made available to the IAEA, which are to include safeguards-relevant data needed for near-real-time accountancy and other safeguards measures for achieving timely detection.
3. Provisions for verification using random sampling plans based on IAEA detection probabilities where random sampling can be validly used; otherwise all nuclear material is to be verified. Physical inventories are to be taken at least once in each calendar year (and at intervals no greater than 14 months). In the interim, provision is made for

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verification by item counting, item identification, seal verification, destructive and nondestructive analysis, volume and weight measurement, use of plutonium/uranium ratio techniques, and isotopic safeguards techniques.

4. Provisions for redundant (i.e., multiple and independent) containment and surveillance measures such as the following to help meet timeliness goals: human surveillance, seals, cameras, closed circuit TV, flow meters, and radiation monitors.
5. The introduction of new and improved techniques, as they are developed and proven, to the extent that undue interference in plant operation is avoided.

Under Japan's NPT safeguards agreement, the maximum level of routine inspection effort at such facilities (which does not preclude additional special inspections where justified) will be governed by the amount of plutonium in each facility's inventory or annual throughput.

Comparable safeguards concepts are provided for the other facilities listed above. Special features of the safeguards approach to the MONJU fast breeder reactor include the following:

- Inputs of fresh fuel are all verified for seal/container identity and integrity by means of item counting, item identification, and seal verification. Outputs of spent fuel are all verified by means of item counting and item identification.
- Before transfer of fresh fuel to the ex-vessel storage tank (EVST), it is to be verified, if judged necessary by IAEA for inspection goal attainment, by means of appropriate measures from among item counting, item identification and nondestructive analysis.
- Charges of fresh fuel to the reactor core through the EVST and discharges of spent fuel from the reactor core are to be carried out only by an ex-vessel transport machine (EVTM).
- These fuel transfers are then checked by examining the records of the EVT and of sensing and monitoring equipment incorporated into the EVT.

The exchange of notes concerning the safeguards concept for the Ohma ATR states that its design features will not

require a safeguards approach different from that of certain reactors listed in Annex 2 (the Fugen ATR) but nevertheless spells out the safeguards approach in some detail. For new types of facilities not covered by the agreed safeguards concepts included in the Agreement package, the Implementing Agreement requires the development of mutually acceptable safeguards concepts as a precondition to the addition of a facility of that type to Annex 1 or Annex 2.

C. Physical Security

Article 7 of the proposed new Agreement for Cooperation provides that "adequate measures of physical protection shall be maintained with respect to nuclear material transferred pursuant to this Agreement and special fissionable material used in or produced through the use of this nuclear material or equipment so transferred, at levels, at a minimum, comparable to those set out in Annex B of this Agreement." This requirement is fully applicable even to special fissionable materials used or produced in non-U.S.-origin facilities fueled only in part by U.S.-origin material. Annex B, which prescribes the minimum levels of physical protection to be maintained with respect to nuclear materials of various classes (based on their relative sensitivity), is based upon the agreed annex to the Nuclear Suppliers' Guidelines (to which both the United States and Japan have subscribed), to all other new or

amended agreements for cooperation entered into by the United States since 1976, and to the Convention on the Physical Protection of Nuclear Material. The United States and Japan have worked together over many years to develop adequate levels of physical protection governing nuclear exports and retransfers.

The U.S. Government is satisfied that such levels of physical protection are being maintained or exceeded in Japan. This conclusion is reflected in paragraph 6 of the Agreed Minutes to the proposed Agreement for Cooperation, which states that:

"With reference to Article 7 of the Agreement, it is confirmed that the physical protection measures as applied in the two countries are at or beyond levels required by the said Article with due regard for the recommendations contained in the document of the International Atomic Energy Agency (hereafter referred to as "the Agency) INFCIRC/225/Rev. 1 and are therefore adequate."

But the Agreed Minutes also recognize the desirability of ongoing consultations on this important matter. Paragraph 13 confirms that the two Governments shall consult at the request of either Government on matters related to the application of physical protection measures and safeguards

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as referred to in Articles 7 and 9 of the Agreement respectively.

With respect to U-233 or plutonium (other than in irradiated fuel elements) and high enriched uranium, it should be noted that Article 3 of the Agreement for Cooperation requires U.S. approval of any facility in which they are to be stored. (The Implementing Agreement gives such approval only to those facilities listed in Annexes 1 or 2 thereto, which can be added to only in the manner specified in that Agreement, including a notification to the U.S. that the applicable level of physical protection required by the Agreement for Cooperation will be maintained.)

Special additional measures required in connection with the transport of 2 kg or more of recovered plutonium are set forth in Annex 5 to the Implementing Agreement. These were developed for shipments back to Japan of plutonium that has been reprocessed in France or the United Kingdom. The net effect of these understandings will be to reduce the transit times of plutonium in shipment as much as possible, to assure that rigorous protective measures will apply to the material enroute, to facilitate close monitoring of the shipment while it is in transit and to facilitate timely response in the event of any emergencies.

The Department of Defense has been fully consulted on the adequacy of physical protection arrangements concerning the

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return of plutonium from EURATOM to Japan in accordance with Section 133 of the AEA.

It is the conclusion of this analysis that the Agreement package, together with Japan's existing measures for physical security, will be adequate to deter theft or diversion of nuclear materials. It is to be noted that, in the unlikely event that this situation should ever change, the U.S. right of suspension could be applied.

D. Approach to Evaluation in Light of Statutory Criteria

In Sections VII and VIII below, the proposed long-term advance consents are reviewed from two overall perspectives.

First, with reference to those kinds of approvals for which the criteria in Section 131b are relevant (involving reprocessing or retransfers of plutonium in excess of 500 grams of plutonium), this analysis assesses whether the granting of a long-term advance approval would result in an increase in the risk of proliferation beyond that which exists at the time when the approval is being requested.

Secondly, with respect to all of the proposed long-term approvals now being proposed, this analysis assesses whether granting them at this time (a) would not be inimical to the common defense and security, or (b) will promote, and will

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not constitute an unreasonable risk to, the common defense and security.

In Section IX, we evaluate the subsequent arrangements with EURATOM and Norway called for by the Implementing Agreement, and other consents and approvals involving third parties.

There is appended to this report an analysis showing that the activities authorized by the consents and approvals discussed herein will be carried out under nonproliferation conditions equivalent to those prescribed by Sections 127 and 128 of the AEA.

VII. Evaluation of Approvals for which the Criteria in Section 131b of the AEA are Relevant

As noted earlier, the applicable provisions of Section 131b of the AEA stipulate important criteria for any subsequent arrangement for reprocessing of U.S.-supplied special nuclear material or of special nuclear material produced through U.S. assistance. While a distinction is drawn in Sections 131b(2) and 131b(3) of the Act between facilities which have and have not reprocessed power reactor fuel assemblies or that have or have not been the subject of subsequent arrangements therefor prior to the enactment of the NNPA, common policy objectives clearly apply to both

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paragraphs. In particular, Section 131b(2) of the Act provides that:

"(2) The Secretary of Energy may not enter into any subsequent arrangement for the reprocessing of any such material in a facility which has not processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978 or for subsequent retransfer to a non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, unless in his judgment, and that of the Secretary of State, such reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device."

Section 131b(3) of the Act provides that:

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"(3) The Secretary of Energy shall attempt to ensure, in entering into any subsequent arrangement for the reprocessing of any such material in any facility that has processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978, or for the subsequent retransfer to any non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, that such reprocessing or retransfer shall take place under conditions comparable to those which in his view, and that of the Secretary of State, satisfy the standards set forth in paragraph (2)."

Although the consents contained in the Agreement that are being granted to Japan are an integral part of the Agreement, and are thus not subsequent arrangements, the standard set forth in Section 131b is satisfied. This same standard will be met with respect to the proposed long-term U.S. approval to be granted to EURATOM, pursuant to the U.S.-EURATOM Agreement to retransfer separated plutonium that has been reprocessed in France or the U.K. back to Japan.

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Of all the factors taken into account, foremost consideration is to be given to whether there is timely warning of any diversion.

A. Consideration of Timely Warning

The law is silent as to what specific information must be taken into account in considering, and determining whether the "timely warning" requirement is met. In view of the prominence accorded timely warning in the law, it is clear that a broad range of technical, political, and other factors, including, but not limited to, safeguards and physical protection, can be relevant in detecting diversion, and should be considered.

This discussion of timely warning contains several elements. The nature of the effort that would be required were Japan to decide to develop a nuclear explosive device, together with the technical, industrial, material and human resources available were a diversion decision to be implemented are considered. The analysis then focuses on indicators that could provide timely warning of such a step, including the application of IAEA safeguards in Japan. The analysis therefore covers the wide variety of relevant matters which, taken together, give evidence that the U.S. would have timely warning as envisioned in Section 131b2.

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Research, Development and Production Programs Involving
Relevant Capabilities

Relatively little research would be required of a technologically advanced country in order to produce a simple fission device.* Japan has well-trained personnel in the fields that would be necessary to initiate such a government-directed nuclear weapons program and much of the basic knowledge is readily available in unclassified documents. Development of more sophisticated devices would require more comprehensive research, testing and acquisition of specialized equipment. However, the development and verification of even a simple device would require the

* Nuclear weapons can be categorized as being in one of three general types: fission (gun or implosion), boosted, and thermonuclear. The technical requirements, skills, numbers of personnel, equipment, materials, facilities and the financial, organizational and managerial resources that are required to develop, produce and test the three types are quite different. The complexity and difficulty of producing nuclear weapons increases considerably from the relatively simple fission device to the advanced thermonuclear devices.

A 1977 report prepared by the Office of Technology Assessment (OTA) of the Congress, "Nuclear Proliferation and Safeguards," noted that even a minimal program to clandestinely produce, without testing, low technology fission weapons -- given the availability of fissile material at the outset -- would still call for specific organizational structures and dedicated resources of personnel, equipment and funding. While that report is some ten years old, its methodology of analysis continues to be valid and is valid for use in this report as an analytical tool.

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time to mobilize certain key weapons-related technical resources, and learn specific weapons-related tasks. A nuclear explosive design, fabrication, and testing effort would involve activities that are highly complex and susceptible to detection, particularly if they are part of an integrated weapons program. While it should also be noted that there is ongoing non-weapons directed technical research in Japan which is directly or indirectly relevant to nuclear explosives (e.g., inertial confinement fusion), the results of that research would have to be specifically applied to the requirements of nuclear explosives development before they would become relevant to this analysis.

There is no reason to believe that Japan is involved in a government-sponsored nuclear explosives research and development program or is engaged in the acquisition of research equipment solely or specifically required for such a government-directed program. As noted below, such an effort would be completely alien to the consistent nonproliferation policy that Japan has followed.

Industrial Capability

The Japanese industrial sector has, or could obtain, a large part of the required technology, facilities and equipment necessary to produce components for a nuclear explosive

device. Nevertheless, certain technologies necessary for the purpose of acquiring both a first operational nuclear device and a modest nuclear weapons stockpile would require acquisition of unique equipment and production facilities not available from Japanese domestic sources. These items would either have to be obtained abroad or developed through dedicated efforts. Indication that such a procurement activity was underway by Japan would be relevant to providing timely warning.

Scientific and Technical Capabilities

It has been estimated in the referenced OTA report that a minimal weapons program would require more than a dozen or so trained and competent individuals across a range of disciplines. Japan certainly has personnel with the scientific or technical knowledge that could be redirected to production of nuclear weapons. Some particular skills, however, are probably not readily available, and assembling specialists with the requisite skills required for an integrated weapons program would likely necessitate reassessments of individuals from one type of work to another, and specific nuclear explosives-related training. An explosives program aiming at more than the design and fabrication of a simple device would impose substantially larger manpower and organizational requirements.

Availability of Special Nuclear Material

As indicated elsewhere in this report, Japan already possesses significant amounts of weapons-useable nuclear materials and the indigenous capability to produce additional quantities substantially in excess of that necessary for a nuclear explosive device, in the highly unlikely event that Japan should ever choose to pursue such a development. Thus, Japan has, and will continue to have, access to sufficient special nuclear material to make a substantial number of nuclear explosive devices irrespective of the consents being granted Japan in this Agreement.

Japan has an indigenous capability to enrich uranium and this capability is growing. A pilot gas centrifuge facility is in operation at Ninyo Toge, with a capacity of 70,000 kg/SWU per year. This facility could produce 300-400 kg of HEU per year. However, to produce HEU a redesign of the facility would be required. It also should be noted that the plant is under IAEA safeguards that are specifically designed to detect whether there is a shift in production from low to high enriched uranium. Japan is also working on other enrichment technologies. A small pilot plant based on indigenous chemical enrichment technology is being built, and Japan is conducting research and development on laser isotope separation.

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In addition, Japan already possesses significant quantities of U.S.-supplied HEU fuel for use in various research reactors and critical assemblies. While much of this fuel has been irradiated and some has been returned to the U.S. for reprocessing, significant quantities potentially would be available if Japan chose to divert the material for clandestine reprocessing in violation of its legal obligations.

In short, Japan already has access to the necessary material and has the technical capability to produce HEU for nuclear explosive purposes should it choose to do so and accept the attendant adverse consequences.

The same situation pertains with respect to plutonium. More than 28 metric tons of plutonium have been discharged in irradiated spent fuel from Japanese power reactors. While a high fraction of this irradiated fuel is subject to U.S. controls with regard to reprocessing and retransfer, a very significant quantity, including more than 1 tonne of produced plutonium, is not of U.S. origin and is not subject to U.S. control. (It is, however, subject to IAEA safeguards, to the peaceful nonexplosive use assurances of the Treaty on the Non-Proliferation of Nuclear Weapons, and to controls imposed by other suppliers.)

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For more than 15 years Japan has been shipping spent fuel to the UK for reprocessing. It is estimated that the amount shipped to date contained 1200 to 1400 kg of plutonium. Almost all of this has been reprocessed. The pilot-scale reprocessing plant at Tokai-Mura has reprocessed approximately 220 metric tons of Japanese LWR spent fuel. Roughly 1-½ tons of plutonium have been recovered at this facility. Much of the plutonium separated at Tokai or shipped from abroad is now in the form of MOX fuel.

Taking all of these factors into account, at any one time Japan is likely to have several hundred kgs of unirradiated plutonium in the form of plutonium oxide, MOX powder, or fabricated MOX assemblies awaiting insertion into a reactor.

In summary, Japan possesses the capability to acquire sufficient special nuclear material to produce a nuclear explosive device, should it choose to do so. Quantities of special nuclear material substantially in excess of that needed for a nuclear explosive device could be obtained by utilizing the significant quantity of plutonium not subject to U.S. prior consent rights or by enriching to weapons grade non-U.S.-origin natural uranium. In view of the fact that Japan already possesses more than enough material for a number of explosive devices, and has the capability to produce additional quantities outside the reach of U.S.

consent rights, a U.S. refusal to bring into force the consents contained in the Agreement package would not have a significant impact on the availability of special nuclear material to Japan.

Indicators of Diversion-Relevant Activities

There are a number of indicators of possible diversion that are relevant to whether there would be timely warning in the case of consents of the type subject to Section 131b. These indicators are discussed below.

Safeguards

As already stressed, Japan is a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), a strong supporter of that Treaty and an active supporter of the IAEA safeguards system. As often stated by Japanese policy makers, the IAEA's safeguards system, and the mutual cooperation that it permits, are important to Japanese energy and national security. All of Japan's nuclear facilities are subject to IAEA safeguards under its NPT safeguards agreement. In implementing that Agreement, the IAEA has not detected any anomalies that would indicate the diversion of a significant amount of safeguarded nuclear material. The more detailed nature of the IAEA safeguards that will apply to activities covered by the consents

associated with this Agreement for Cooperation is discussed above.

The IAEA safeguards to be applied to the Japanese activities will make an important contribution in considering timely warning.

For example, with reference to the long-term advance approval to apply to the Tokai-Mura reprocessing plant, the U.S. already has made several determinations that adequate IAEA safeguards can be applied to this facility. As noted, the Tokai plant has served as a test-bed for the application of improved safeguards techniques including improved methods of containment and surveillance and the use of near-real-time accountancy. The planned commercial scale Japanese reprocessing plant also will be subjected to rigorous safeguards concepts that already have been defined and agreed to by the Parties and that will take into account advances in the fields of containment, surveillance and materials accountancy.

Japan has shown a high degree of cooperation with the IAEA in facilitating the application of safeguards by IAEA inspectors. The Japanese Government has made major voluntary resource contributions to the development by IAEA of improved safeguards equipment, and has joined with the United States and other major contributors of the IAEA in

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seeking improved coordination and implementation of the IAEA's safeguards development programs. At the operational level, Japan has placed no undue restrictions or demands upon the IAEA in the conclusion of facility attachments or in the implementation of safeguards. Consequently, a significant adverse shift in Japanese compliance with safeguards requirements, such as interference with inspectors, or in its overall support for safeguards, would provide an indication to the U.S. Government of possible activities at variance with Japan's nonproliferation-related obligations.

Due in part to the size and complexity of the Japanese nuclear program, in 1984 the IAEA opened a permanent safeguards office in Japan with a staff of four designated inspectors. The IAEA also assigns inspectors to the Tokai reprocessing facility and the facility is subject to "continuous inspection." This has facilitated the application of safeguards at this facility. In addition, the application of IAEA safeguards at the pilot gas centrifuge enrichment facility run by PNC at Ningyo Toge and at the planned commercial-sized plant would, using the methodology developed by the Hexapartite Safeguards project for safeguarding centrifuge enrichment plants (in which Japan participated), provide indications of any reconfiguration of the plant to produce HEU for possible weapons purposes, and whether any HEU had in fact been produced. The IAEA has applied safeguards to verify the data

from the Japanese State System of Accounting and Control (SSAC) on nuclear materials. The excellent Japanese system has led to a Japanese-sponsored course on state systems to assist other nations in developing an effective SSAC. The Japanese system was the subject of an IAEA-sponsored regional course conducted in March of 1985.

Finally, it should be stressed that in an exchange of letters that accompanies the proposed new Agreement both Japan and the United States have reaffirmed their mutual determination to pursue a number of activities that are strongly supportive of IAEA safeguards:

- They express a willingness to afford the IAEA the full opportunity to apply safeguards at their facilities in an effective manner and to attain the IAEA's inspection goals.
- They have agreed to continue to cooperate with the IAEA to improve safeguards implementation through a series of measures including, where appropriate, incorporation of the most advanced safeguards techniques, the facilitation of continuous inspection and independent verification by the IAEA.
- They have undertaken to continue to develop their

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respective technical programs in support of IAEA safeguards, and to share the results with the Agency.

They explicitly recognize the need for the effective application of IAEA safeguards to recovered plutonium and have stressed the need to design reprocessing and plutonium-use facilities so as to facilitate the effective application of IAEA safeguards.

All of these considerations suggest that the application of the IAEA safeguards system in Japan should make an important contribution to the achievement of "timely warning."

Nuclear Explosives-Related Indicators

The activities that Japan would have to carry out in support of a nuclear explosives research, development and production program are highly complex and susceptible to detection. This particularly would be the case if they are part of an integrated weapons program.

Although it is true that Japan possesses advanced technical capabilities and scientific resources, a nuclear explosives program would require the mobilization of dedicated resources and their organization to meet specific weapons

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design, development, and production requirements. Reassignments of individuals to weapons-related activities, or the establishment of dedicated working groups, could provide indicators that a nuclear explosives program had begun or were being organized. In addition, action to acquire from foreign sources equipment and production facilities not available domestically, and which are unique to a nuclear weapons program, could also provide additional indicators of a weapons program.

Even were Japan to attempt to carry out (at least initially) a nuclear explosives program in secret, it is unlikely that all of the activities Japan would have to undertake could be successfully concealed. International safeguards inspections, export licensing procedures, diplomatic and technical exchanges, and other national technical means would provide multiple opportunities to detect weapons-related activities.

Considerable resources are devoted to the analysis and early detection of nuclear-weapons related activities worldwide. The information about Japanese nuclear programs and intentions supports the observations in this analysis as to the peaceful nature of that program, and the inferences drawn in reference to the likely early detection of any alteration of that situation.

Political Indicators

The political relationships underpinning Japan's nuclear programs, which help form the foundation of its nonproliferation credentials, are discussed in more detail later in this analysis. Within the context of this "timely warning" portion of the analysis, however, political indicators can play an important role. The political situation that currently exists in Japan with respect to nuclear weapons and related activities provides a number of such indicators that could provide timely warning in their own right and/or complement indicators in other areas.

Japan, as noted, has foresworn development of nuclear weapons through adherence to the NPT. This anti-weapons posture has been consistent and is a strongly held position within Japanese society. The Japanese Constitution also prohibits the acquisition of nuclear weapons. Japan's clear policy is not to develop nuclear weapons.

Moreover, Japan's stable, democratic form of government, effective and open debate among the political parties and the many active interest groups opposing nuclear weapons are relevant and mitigating factors in considering the timely warning provision of the AEA. Open, democratic government increases the visibility of the substantial

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intergovernmental activity that would be necessary to initiate and support a nuclear weapon development program. Similarly, an open form of government reduces the likelihood of arbitrary decisions and a diversion of resources to a nuclear weapon program.

Any decision to reverse Japan's long-standing and firm opposition to nuclear weapons development, particularly any governmental decision to engage in a weapons development program, would presumably be preceded by substantial debate and likely opposition from within the government.

Opposition would also arise from the general public which is a large and vocal segment that is anti-nuclear in general. Repudiation of the Non-Proliferation Treaty (NPT), would also provide an early indicator. All of these presumably would provide clear, early alerts to the world of a basic change in Japanese nonproliferation policy.

Economic/Trade Indicators

Of major importance in considering timely warning is the transparency of the Japanese nuclear program, and the numerous opportunities this transparency provides to detect weapons-related activities or suspicious actions that would prompt further, timely investigation. Japan has a well-developed nuclear trade with others that will likely

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increase as Japan continues to try to expand its nuclear export market. Such trade offers many opportunities for non-Japanese individuals to visit and consult with Japanese government, industrial and scientific officials active in the nuclear area. As suggested earlier in this report, Japan has also encouraged a wide range of cooperative exchanges, and many U.S. scientists and engineers work closely with their Japanese counterparts. Any significant change of its policy of open cooperation (for example, through reassignment of key personnel or sudden closing of access to facilities) could provide another type of signal relevant to timely warning of Japanese intentions to develop nuclear weapons.

Similarly, Japan's nuclear research and development agreements provide another "window" into Japan's nuclear policies, particularly with respect to advanced reactors and fuel cycle technologies. Any unexplained interruption or restriction on the flow of information between Japan and its cooperating partners under these agreements could provide an indication of a change in Japanese nuclear policies.

There also exists a high degree of U.S. cooperation with the Japanese Power Reactor and Nuclear Fuel Development Corporation (PNC), implemented by assignees to facilities in each country. Activities are assisted by the DOE office in Tokyo and the PNC office in Washington. This is

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supplemented at the private level by close contacts between major U.S. nuclear equipment manufacturers and their Japanese licensees and by associations between the U.S. Electric Power Research Institute and such groups in Japan as the Japanese Atomic Power Corporation (JAPCO) and the Central Research Institutes of Electric Power Industries of Japan (CRIEPI). This close relationship provides additional assurances of the steady course of Japan's nuclear program, and opportunities to detect any significant changes in it.

Finally, this transparency is particularly important to the advanced reactor and fuel cycle activities now underway and planned for the Japanese nuclear program. That program contemplates continued and enhanced international cooperation. Thus, there is a reasonable expectation that numerous "windows" on the program will remain open as that program unfolds over the coming decades.

Conclusion

Section 131b(2) of the Atomic Energy Act does not specify the items to be covered in the "timely warning" analysis. Nevertheless, the foregoing paragraphs address the wide variety of matters relevant to this new Agreement and associated arrangements which authorize transfers of the type specified in Section 131b(2). Taken together they give

evidence that the United States would have timely warning as envisioned in Section 131b(2).

B. Evaluation of Increase in the Risk of Proliferation With Reference to Other Factors

The standard set forth in Section 131b(2) of the Atomic Energy Act is whether the approvals would result in a significant increase of the risk of proliferation beyond that existing at the time of the request. The discussion will now turn to those factors that not only help establish Japan's strong nonproliferation credentials and that underpin this Agreement for Cooperation, but factors that are also of direct significance as to whether the activities covered by the consents associated with this Agreement will result in a significant increase in proliferation risk. These factors include Japan's position on nonproliferation, the long-term U.S.-Japan cooperative relationship in the field of nuclear power, and the importance of nuclear trade to Japan. In addition, they also include the incentives and disincentives for Japan to reverse its positive position on nonproliferation.

Nonproliferation Credentials

As an active and supportive member state of the NPT, Japan has assumed a formal treaty obligation not to acquire

nuclear explosive devices of any sort. In accordance with its NPT obligations, Japan has accepted safeguards on all its nuclear facilities. In addition, Japan has consistently supported the U.S. position in NPT and IAEA matters and is a member of the Western Group of nations in the Conference on Disarmament, where it has also been generally supportive of policies favored by the United States. Nonproliferation is a major priority on the Japanese political agenda. The exchange of letters on shared nonproliferation policy, which forms part of the Agreement package, forcefully reiterates Japan's commitment to nonproliferation.

Japan is an active IAEA member and has strongly supported the Agency, particularly in its safeguards program. As noted earlier, Japan has actively assisted the IAEA in the development of safeguards technology. In addition, Japan participates in the work of the Zangger Committee and participates in, and subscribes to, the standards of the London Suppliers Group. Japan played a particularly strong role in promoting a successful outcome to the NPT Review Conference in 1985. One of the main committees was skillfully chaired by a Japanese diplomat with long experience in this field.

In summary, the nonproliferation credentials of Japan are among the world's best. The proposed new arrangements, including the new programmatic consents, will further

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strengthen U.S.-Japan cooperation and further assist with implementation of U.S. nonproliferation policy.

U.S.-Japan Nuclear Cooperation

Japan was among the first nations to join the United States in nuclear cooperation after the U.S. offered to share nuclear technology and materials in 1953. Even before this date, the U.S. and Japan had cooperated in studies in the field of atomic energy, especially focussing on the health effects of the use of atomic weapons during the Second World War. The United States and Japan continue to cooperate extensively in the civil nuclear field. Japan imports 75% of its enriched uranium fuel from the U.S. This cooperation constitutes a powerful disincentive to any activities that could jeopardize it, and provides an all-important framework for communication between the two governments on nonproliferation.

Economic/Trade Factors

Japan has achieved its status as a leading economic force in the world by devoting a major share of its economic resources to industrial and technological development. It is unlikely that Japan would jeopardize its economic standing by diverting from industrial and technological investment the substantial resources a nuclear

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weapons program would require, or by jeopardizing its relationships with its major trading partners, in particular the United States, by embarking on such a course.

Moreover, nuclear trade is becoming an increasingly important matter to Japan, with a strong effort being made to increase its nuclear exports to other countries. Although Japan has a well-developed nuclear industry that is capable of self-sufficiency in many areas, it has very little indigenous uranium and relies on Canada and Australia for a significant part of its supply and on the United States for much of its power reactor fuel. Japan's continuing access to such materials is contingent upon the maintenance of its strong non-proliferation credentials and the continued honoring of its safeguards obligations. The risks of cutting off such essential nuclear supply would seriously damage the Japanese domestic program and Japan's plans to expand its role as an international supplier.

Military/Security Factors

The United States' mutual defense treaty with Japan and its significant military presence in the country are highly important to Japan. The extension of the U.S. nuclear deterrent umbrella to Japan, and the continued U.S. commitment to Japan's national security, substantially

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lessen the credibility of situations in which nuclear weapons might be a potentially attractive option to Japan. While it is conceivable that this set of strategic circumstances, which offers little incentive for Japan to acquire nuclear weapons, could radically change, such change would undoubtedly occur only as part of a fundamental transformation of the international system as we now know it.

Physical Security Factors

Japan has established physical security measures that are consistent with IAEA INFCIRC 225/Rev.1, "Protection of Nuclear Material." Japan has also provided written assurances to the U.S. that it will maintain, with respect to U.S. exports, physical security protection at a level that is at a minimum comparable to that in INFCIRC 225/Rev.1. The U.S. also has cooperated with Japan in creation of effective physical security measures, a program to which both countries accord high priority.

As discussed at greater length in Section V, the Agreement expressly provides for adherence to mutually agreed physical security standards at existing facilities and for their extension to new facilities as they are constructed. In addition, the Agreement provides a mechanism for the future

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strengthening of physical security measures as this becomes necessary.

Incentives/Disincentives

The foregoing analysis focuses on Japan's nonproliferation credentials and certain key factors that make for the maintenance of those credentials at very high levels. Nonetheless, it is also necessary to consider the incentives and disincentives for a radical shift in Japanese policy during the period of the Agreement.

While technical capability to develop nuclear weapons is important, weapons programs are not embarked upon simply because of a technical ability to do so, but rather due to larger military/strategic/political reasons. In this context, it is fruitful to reflect on some of the incentives and disincentives for a nuclear weapons program that were listed in the already referenced 1977 report "Nuclear Proliferation and Safeguards" issued by the Congressional Office of Technology Assessment. Some of the most relevant of these are:

Deterrence - The primary incentive to acquire nuclear weapons would be to deter hostile military attack or other external efforts to undermine or destroy the existing Japanese regime or government system. With the strong U.S. commitment to Japan's security and its own strong economy

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and stable government, it is difficult to identify reasons for Japan to think that it must develop nuclear weapons. There is little to indicate that it would gain anything (and in fact it would lose much) by abandoning its non-weapons position.

A Weapon of "Last Resort" - In a situation where a nation is on the verge of defeat, nuclear weapons could be used as a "weapon of last resort." There is no basis to conclude that Japan's leaders perceive this situation likely.

Domestic Political Requirements - This incentive would presuppose that a weapons program could be used to bolster a government's political power through increased international status or enhanced domestic political support. It is highly likely that the reverse would be true in Japan with its strong anti-nuclear domestic movement. Moreover, international reaction from both friends and adversaries likely would be quite negative, diminishing any nominal gain in status.

Economic Considerations - The protection of trade and economic interests could serve to induce a country to develop nuclear weapons to protect these interests. There is no reason to think that Japanese economic interests are likely to be threatened in a manner that would create an incentive to develop nuclear weapons, or that those

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interests would not be protected by non-nuclear security arrangements, possibly involving other powers. Moreover, to the extent trade relations could be jeopardized by acquiring nuclear weapons, economic considerations could discourage a change in Japan's nonproliferation position.

There is no reason to conclude that there are any incentives for Japan to initiate a nuclear weapons program. In fact, it appears that there are very strong disincentives that discourage Japan from initiating a nuclear weapons program. In the absence of any reason to believe the contrary, there are no larger military, strategic or diplomatic reasons to conclude that a nuclear weapons program is contemplated, planned or underway in Japan.

Moreover, should the nonproliferation conditions that make possible the consents associated with this Agreement for Cooperation no longer exist, the new Agreement with Japan explicitly provides for the suspension of those consents. Although suspension would be a very serious step, and although the triggering circumstances would have to be extraordinary in light of Japan's excellent nonproliferation record, the Agreement provides ample flexibility for the U.S. to suspend the application of the approvals if intervening circumstances were to justify such a step.

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C. Conclusions as to Section 131b Criteria

This analysis has reviewed the relevant factors as they relate to Japan and the substance of the specific approvals and consents to be accorded upon the entry into force of the proposed U.S.-Japanese Agreement for Cooperation, with particular emphasis on those pertaining to reprocessing and international retransfers of spent fuel and separated plutonium. It is the conclusion of this analysis that the granting of the long-term approvals contemplated in the proposed new Agreement with Japan (and associated approvals) will not result in a significant increase of the risk of proliferation as contemplated under Sec. 131b(2) of the Act. In reaching this conclusion foremost consideration has been given to whether the United States would have timely warning well in advance of the time at which Japan could divert nuclear material and transform it into a nuclear explosive device.

D. Evaluation Under Section 131b of the AEA With Respect to Spent Fuel Sent to France and the United Kingdom for Reprocessing

Under the proposed Implementing Agreement irradiated Japanese power reactor fuel is authorized for transfer to the reprocessing facilities in France (La Hague) and the

United Kingdom UK (Sellafield). The following paragraphs evaluate these transfers as if they were covered by that Section as "subsequent arrangements."

Irradiated power reactor fuel from specified reactor sites in Japan will be transferred to the above-mentioned facilities for chemical reprocessing and recovery of uranium and plutonium, pursuant to the new Agreement. The recovered plutonium will be retained at these facilities, and may only be retransferred to Japan under conditions specified in the Agreement. Transfers of plutonium to other facilities, or to another nation would require U.S. consent, and would independently be subject to the provisions of the AEA.

The applicable provisions of Section 131b of the Act stipulate important criteria that must be taken into account prior to entering into any subsequent arrangement for the retransfer for reprocessing of U.S.-supplied special nuclear materials or of special nuclear materials produced through U.S. assistance. While a distinction is drawn in Sections 131b(2) and 131b(3) of the Act between facilities which have or have not reprocessed power reactor fuel assemblies or that have or have not been the subject of subsequent arrangements prior to the enactment of the Act, common policy objectives clearly apply to both paragraphs.

These provisions pertain to whether the proposed retransfer, inter alia, will result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested.

In particular, Section 131b(2) of the Act provides that:

"(2) The Secretary of Energy may not enter into any subsequent arrangement for the reprocessing of any such material in a facility which has not processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978 or for subsequent retransfer to a non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, unless in his judgment, and that of the Secretary of State, such reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device."

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Section 131b(3) of the Act provides that:

"(3) The Secretary of Energy shall attempt to ensure, in entering into any subsequent arrangement for the reprocessing of any such material in any facility that has processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978, or for the subsequent retransfer to any non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, that such reprocessing or retransfer shall take place under conditions comparable to those which in his view, and that of the Secretary of State, satisfy the standards set forth in paragraph (2)."

A portion of the spent fuel will be reprocessed in the THORP facility yet to be built at the Windscale site in the United Kingdom. In the case of the spent fuel to be reprocessed at the COGEMA facility, it is possible that the fuel will be reprocessed in the new UP-3 facility instead of the existing UP-2 plant; therefore, these retransfers will be made under Section 131b(2) of the Act.

Both the United Kingdom and France are "nuclear-weapon states" as defined in the AEA. The requirement that these

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transfers be analyzed to consider whether there will be a significant increase of the risk of proliferation must be considered in this light.

The Implementing Agreement, an integral part of the proposed Agreement for Cooperation between the United States and Japan, provides a listing of facilities to which material subject to this Agreement may be retransferred for reprocessing. The two facilities in the European Community are the Sellafield facility in the United Kingdom, and the COGEMA facility in France. Plutonium recovered in these two facilities may be retransferred to Japan, but may not be retransferred to another nation, or transferred to other locations within the European Community without the prior consent of the United States.

A number of other factors are relevant to the judgment that the proposed retransfers will not result in a significant increase in the risk of proliferation. The United Kingdom is a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), and is a longstanding ally of the United States, a member of NATO, and otherwise has an important foreign policy relationship with the United States. The Government of the United Kingdom is stable, militarily secure, supports International Atomic Energy Agency (IAEA) safeguards, and adheres to the Nuclear Supplier's Guidelines. Moreover, although France is not a party to the Treaty on the Non-Proliferation of Nuclear Weapons, France

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has stated that it will act as if it were a party. The Government of France is also stable and militarily secure, supports IAEA safeguards and adheres to the nuclear suppliers guidelines.

The fuel to be transferred to the UK will be stored at the Sellafield reprocessing facility until it is reprocessed at the THORP facility. The Sellafield storage pond is subject to IAEA safeguards and we understand that the THORP facility will be eligible for the application of IAEA safeguards pursuant to the United Kingdom's voluntary safeguards agreement. The material transferred to France will be subject to EURATOM safeguards and may be subject to IAEA safeguards pursuant to France's voluntary safeguards agreement with the IAEA. Physical security measures implemented in the UK and France meet current international guidelines.

Consequently, these factors support our judgment that spent fuel and produced plutonium to be stored in the UK and France are unlikely to be subject to diversion for nuclear explosive purposes or theft by a terrorist group.

Finally, it is clear that these actions will not result in a diminution in the technical constraints now limiting the ability of non-nuclear-weapon states to fabricate nuclear weapons. Moreover, given the adherence of the United Kingdom to the Non-Proliferation Treaty, its adherence to

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the Nuclear Supplier's Guidelines, and its well-recognized position of leadership in the nonproliferation area, it is the conclusion of this analysis that approval of these transfers will not result in a significant increase in the risk of proliferation as contemplated in Section 131b of the AEA. Also, given the statement by France that it will act as if it were a party to the Non-Proliferation Treaty, its adherence to the Nuclear Supplier's Guidelines, and its support of IAEA safeguards, it is the conclusion of this analysis that approval of these transfers will not result in a significant increase in the risk of proliferation as contemplated in Section 131b of the AEA.

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VIII. Basis for Findings With Respect to the Criteria in Sections 123b and 131a of the AEA

This analysis now addresses the broader question of whether the granting of the U.S. approvals and consents summarized in this analysis will promote, and will not constitute an unreasonable risk to, the common defense and security. The President is required to make a determination to this effect when he reviews and approves a new or amended agreement for cooperation. To approve a "subsequent arrangement" subject to Section 131 of the AEA, the Secretary of Energy must make the determination that the subsequent arrangement will not be "inimical to the common defense and security."

There are several factors that strongly support favorable determination on these important questions.

As noted in this analysis, Japan is a close ally of the United States, has made a substantial commitment to the development of nuclear power for peaceful purposes of its energy security, has impressive capabilities in the entire nuclear fuel cycle, and is proceeding with its advanced reactor development program aimed at commercialization of the fast breeder reactor by around the year 2030. It is imperative to the healthy development of this program that Japan be able to proceed in a stable and predictable environment when

it comes to various activities that are subject to U.S. consent. These include the utilization of reprocessing services related to international transfers of spent fuel to Europe and return to Japan from Europe of recovered plutonium. The case-by-case approval approach has created considerable uncertainties for Japan, and has introduced tensions in U.S.-Japanese relations that could serve to jeopardize the otherwise close collaboration that exists between the two countries on civil nuclear matters and in the field of nonproliferation.

Within this context, the President approved a policy in 1982 that was designed to foster renegotiation of the agreement to include the relevant provisions of the Nuclear Non-proliferation Act on the one hand while restoring greater predictability and trust in U.S. relations with parties like Japan and some West European countries including the members of EURATOM.

The various advance consents which have been described in this report should strongly foster U.S. policy objectives by restoring predictability and confidence in U.S.-Japanese civil nuclear ties under terms that will concurrently foster U.S. nonproliferation objectives. They also should serve to recognize Japan's outstanding nonproliferation credentials. Japan is a party to the Treaty on the

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Non-Proliferation of Nuclear Weapons (NPT), it has a strong aversion to nuclear weapons, and a vigorous nonproliferation policy. Japan is an active supporter of the International Atomic Energy Agency and has evidenced its strong support of the IAEA safeguards program in the numerous ways described above, and by the provision of supplementary Japanese support to the IAEA safeguards R&D program.

Apart from strengthening U.S.-Japanese ties in nuclear related areas, U.S. interests are protected in the proposed arrangements in a variety of ways. Japan has reaffirmed its determination to continue to be strongly supportive of the IAEA safeguards system in a number of specific ways. At the operational level, the Tokai Mura reprocessing plant already is subject to a rigorous IAEA safeguards regime. The proposed Agreement explicitly provides that future facilities, such as Japan's commercial scale reprocessing plant, can only be brought within the coverage of the programmatic approval after it has been confirmed that the safeguards to be applied will conform with standards that have been agreed between the parties and that are designed to be reflective of rigorous and advanced safeguards practices. Similarly, plutonium returns from Europe to Japan covered by an advance U.S. consent will be subject to specific physical security and transportation measures that will facilitate close monitoring of the shipments enroute, as well as timely responses in case of emergency.

U.S. interests are further protected by the right of the U.S. to suspend its advance consent to protect its national security interest. Moreover, these consents will not create any adverse precedents, since as a matter of declared policy, they only are to be granted to Japan and other advanced nuclear countries in the context of renegotiated agreements for cooperation and when this does not constitute a proliferation risk.

Apart from providing advance consent for reprocessing and retransfers, the proposed Agreement package with Japan also provides advance consent to certain other activities (such as alteration and storage). This is subject to notification of acceptable safeguards and physical protection, and these consents also are subject to suspension. These additional consents also are expected to foster U.S. nonproliferation objectives by underscoring the interest that the U.S. has in being a reliable nuclear partner that is interested in assisting Japan's conduct of its civil nuclear program on a predictable and timely basis under adequate safeguards and controls. This approach should help assure that the U.S. and Japan continue to follow a common path on nonproliferation issues, foster mutually beneficial civil nuclear cooperation and trade between the two countries, and serve to preserve and strengthen U.S. ties with a very important U.S. ally and trading partner.

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Based on these various considerations and the other detailed points covered in this analysis, it is the conclusion of this analysis that the granting of the proposed consents described in this analysis (i) will not be inimical to the common defense and security; and (ii) will promote, and will not constitute an unreasonable risk to, the common defense and security.

FINAL CONCLUSIONS

This analysis and other considerations in this report support the determinations that:

- (1) the programmatic consents and approvals contained in Article I of the Implementing Agreement to be agreed to in conjunction with the proposed new U.S.-Japan Agreement for Cooperation:
 - (a) are not inimical to the common defense and security; and
 - (b) in the case of those activities for which the standards in Section 131b of the U.S. Atomic Energy Act, as amended, are relevant, the consents will not result in a significant increase in the risk of proliferation;
- (2) the proposed subsequent arrangement under the

U.S.-EURATOM Additional Agreement for Cooperation, providing consent to the retransfer from France or the United Kingdom to Japan of plutonium recovered from reprocessing in designated facilities in those countries of spent fuel transferred from Japan for reprocessing, with the consent of the United States, will not result in a significant increase in the risk of proliferation;

- (3) the proposed subsequent arrangements under the U.S.-EURATOM Additional Agreement for Cooperation and under the U.S.-Norway Agreement for Cooperation for the retransfer to Japan of small quantities of irradiated nuclear materials (containing up to 500 g of plutonium) will not result in a significant risk of proliferation.

Among all the factors in making the judgments described in (1)(b) and (2) above, foremost consideration was given to whether or not the activities being approved will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear weapon state involved could transform the diverted material into a nuclear explosive device.

Finally, all of the consents and approvals and subsequent arrangements discussed in this report justify a recommendation:

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to the President that he approve and authorize execution of the proposed new U.S.-Japan Agreement for Cooperation, and make a determination that the Agreement, with its associated documents, will promote, and will not constitute, an unreasonable risk to, the common defense and security.

ANNEX

Analysis of the Requirements of Sections 127 and 128 of the Atomic Energy Act of 1954, as amended (AEA).

In addition to other requirements of law, exports and retransfers of nuclear equipment and material from the United States are subject to certain criteria established under Sections 127 and 128 of the AEA. The exports and retransfers contemplated by the new U.S.-Japan Agreement for Cooperation or its Implementing Agreement meet these requirements. The following sections analyze these exports and retransfers with respect to Japan, EURATOM, and those countries designated in the Attachment to the Note Verbale (Australia, Austria, Canada, Norway, Sweden).

JAPAN

The new Agreement for Cooperation between the U.S. and Japan and its Implementing Agreement provide for the transfer of unirradiated source material and low enriched uranium to specified third countries, except for the production of high

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enriched uranium. The Agreement also provides for reprocessing of irradiated nuclear material and for alteration in form or content of plutonium, uranium-233 and high enriched uranium in specified Japanese facilities. It also provides for the return to Japan of plutonium recovered from reprocessing of irradiated fuels from the European Community.

Section 127

Criterion 1

"IAEA safeguards as required by Article III(2) of the Treaty will be applied with respect to any such material or facilities proposed to be exported, to any such material or facilities previously exported and subject to the applicable Agreement for Cooperation, and to any special nuclear material used in or produced through the use thereof."

Article 2.2 and sub-paragraph (2) of the U.S.-Japan Agreement states, in part:

"2. Cooperation between the parties as specified above shall be subject to the provisions of this Agreement, and the applicable treaties, laws, regulations and license requirements in force in their respective countries and shall require, in the case of cooperation envisaged in sub-paragraph (a)(iii) of paragraph 1 above, the application of safeguards by the Agency:

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(a) with respect to all nuclear material in all nuclear activities within the territory of Japan, under its jurisdiction or carried out under its control anywhere, when the recipient is the Government of Japan or its authorized persons, implementation of the agreement between the Government of Japan and the Agency in connection with the Treaty shall be considered as fulfilling this requirement;"

Agency is elsewhere defined as the International Atomic Energy Agency. Cooperation as specified above refers to the cooperation specified in the Agreement, and does not include transfer of restricted data and sensitive nuclear technology.

Furthermore, Japan is a party to the Treaty on the Non-Proliferation of Nuclear Weapons, and as a non-nuclear-weapons state has all of its nuclear facilities subject to International Atomic Energy Agency (IAEA) safeguards. It thus has implemented the obligation in Article III(1) of the NPT to accept safeguards of the IAEA on all nuclear material in all of its peaceful nuclear activities and to enter into an agreement with IAEA to that effect.

Consequently, IAEA safeguards required by Article III(2) of the NPT will be applied to any material and facilities exported to Japan, to any material and facilities previously exported and subject to the previous Agreement, and to any special nuclear material used in or produced through the use thereof. Therefore,

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it is the Executive Branch view that criterion (1) is satisfied with regard to Japan.

Criterion (2)

"No such material, facilities, or sensitive nuclear technology proposed to be exported or previously exported and subject to the applicable Agreement for Cooperation, and no special nuclear material produced through the use of such material, facilities, or sensitive nuclear technology, will be used for research on or development of any nuclear explosive device."

Article 8 of the U.S.-Japan Agreement states:

"1. Cooperation under this Agreement shall be carried out only for peaceful purposes.

2. Material, nuclear material, equipment and components transferred pursuant to this Agreement and nuclear material used in or produced through the use of such items shall not be used for any nuclear explosive device, for research specifically on or development of any nuclear explosive device, or for any military purpose."

In addition, Article 13.2. of the Agreement states, in part, "The provisions of this Agreement shall apply to nuclear material and equipment subject to the previous Agreement."

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Therefore, it is the Executive Branch view that criterion (2) is met.

Criterion (3)

"Adequate physical security measures will be maintained with respect to such material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof. Following the effective date of any regulations promulgated by the Commission pursuant to Section 304(d) of the Nuclear Non-Proliferation Act of 1978 (NNPA), physical security measures shall be deemed adequate if such measures provide a level of protection equivalent to that required by the applicable regulations."

Article 7 of the U.S.-Japan Agreement states:

"Adequate measures of physical protection shall be maintained with respect to nuclear material transferred pursuant to this Agreement and special fissionable material used in or produced through the use of material, nuclear material or equipment so transferred, at levels, as a minimum, comparable to those set out in Annex B of this Agreement."

The Agreed Minutes to the Agreement state in part:

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"6. With reference to Article 7 of the Agreement, it is confirmed that the physical protection measures as applied in the two countries are at or beyond levels required by the said Article with due regard for the recommendations contained in the document of the International Atomic Energy Agency (hereinafter referred to as "Agency") INFCIRC/225/Rev. 1 and are therefore adequate."

In addition, Annex 5 of the Implementing Agreement contains specific, agreed guidelines for transport of plutonium. Japan is also taking steps to adhere to the Convention on the Physical Protection of Nuclear Material. Therefore, it is the view of the Executive Branch that criterion (3) is met.

Criterion (4)

"No such materials, facilities or sensitive nuclear technology proposed to be exported, and no special nuclear material produced through the use of such material, will be retransferred to the jurisdiction of any other nation or group of nations unless the prior approval of the United States is obtained for such retransfer. In addition to other requirements of law, the United States may approve such retransfer only if the nation or group of nations designated to receive such retransfer agrees that it shall be subject to the conditions required by this section."

Article 4 of the U.S.-Japan Agreement States:

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"Material, nuclear material, equipment and components transferred pursuant to this Agreement and special fissionable material produced through the use of such material, nuclear material or equipment may be transferred only to persons authorized by a receiving party or, if the parties agree, beyond the territorial jurisdiction of the receiving party."

This provision of the Agreement is carried out by the Implementing Agreement and associated documents.

Therefore, it is the view of the Executive Branch that criterion (4) is met.

Criterion (5)

"No such material proposed to be exported and no special nuclear material produced through the use of such material will be reprocessed, and no irradiated fuel elements containing such material removed from a reactor shall be altered in form or content, unless the prior approval of the United States is obtained for such reprocessing or alteration."

Article 5 of the U.S.-Japan Agreement states:

"1. Nuclear material transferred pursuant to this Agreement and special fissionable material used in or produced through the use

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of material, nuclear material or equipment so transferred may be reprocessed if the parties agree.

2. Plutonium, uranium-233, high enriched uranium and irradiated nuclear material transferred pursuant to this Agreement or used in or produced through the use of material, nuclear material or equipment so transferred may be altered in form or content by irradiation. Such special fissionable material may otherwise be altered in form or content if the parties agree."

The Implementing Agreement, pursuant to Article 11 of the Agreement for Cooperation, implements this provision.

It is the view of the Executive Branch, that criterion (5) is satisfied.

Criterion (6)

"No such sensitive nuclear technology shall be exported unless the foregoing conditions shall be applied to any nuclear material or equipment which is produced or constructed under the jurisdiction of the recipient nation or group of nations by or through the use of any such exported sensitive nuclear technology."

Article 2 of the U.S.-Japan Agreement states, in part:

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"... restricted data and sensitive nuclear technology shall not be transferred under this Agreement."

Criterion (6), therefore, is not applicable.

Section 128 of the Atomic Energy Act of 1954, as amended

Section 128a(1) of the Atomic Energy Act establishes the following additional criterion: "As a condition of continued United States export of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology to non-nuclear-weapon states, no such export shall be made unless IAEA safeguards are maintained with respect to all peaceful nuclear activities in, under the jurisdiction of, or carried out under the control of such state at the time of the export."

As a party to the NPT, and as a non-nuclear-weapons state, Japan has agreed to accept IAEA safeguards on all peaceful nuclear activities. As noted above, this requirement is also a condition of Article 2.2 of the Agreement for cooperation.

Accordingly it is the view of the Executive Branch that Section 128 is satisfied.

EURATOM

Effective January 1, 1986, Spain and Portugal became members of the European Community and of EURATOM. Spain thus became the

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only non-nuclear-weapon state in the Community, and in EURATOM, which is not a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), although it has announced its intention to become a party. Also, the November 8, 1958 Agreement for Cooperation between the U.S. and EURATOM expired December 31, 1985. However, by exchange of notes on December 16 and 17, 1985, the United States and EURATOM, noting that Article V of the Additional Agreement incorporates by reference Articles IV, V, VI, XI, XII, XV and Annex B of the November 8, 1958 Agreement for Cooperation, agreed that upon expiration of the November 8, 1958 Agreement on December 31, 1985, EURATOM would hold as subject to the Additional Agreement all materials, equipment and devices that were subject to the expiring agreement. Thus, the Community has confirmed that all previous U.S. nuclear exports under the expired Agreement will continue, subject to the safeguards and controls described in this analysis.

Section 127 of the Atomic Energy Act

Section 127(4) provides that the United States may approve a retransfer only if the recipient agrees that the transfer will be subject to the same conditions set forth in that Section that would apply to export from the United States in the quoted export criteria. Therefore, the word "export" (or a variation thereof) is equivalent to the word "retransfer" (or a variation thereof). EURATOM has agreed that the material proposed to be retransferred will become subject to the U.S.-EURATOM Agreement for Cooperation and therefore for the purpose of the discussion below, the

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material is treated under that Agreement as if it has been transferred from the United States (U.S.).

Criterion (1)

"IAEA safeguards as required by Article III(2) of the Treaty will be applied with respect to any such material or facilities proposed to be exported, to any such material or facilities previously exported and subject to the applicable Agreement for Cooperation, and to any special nuclear material used in or produced through the use thereof."

Nine of the 10 non-nuclear-weapon state members of the European Community and the United Kingdom are parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Each of those nine states (Belgium, Denmark, the Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands and Portugal) thus undertook the obligation in Article III(1) of the NPT to accept safeguards of the IAEA on all nuclear material in all of its peaceful nuclear activities and to enter into an agreement with IAEA to that effect.

As permitted by Article III(4) of the NPT, those nine states elected to adhere to a single agreement with the IAEA (INFCIRC/193). Since as parties to the Treaty Establishing the European Atomic Energy Community (EURATOM), they had assigned to EURATOM the responsibility and authority to apply safeguards

within their territories, EURATOM is also a party to that Agreement. The Agreement, after approval by the Board of Governors of the IAEA and the European Community and ratification by each of the then seven non-nuclear-weapon member states, entered into force February 21, 1977. Greece and Portugal became parties to this Agreement upon entry into EURATOM.

As in the case of all safeguards agreements between the IAEA and non-nuclear-weapon states pursuant to Article III(1) of the NPT, the Agreement with EURATOM and the nine non-nuclear-weapon member states includes provision for the completion by the parties of "Subsidiary Arrangements," setting forth in detail the manner in which the safeguards procedures called for in the Agreement are to be carried out.

Spain, the other non-nuclear-weapon state that is a member of the Community, is not yet a party to the NPT. U.S. exports directly to Spain, and previously exported material and facilities subject to the U.S.-Spain peaceful nuclear cooperation agreement, are being made subject to that Agreement and its provisions (Article XIII) for the application of IAEA safeguards. Since Spain is a member of the nuclear common market established by the EURATOM Treaty, nuclear material and equipment subject to the Additional Agreement may be transferred to Spain while remaining subject to the provisions of the Additional Agreement. Such nuclear material and equipment will be subject to IAEA safeguards either under the U.S.-Spain-IAEA safeguards agreement or under

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another agreement providing for IAEA safeguards. This is ensured because the Delegation of the Commission has assured the U.S. Government that (1) IAEA safeguards apply, de facto, to all peaceful nuclear activities in Spain, and that the U.S. would be notified well in advance of any change, and (2) safeguards will in the future be applied in Spain under a full-scope safeguards agreement to be negotiated with the IAEA with coverage equivalent to that of INFCIRC/193.

Consequently, IAEA safeguards as required by Article III(2) of the NPT will be applied to any material and facilities exported to EURATOM, to any material and facilities previously exported and subject to the Additional Agreement, and to any special nuclear material used in or produced through the use thereof.

As nuclear-weapon-states (NWS), France and the United Kingdom are not subject to IAEA safeguards as required by Article III(2) of the Treaty.

Therefore, it is the Executive Branch view that criterion (1) is met with respect to exports to France and the United Kingdom.

In addition, all member states are obligated to accept EURATOM safeguards applied to nuclear material, equipment and devices subject to the Additional Agreement in each of the member states of the Community, including France, the UK and Spain. Under Article V of the Additional Agreement for Cooperation of

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1960, as amended, which incorporates Article XI, XII and Annex B of the November 8, 1958 agreement, EURATOM has the responsibility for establishing and implementing a safeguards and control system designed to give maximum assurance that any material supplied by the U.S. or generated from such supply will be used solely for peaceful purposes ("EURATOM Safeguards System"). The Community is bound to consult and exchange experiences with the IAEA with the objective of establishing a system reasonably compatible with that to the safeguards system of the Agency. The Community is responsible for establishing and maintaining a mutually (with respect to the U.S.) satisfactory and effective safeguards and controls system in accordance with stated principles.

EURATOM safeguards are being applied to material and facilities previously exported and subject to the Additional Agreement and to special nuclear material used in or produced through the use thereof. The agreement requires these safeguards to be applied to such material and facilities and to the proposed export and special nuclear material produced through its use.

Furthermore, U.S.-supplied nuclear material and special nuclear material generated through the use thereof in France may be subject to the application of IAEA safeguards under the agreement between France, EURATOM and the IAEA for application of safeguards to certain nuclear material in France which entered into force on September 12, 1961 (INFCIRC/290). Such material in the UK may be subject to the application of IAEA safeguards under

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the agreement between the UK, EURATOM and the IAEA for the application of safeguards in the UK which entered into force on August 14, 1978 (INFCIRC/263).

We would note that the EURATOM safeguards system, because of its continuing accountancy and materials control function for the EURATOM Community countries, will remain one of the factors relevant to the judgment of the Executive Branch, under Section 126a(1), that a proposed export to one of these states will not be inimical to the common defense and security.

Therefore, it is the Executive Branch view that criterion (1) is met with respect to the entire Community.

Criterion (2)

"No such material, facilities, or sensitive nuclear technology proposed to be exported or previously exported and subject to the applicable Agreement for Cooperation, and no special nuclear material produced through the use of such materials, facilities, or sensitive nuclear technology, will be used for research on or development of any nuclear explosive device."

The proposed export, and any special nuclear material produced through its use, is to be subject to the Additional Agreement for Cooperation. Article XI(1) and (3) of the November 6, 1958 Agreement for Cooperation provides that "no material, including

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equipment and devices transferred pursuant to this Agreement" and "no source or special nuclear material utilized in, recovered from, or produced as a result of the use of material, equipment or devices transferred pursuant to this agreement...will be used for atomic weapons, or for any other military purpose." The U.S. -- with the support of most other major nuclear supplier states -- consistently has taken the position that nuclear explosive devices are "atomic weapons," within the meaning of this guarantee, regardless of the intended end use of such devices. The U.S. and other major nuclear suppliers have agreed as a matter of national policy to authorize the export of trigger list items "only upon formal governmental assurances from recipients explicitly excluding uses which would result in any nuclear explosive device" (underlining supplied) and each notified the IAEA to this effect. The members of the Community adopted a common nuclear export policy on November 20, 1984, (the Nuclear Supplier Guidelines) and stated that the principles of the Guidelines form a basic common discipline for the Member States for their nuclear exports. (Spain and Portugal have adopted this policy as part of joining the Community.) Thus all members of the Community have adopted this position. This undertaking, together with other statements and actions, evidences the fact that all these nations equate any nuclear explosive device, regardless of function, as essentially equivalent to an "atomic weapon."

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Each non-nuclear-weapon state (NNWS) of the Community, except Spain, is a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). As such, it has pledged not to manufacture or acquire nuclear explosive devices for any purpose. Further, Spain has accepted the view that a legal prohibition on use of items for atomic weapons encompasses use for any nuclear explosive regardless of how the device is intended to be used. The U.S. informed Spain of this view in a March 20, 1974 note, related to the U.S.-Spain peaceful nuclear cooperation agreement, and Spain, in its response of April 13, 1977, stated its agreement with this view. The same interpretation logically applies to the Additional Agreement. This no-explosive-use commitment applies to any material, facilities and sensitive nuclear technology proposed to be exported or previously exported to such state by the U.S. and to material used in or produced through the use thereof.

Therefore, it is the Executive Branch view that criterion (2) or its equivalent is met with respect to the Community.

Criterion (3)

"Adequate physical security measures will be maintained with respect to such material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof. Following the effective date of any regulations promulgated by the Commission pursuant to Section 304(a) of the

Nuclear Non-Proliferation Act of 1978 (NNPA), physical security measures shall be deemed adequate if such measures provide a level of protection equivalent to that required by the official regulations."

The following states in the Community have confirmed maintenance of physical security measures providing as a minimum a level of protection comparable to that set forth in INFCIRC/225/Rev.1 for all nuclear material, equipment and facilities imported from the U.S. as well as nuclear material produced through the use of such material or facilities: Belgium, Denmark, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and the United Kingdom.

France and the Federal Republic of Germany have provided assurances regarding the maintenance of physical protection at least equal of that defined in Annex B of the Nuclear Supplier Guidelines published by the IAEA under reference INFCIRC/254, for all nuclear material and installations imported from the United States as well as nuclear material used in or produced by use of such material and facilities. The Executive Branch by letter to the Commission dated October 6, 1978, expressed the view that such an assurance meets the requirements set forth by the Commission under Part 110.43, pursuant to Section 304(d) of the Nuclear Non-Proliferation Act of 1978, in that the levels of protection called for in the Supplier Guidelines were derived directly from INFCIRC/225/Rev.1, and were specifically designed to achieve

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levels of protection consistent with the physical protection measures in INFCIRC/225/Rev.1.

It is the judgment of the Executive Branch that each member state of the Community has established physical security measures which, as a minimum, meet those recommended in the IAEA's INFCIRC/225/Rev.1, "The Physical Protection of Nuclear Material."

Therefore, it is the view of the Executive Branch that criterion (3) is met.

Criterion (4)

"No such materials, facilities, or sensitive nuclear technology proposed to be exported, and no special nuclear material produced through the use of such material, will be retransferred to the jurisdiction of any other nation or group of nations unless the prior approval of the United States is obtained for such retransfer. In addition to other requirements of law, the United States may approve such retransfer only if the nation or group of nations designated to receive such retransfer agrees that it shall be subject to the conditions required by this section."

Article XI(2) of the November 8, 1958 Agreement for Cooperation, which the Additional Agreement for Cooperation incorporates by reference by Article V, provides that no material (including

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equipment and devices) may be transferred beyond the control of the EURATOM Community, unless the United States agrees.

Article I bis D of the Additional Agreement for Cooperation provides that special nuclear material produced through the use of U.S.-supplied material may be exported to any nation outside the Community or to a group of nations, provided that such nation or group of nations has an appropriate agreement for cooperation with the United States or guarantees the peaceful use of the produced material under safeguards acceptable to the Community and the United States. The European Community's interpretation of this language -- as set out in an April 15, 1977 letter from Fernand Spaak, Head of the Delegation of the Commission of the European Communities, to the Department of State -- is that the European Community Supply Agency, prior to any proposed transfer, will consult with the United States to find out whether, in the view of the U.S., the proposed recipient of such produced special nuclear material has an agreement for cooperation with the United States which is "appropriate."

During discussions with representatives of the Community held in Washington on November 1, 1978, the European Community confirmed that material subject to Article I bis D could not be transferred outside of the Community unless the U.S. agreed that the recipient countries or group of nations has an appropriate agreement for cooperation with the U.S. or safeguards acceptable to both parties.

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Therefore, it is the Executive Branch view that, with regard to the proposed export and special nuclear material produced through its use, criterion (4) is met.

With respect to retransfers within the Community, it should be noted that the use of the words "group of nations" in criterion (4) makes clear that no retransfer consent right is required within a group of nations under this criterion. With respect to this provision, the Senate report states:

"It should be noted that under the U.S.-EURATOM Agreements, the United States does have a right of prior approval on retransfers of certain material outside of the EURATOM Community. It should also be noted that paragraph 4 does not require prior approval with respect to transfers within the EURATOM Community, consistent with United States policy of treating that Community as a single entity."

The Congressional intent not to require U.S. consent rights for transfers within the Community is also clear in Section 123a(5) of the Atomic Energy Act, as amended, since it requires that the U.S. seek a guarantee "by the cooperating party" (which in this case is EURATOM as a whole).

Criterion (5)

"No such material proposed to be exported and no special nuclear material produced through the use of such material will be reprocessed, and no irradiated fuel elements containing such material removed from a reactor shall be altered in form or

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content, unless the prior approval of the United States is obtained for such reprocessing or alteration."

The purpose of these proposed subsequent arrangements includes retransfers for reprocessing. However, EURATOM was expressly exempted from criterion (5) by virtue of Section 126a of the Act for a period of two years from March 10, 1978, inasmuch as the Department of State notified the Nuclear Regulatory Commission on July 20, 1978, that EURATOM has agreed to negotiations with the United States as called for in Section 404(a) of the Nuclear Non-Proliferation Act of 1978. Executive Order 12587 extends the duration of the period specified in the first provision to Section 126(2) of the Act to March 10, 1988. However, this exemption in no way derogates from the rights which the United States has under the U.S.-EURATOM Agreements for Cooperation and under the commitments from the non-EURATOM shipping country (Japan).

Therefore, in the view of the Executive Branch, criterion (5) is satisfied.

Criterion (6)

"No such sensitive nuclear technology shall be exported unless the foregoing conditions shall be applied to any nuclear material or equipment which is produced or constructed under the jurisdiction of the recipient nation or group of nations by or

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through the use of any such exported sensitive nuclear technology."

The proposed retransfer does not involve sensitive nuclear technology. Criterion (6), therefore, is not applicable.

Section 128 of the Atomic Energy Act of 1954, as amended

Section 128a(1) of the Atomic Energy Act establishes the following additional criterion: "As a condition of continued United States export of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology to non-nuclear-weapon states, no such export shall be made unless IAEA safeguards are maintained with respect to all peaceful nuclear activities in, under the jurisdiction of, or carried out under the control of such state at the time of the export."

All non-nuclear-weapon states that are members of the European Atomic Energy Community, except Spain, as parties to the NPT, have agreed to accept IAEA safeguards on all their peaceful nuclear activities and have implemented that commitment through their agreement with the IAEA and EURATOM (INFCIRC/193). The Delegation of the Commission has confirmed to the United States that IAEA safeguards apply de facto to all peaceful nuclear activities in Spain and that, in the unlikely event this

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situation is to change, the Commission will consult the United States 90 days in advance of such change.

THIRD COUNTRIES

The Note Verbale which refers to the Implementing Agreement pursuant to the new Agreement for Cooperation between the United States and Japan, and specifically to sub-paragraph(b) of Article 1 of the Implementing Agreement, provides for the transfer of unirradiated source material and low enriched uranium to third countries designated in the Note Verbale except for the production of high enriched uranium.

The nations or group of nations listed in the Attachment to the Note Verbale are:

Australia

Austria

Canada

Norway

Sweden

The European Community (EURATOM), for Belgium, Denmark, Federal Republic of Germany, France, Netherlands, and United Kingdom.

The Draft U.S.-EURATOM and the Draft U.S.-Norway Exchange of Notes provide that material so transferred from Japan will be subject to the Agreements for Cooperation between the U.S. and EURATOM or the Agreement for Cooperation between the U.S. and Norway. The Draft Notes also provide that all such

transfers shall be notified to the U.S., and that U.S. consent may be suspended in whole or in part upon notification to EURATOM or Norway by the U.S.

similar exchanges of notes will be made with the other nations listed above.

The applicable provisions of Sections 127 and 128 of the Atomic Energy Act of 1954, as amended are analyzed here for Australia, Austria, Canada, Norway and Sweden. Separate analyses have been already prepared for EURATOM and Japan.

Section 127

Criterion (1)

"IAEA safeguards are required by Article III(2) of the Treaty will be applied with respect to any such material for facilities proposed to be exported, to any such material or facilities previously exported and subject to the applicable Agreement for Cooperation, and to any special nuclear material used in or produced through the use thereof."

All of the aforementioned countries have ratified or acceded to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).

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Consequently, IAEA safeguards as required by Article III(2) of the NPT will be applied to any material and facilities exported to these nations, to any material and facilities previously exported and subject to the Agreements, and to any special nuclear material used in or produced through the use thereof.

Therefore, it is the Executive Branch view that criterion (1) is met with respect to those nations.

Criterion (2)

"No such material, facilities, or sensitive nuclear technology proposed to be exported or previously exported and subject to the applicable Agreement for Cooperation, and no special nuclear material produced through the use of such materials, facilities, or sensitive nuclear technology, will be used for research on or development of any nuclear explosive device."

The proposed retransfers from Japan will be subject to the terms and conditions of the U.S. Agreements for Cooperation with these nations, as referenced below:

Australia - Article 8

Austria - Article XI (2)

Canada - Article XII.B.

Norway - Article 8

Sweden - Article 4.1

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Therefore, it is the Executive Branch view that criterion (2) is met with respect to these nations.

Criterion (3)

"Adequate physical security measures will be maintained with respect to such material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof. Following the effective date of any regulations promulgated by the Commission pursuant to Section 304(d) of the Nuclear Non-Proliferation Act of 1978 (NNPA), physical security measures shall be deemed adequate if such measures provide a level of protection equivalent to that required by the official regulations."

Assurance to the U.S., that physical security measures comparable to those set forth in INFCIRC/225/Rev.1 have been received from Austria.

The U.S. Agreements for Cooperation with the following nations contain provisions, as referenced below, that physical security measures meeting the levels of protection specified in INFCIRC/225/Rev.1 will be maintained:

Australia - Articles 7.1 and 7.2.

Canada - Article XII H.

Norway - Articles 7.1 and 7.2.

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Sweden - Article 6/Annex B., and the Agreed Minute

Therefore, it is the Executive Branch view that criterion (3) is met with respect to these nations.

Criterion (4)

"No such material, facilities, or sensitive nuclear technology proposed to be exported, and no special nuclear material produced through the use of such material, will be retransferred to the jurisdiction of any other nation or group of nations unless the prior approval of the United States is obtained for such retransfer. In addition to other requirements of law, the United States may approve such retransfer only if the nation or group of nations designated to receive such retransfer agrees that it shall be subject to the conditions required by this section."

The U.S. Agreements for Cooperation with the following nations provide that no material (including equipment and devices) may be transferred beyond the control or jurisdiction of the nation involved unless the U.S. agrees:

Australia - Article 5.2.

Austria - Article IX.H. and Article XI.(3)

Canada - Article XII.D.

Norway - Article 5.2.

Sweden - Article 7.2. and the Agreed Minute

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Therefore, it is the Executive Branch view that criterion (4) is met with respect to these nations.

Criterion (5)

"No such material proposed to be exported and no special nuclear material produced through the use of such material will be reprocessed, and no irradiated fuel elements containing such material removed from a reactor shall be altered in form or content, unless the prior approval of the United States is obtained for such reprocessing or alteration."

The U.S. Agreements for Cooperation provide that no such material exported and no special nuclear material produced through the use of such material will be reprocessed or altered in form or content unless the U.S. agrees, as specified in the following Agreements:

Australia - Article 6.1. and Article 6.3.

Austria - Article IX.F.

Canada - Article XII.E.

Norway - Article 6.1. and Article 6.2.

Sweden - Article 6.1. and Article 8.2.

Therefore, it is the Executive Branch view that criterion (5) is met with respect to these countries.

Criterion (6)

"No such sensitive nuclear technology shall be exported unless the foregoing conditions shall be applied to any nuclear material or equipment which is produced or constructed under the jurisdiction of the recipient nation or group of nations by or through the use of any such exported sensitive nuclear technology."

The proposed retransfers do not involve sensitive nuclear technology. Criterion (6) therefore, is not applicable.

Section 128 of the Atomic Energy Act of 1954, as amended

Section 128a(i) of the Atomic Energy Act establishes the following additional criterion: "As a condition of continued United States export of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology to non-nuclear-weapon states, no such export shall be made unless IAEA safeguards are maintained with respect to all peaceful nuclear activities in, under the jurisdiction of, or carried out under the control of such state at the time of the export."

All of the foregoing countries are parties to the NPT, and have agreed to accept IAEA safeguards on all of their peaceful nuclear activities.

