

COOPERATION CONCERNING PEACEFUL USES
OF NUCLEAR ENERGY BETWEEN UNITED
STATES AND SWEDEN

MESSAGE

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

THE TEXT OF THE PROPOSED AGREEMENT FOR COOPERATION BETWEEN THE UNITED STATES OF AMERICA AND SWEDEN CONCERNING PEACEFUL USES OF NUCLEAR ENERGY AND ACCOMPANYING ANNEXES, AGREED MINUTE, AND EXCHANGE OF NOTES, PURSUANT TO AEA, SEC. 123d. (92 STAT. 142)



JANUARY 26, 1984.—Message and accompanying papers referred to the
Committee on Foreign Affairs and ordered to be printed

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WASHINGTON : 1984

To the Congress of the United States:

I am pleased to transmit to the Congress, pursuant to section 123 d. of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2153(d)), the text of the proposed Agreement for Cooperation Between the United States of America and Sweden Concerning Peaceful Uses of Nuclear Energy and accompanying annexes, agreed minute, and exchange of notes; my written approval, authorization and determination concerning the agreement; and the memorandum of the Director of the United States Arms Control and Disarmament Agency with the Nuclear Proliferation Assessment Statement concerning the agreement. The joint memorandum submitted to me by the Secretaries of State and Energy, which includes a summary of the provisions of the agreement, and the views and recommendations of the Director of the United States Arms Control and Disarmament Agency and the Members of the Nuclear Regulatory Commission are also enclosed.

The proposed revised agreement with Sweden has been negotiated in accordance with the Nuclear Non-Proliferation Act, which sets forth certain requirements for new agreements for peaceful nuclear cooperation with other countries. In my judgment, the proposed agreement for cooperation between the United States and Sweden, together with its accompanying agreed minute, meets all statutory requirements.

The proposed bilateral agreement between Sweden and the United States reflects the desire of the Government of the United States and the Government of Sweden to establish and confirm a framework for peaceful nuclear cooperation between our two countries in a manner which recognizes both the shared non-proliferation objectives and the friendly and harmonious relations between the United States and Sweden. The proposed agreement will, in my view, further the non-proliferation and other foreign policy interests of the United States.

I have considered the views and recommendations of the interested agencies in reviewing the proposed agreement and have determined that its performance will promote, and will not constitute an unreasonable risk to, the common defense and security. Accordingly, I have approved the agreement and authorized its execution, and urge that the Congress give it favorable consideration.

RONALD REAGAN.

THE WHITE HOUSE, *January 26, 1984.*

AGREEMENT FOR COOPERATION
BETWEEN THE UNITED STATES OF AMERICA AND SWEDEN
CONCERNING PEACEFUL USES OF NUCLEAR ENERGY

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

Mindful that both the United States and Sweden are parties
to the Treaty on the Non-Proliferation of Nuclear Weapons
("NPT");

Reaffirming their commitment to ensuring that the
international development and use of nuclear energy for
peaceful uses are carried out under arrangements which will to
the maximum possible extent further the objectives of the NPT;

Affirming their support of the objectives of the
International Atomic Energy Agency ("IAEA"), in particular in
the field of safeguards, and their desire to promote universal
adherence to the NPT;

Considering their close cooperation in the development, use
and control of peaceful uses of nuclear energy pursuant to the
Agreement for Cooperation between the Government of the United
States of America and the Government of Sweden Concerning Civil
Uses of Atomic Energy, signed July 28, 1966, as amended;

Desiring to continue and expand cooperation between their
two countries in this field consistent with their commitment to
non-proliferation;

Affirming their common desire to seek international acceptance of new international arrangements and institutions to provide additional measures against the proliferation of nuclear explosive devices; and

Confirming their intention to implement the provisions of this agreement in such a manner as to avoid hampering, delay or undue interference in the nuclear activities of the parties and so as to be consistent with prudent management practices for the economic and safe conduct of their nuclear programs,

Have agreed as follows:

Article 1

Scope of Agreement

1. Cooperation pursuant to this agreement between the United States and Sweden in the use of nuclear energy for peaceful purposes shall be in accordance with the provisions of this agreement and the applicable treaties, national laws, regulations and license requirements in force in their respective countries.
2. Transfers of material, equipment and components under this agreement may be undertaken between the parties or by authorized persons.

3. Material, equipment and components transferred from the territory of one party to the territory of the other party, whether directly or through a third country, will be regarded as having been transferred pursuant to the agreement only upon confirmation, by the appropriate government authority of the recipient party to the appropriate government authority of the supplier party, that such material, equipment or components will be subject to this agreement and that the proposed recipient of such material, equipment or components, if other than the party, is an authorized person.
4. Material, equipment or components transferred pursuant to this agreement and material used in or produced through the use of material, equipment or components so transferred shall no longer be subject to this agreement if:
 - (a) such material, equipment or components have been transferred beyond the jurisdiction of the recipient party in accordance with article 7(2);
 - (b) the parties agree that such material, equipment or components are no longer useable for any nuclear activity relevant from the point of view of safeguards; or
 - (c) otherwise agreed by the parties.

5. Restricted data, sensitive nuclear technology, sensitive nuclear facilities and major critical components may be transferred if provided for by an amendment to this agreement or by a separate agreement.

Article 2

Definitions

For the purposes of this agreement:

- (a) "byproduct material" means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material;
- (b) "component" means a component part of equipment listed in Annex A, or any other item so designated by agreement of the parties;
- (c) "equipment" means any reactor, other than one designed or used primarily for the formation of plutonium or uranium 233, or any other item so designated by agreement of the parties;
- (d) "high enriched uranium" means uranium enriched to twenty percent or greater in the isotope 235;

- (e) "low enriched uranium" means uranium enriched to less than twenty percent in the isotope 235;
- (f) "major critical component" means any part or group of parts essential to the operation of a sensitive nuclear facility;
- (g) "material" means source material, special nuclear material, byproduct material, radioisotopes other than byproduct material, moderator material, or any other such substance so designated by agreement of the parties;
- (h) "moderator material" means heavy water, or graphite or beryllium of a purity suitable for use in a reactor to slow down high velocity neutrons and increase the likelihood of further fission, or any other such material so designated by agreement of the parties;
- (i) "parties" means the Government of the United States of America and the Government of Sweden;
- (j) "peaceful purposes" include the use of material, equipment and components in such fields as research, energy and power generation, medicine, agriculture and industry but do not include use in, research on or development of any nuclear explosive device, or any military purpose;
- (k) "person" means any individual or any entity subject to the jurisdiction of either party but does not include the parties to this agreement;

- (l) "previous agreement" means the Agreement for Cooperation between the Government of the United States of America and the Government of Sweden Concerning Civil Uses of Atomic Energy, signed July 28, 1966, as amended;
- (m) "reactor" means any apparatus, other than a nuclear weapon or other nuclear explosive device, in which a self-sustaining fission chain reaction is maintained by utilizing uranium, plutonium or thorium, or any combination thereof;
- (n) "restricted data" means all data concerning (i) design, manufacture or utilization of nuclear weapons, (ii) the production of special nuclear material, or (iii) the use of special nuclear material in the production of energy, but shall not include data of a party which it has declassified or removed from the category of restricted data;
- (o) "sensitive nuclear facility" means any facility designed or used primarily for uranium enrichment, reprocessing of nuclear fuel, heavy water production, or fabrication of nuclear fuel containing plutonium;
- (p) "sensitive nuclear technology" means any information (including information incorporated in equipment or an important component) which is not in the public domain and which is important to the design, construction, fabrication, operation or maintenance of any sensitive

nuclear facility, or other such information which may be so designated by agreement of the parties.

- (q) "source material" means (1) uranium, thorium, or any other material so designated by agreement of the parties, or (2) ores containing one or more of the foregoing materials in such concentration as the parties may agree from time to time;
- (r) "special nuclear material" means (1) plutonium, uranium 233, or uranium enriched in the isotope 235; or (2) any other material so designated by agreement of the parties.

Article 3

Transfer of Material, Equipment and Components

1. Material, equipment and components may be transferred for applications consistent with this agreement.
2. Low enriched uranium may be transferred in such quantities as are required for use as fuel in reactors and in reactor experiments, for conversion or fabrication, including for third countries, or for such other purposes as may be agreed by the parties.
3. Special nuclear material other than low enriched uranium and material contemplated under paragraph 6 may, if the parties agree, be transferred for specified applications to

meet energy security and non-proliferation objectives.

4. The quantity of special nuclear material other than low enriched uranium transferred under this agreement shall not at any time be in excess of the quantity the parties agree is necessary for any of the following purposes: the loading of reactors or use in reactor experiments, the efficient and continuous operation of such reactors or conduct of such reactor experiments, and the accomplishment of other purposes as may be agreed by the parties. If high enriched uranium in excess of the quantity required for these purposes exists in Sweden, the United States shall have the right to require the return of any high enriched uranium transferred pursuant to this agreement (including irradiated high enriched uranium) which contributes to this excess. If this right is exercised:
 - (a) the United States shall, after removal of such material from the territory of Sweden reimburse Sweden for the fair market value of such material; and
 - (b) the parties shall make appropriate commercial arrangements and such material shall not be subject to this agreement after removal.
5. Any high enriched uranium transferred pursuant to this agreement shall not be at a level of enrichment in the isotope 235 in excess of levels to which the parties agree are necessary for the purposes described in paragraph 4.

6. Small quantities of special nuclear material may be transferred for use as samples, standards, detectors, targets and for such other purposes as the parties may agree. Transfers pursuant to this paragraph shall not be subject to the quantity limitations in paragraph 4.
7. The United States shall take such actions as may be necessary and feasible to ensure (a) a reliable supply of nuclear fuel to Sweden, including the export of nuclear material and in particular the furnishing of enrichment services on a timely basis and (b) the availability of the capacity to carry out this undertaking during the period of this agreement.

Article 4

No Explosive or Military Application

1. Each party guarantees that no material, equipment or components transferred to and under its jurisdiction pursuant to this agreement and no material used in or produced through the use of any such material, equipment or components so transferred and under its jurisdiction shall be used for any nuclear explosive device or for research on or development of any nuclear explosive device.

2. Each party guarantees that no material, equipment or components transferred to and under its jurisdiction pursuant to this agreement and no special nuclear material used in or produced through the use of any such material, equipment or components so transferred and under its jurisdiction shall be used for any military purpose.

Article 5

Safeguards

1. Cooperation under this agreement shall require the application of IAEA safeguards with respect to all source and special nuclear material in all nuclear activities within the territory of Sweden, under its jurisdiction or carried out under its control anywhere. Implementation of a safeguards agreement pursuant to Article III(4) of the NPT shall be considered to fulfill the requirement stated in the foregoing sentence.
2. Source and special nuclear material transferred to Sweden pursuant to this agreement and any source or special nuclear material used in or produced through the use of any material, equipment or components so transferred shall be subject to safeguards in accordance with the provisions of the Agreement between Sweden and the International Atomic

Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, signed on April 14, 1975.

3. Source and special nuclear material transferred to the United States pursuant to this agreement and any source or special nuclear material used in or produced through the use of any material, equipment or components so transferred shall be subject to the provisions of the Agreement between the United States of America and the International Atomic Energy Agency for the Application of Safeguards in the United States, signed on December 9, 1980.
4. If the United States or Sweden becomes aware of circumstances which demonstrate that the IAEA for any reason is not or will not be applying safeguards in accordance with the appropriate agreement referred to in paragraph 2 or 3, the parties shall immediately enter into arrangements which conform with IAEA safeguards principles and procedures and to the coverage required pursuant to those paragraphs, and which provide assurance equivalent to that intended to be secured by the system they replace. These arrangements shall be effected by agreement, other than the appropriate agreement referred to in paragraph 2 or 3, providing for application of safeguards by the IAEA. If either party considers that the IAEA is unable to apply such safeguards, however, safeguards shall be applied under bilateral arrangements.

Article 6

Physical Protection

Each party guarantees that adequate physical protection shall be maintained with respect to any source material, special nuclear material and equipment transferred to and under its jurisdiction pursuant to this agreement, and with respect to any source material or special nuclear material used in or produced through the use of any material or equipment so transferred and under its jurisdiction. For such source material and special nuclear material, the parties agree to maintain physical protection measures in accordance with the levels set forth in Annex B.

Article 7

Storage and Retransfers

1. Each party guarantees that plutonium or uranium 233 (except as contained in irradiated fuel elements) or high enriched uranium transferred to and under its jurisdiction pursuant to this agreement, or used in or produced through the use of any material or equipment so transferred and under its jurisdiction, shall only be stored in a facility to which the parties agree.

2. Each party guarantees that material, equipment or components transferred to and under its jurisdiction pursuant to this agreement and any special nuclear material produced through the use of any material or equipment so transferred and under its jurisdiction shall not be transferred to unauthorized persons or, unless the parties agree, beyond its territorial jurisdiction.

Article 8

Reprocessing and Enrichment

1. Each party guarantees that source or special nuclear material transferred to and under its jurisdiction pursuant to this agreement and any special nuclear material used in or produced through the use of any material or equipment so transferred and under its jurisdiction shall be reprocessed only if the parties agree.
2. Each party guarantees that any plutonium, uranium 233, high enriched uranium or irradiated source or special nuclear material transferred to and under its jurisdiction pursuant to this agreement, or used in or produced through the use of any material or equipment so transferred and under its jurisdiction shall, with the exception of irradiation, be altered in form or content only if the parties agree.

3. Each party guarantees that uranium transferred to and under its jurisdiction pursuant to this agreement and uranium used in any equipment so transferred and under its jurisdiction shall be enriched after transfer to twenty percent or greater in the isotope 235 only if the parties agree.

Article 9

Multiple Supplier Controls

If an agreement between either party and another nation or group of nations provides such other nation or group of nations rights equivalent to any or all of those set forth under articles 7 or 8 with respect to material, equipment or components subject to this agreement, the parties may, upon the request of either of them, agree that the implementation of any such rights will be accomplished by such other nation or group of nations.

Article 10

Cessation of Cooperation

1. If either party at any time following entry into force ..

this agreement

(a) does not comply with the provisions of articles 4, 5, 6, 7 or 8, or

(b) terminates, abrogates or materially violates a safeguards agreement with the IAEA,

the other party shall have the rights to cease further cooperation under this agreement and to require the return of any material, equipment or components transferred under this agreement and any special nuclear material produced through their use. The parties shall consult prior to any such action to the extent time and circumstances permit.

2. If Sweden at any time following entry into force of this agreement detonates a nuclear explosive device, the United States shall have the same rights as specified in paragraph 1.
3. If either party exercises its rights under this article to require the return of any material, equipment or components, it shall, after removal from the territory of the other party, reimburse the other party for the fair market value of such material, equipment or components. In the event this right is exercised, the parties shall make such other appropriate arrangements as may be required and such material, equipment or components shall not be subject to this agreement after removal.

Article 11

Consultations

The parties undertake to consult at the request of either party regarding the implementation of this agreement.

Article 12

Previous Agreement Terminated

1. The Agreement for Cooperation between the Government of the United States of America and the Government of Sweden Concerning Civil Uses of Atomic Energy signed July 28, 1966, as amended, shall terminate on the date this agreement enters into force.
2. Cooperation initiated under the previous agreement shall continue in accordance with the provisions of this agreement. The provisions of this agreement shall apply to material and equipment subject to the previous agreement.

Article 13

Amendment

This agreement may be amended at any time by agreement of the parties and in accordance with their applicable requirements.

Article 14

Entry into Force and Duration

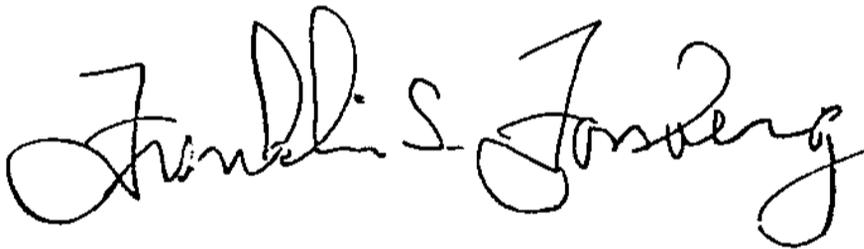
1. This agreement shall enter into force on the date on which the parties exchange diplomatic notes informing each other that they have complied with all applicable requirements for its entry into force, and shall remain in force for a period of thirty (30) years. This term may be extended for such additional periods as may be agreed between the parties in accordance with their applicable requirements.
2. Notwithstanding the suspension, termination or expiration of this agreement or any cooperation hereunder for any

reason, articles 4, 5, 6, 7, 8 and 10 shall continue in effect so long as any material, equipment or components subject to these articles remains in the territory of the party concerned or under its jurisdiction or control anywhere, or until such time as the parties agree that such material, equipment or components are no longer useable for any nuclear activity relevant from the point of view of safeguards.

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

Done at Stockholm, this 19th day of December, 1983, in duplicate.

For the Government of the United States of America:

A handwritten signature in cursive script, reading "Frank S. Jansberg". The signature is written in black ink on a white background.

For the Government of Sweden:

A handwritten signature in cursive script, appearing to read "J. B. B. B.". The signature is written in black ink on a white background.

ANNEX A

For the purposes of this agreement, components include:

1. Reactor pressure tubes (i.e., tubes specially designed or prepared to contain fuel elements and the primary coolant in a nuclear reactor at an operating pressure in excess of 50 atmospheres);
2. Zirconium tubes (i.e., zirconium metal and alloys in the form of tubes or assemblies of tubes specially designed or prepared for use in a nuclear reactor);
3. Reactor internals (e.g., core support structures, control rod guide tubes, thermal shields, baffles, core grid plates and diffuser plates specially designed or prepared for use in a nuclear reactor);
4. Reactor control rod drive mechanisms, including detection and measuring equipment to determine flux levels;
5. Any other part or group of parts specially designed or prepared for use in a nuclear reactor identified as such prior to transfer or added to this appendix by agreement of the parties; and
6. Specially designed or prepared parts for
 - (a) any of the items in paragraphs 1-4;
 - (b) reactor pressure vessels, reactor fuel charging or discharging machines, reactor control rods, and reactor primary coolant pumps,* and
 - (c) any plant for the fabrication of nuclear fuel other than that containing plutonium.

identified as such prior to transfer or added to this appendix by agreement of the parties.

*Note: When these items are to be exported as complete units or, in the case of reactor pressure vessels, as complete units or as major shop-fabricated parts for such vessels, they would be considered as "equipment."

ANNEX B

Pursuant to article 6, the agreed levels of physical protection to be ensured by the competent national authorities in the use, storage and transportation of the materials listed in the attached table shall as a minimum include protection characteristics as below.

Category III

Use and storage within an area to which access is controlled.

Transportation under special precautions including prior arrangements among sender, recipient and carrier, and prior agreement between entities subject to the jurisdiction and regulation of supplier and recipient states, respectively, in case of international transport specifying time, place and procedures for transferring transport responsibility.

Category II

Use and storage within a protected area to which access is controlled, i.e., an area under constant surveillance by guards or electronic devices, surrounded by a physical barrier with a limited number of points of entry under appropriate control, or any area with an equivalent level of physical protection.

Transportation under special precautions including prior arrangements among sender, recipient and carrier, and prior agreement between entities subject to the jurisdiction and regulation of supplier and recipient states, respectively, in case of international transport, specifying time, place and procedures for transferring transport responsibility.

Category I

Material in this category shall be protected with highly reliable systems against unauthorized use as follows:

Use and storage within a highly protected area, i.e., a protected area as defined for Category II above, to which, in addition, access is restricted to persons whose trustworthiness has been determined, and which is under surveillance by guards who are in close communication with appropriate response forces. Specific measures taken in this context should have as their objective the detection and prevention of any assault, unauthorized access or unauthorized removal of material.

Transportation under special precautions as identified above for transportation of Categories II and III materials and, in addition, under constant surveillance by escorts and under conditions which assure close communication with

TABLE: CATEGORIZATION OF NUCLEAR MATERIAL

Material	Form	Category		
		I	II	III ^{c/}
1. Plutonium ^{a/}	Unirradiated ^{b/}	2 kg or more	Less than 2 kg but more than 500g	500 g or less but more than 15 g
2. Uranium - 235	Unirradiated ^{b/}			
	- uranium enriched to 20% ²³⁵ U or more	5 kg or more	Less than 5 kg but more than 1 kg	1 kg or less but more than 15 g
	- uranium enriched to 10% ²³⁵ U but less than 20%		10 kg or more	Less than 10 kg but more than 1 kg
	- Uranium enriched above natural, but less than 10% ²³⁵ U			10 kg or more
3. Uranium ^b	Unirradiated ^{b/}	2 kg or more	Less than 2 kg but more than 500g	500 g or less but more than 15 g
4. Irradiated fuel			Depleted or natural uranium, thorium or low-enriched fuel (less than 10% fissile content) ^{d/} / _{e/}	

All plutonium except that with isotopic concentration exceeding 80% in plutonium-238.

Material not irradiated in a reactor or material irradiated in a reactor but with a radiation level equal to or less than 100 rads/hour at one meter unshielded.

Quantities not falling in Category III and natural uranium should be protected in accordance with prudent management practice.

Although this level of protection is recommended, it would be open to States, upon evaluation of the specific circumstances, to assign a different category of physical protection.

Other fuel which by virtue of its original fissile material content is classified as Category I and II before irradiation may be reduced one category level while the radiation level from the fuel exceeds 100 rads/hour at one meter unshielded.

AGREED MINUTE

During the negotiation of the Agreement for Cooperation between the United States of America and Sweden Concerning Peaceful Uses of Nuclear Energy ("agreement") signed today, the following understandings, which shall be an integral part of the agreement, were reached.

Coverage of Agreement

It is agreed that the transfers referred to in article 1(2) may become subject to such additional terms and conditions as may be agreed by the parties.

In making the judgment referred to in article 1(4)(b) the parties shall consider whether material is no longer useable for any such activity as a result of its being practicably irrecoverable, consumed, diluted, or converted to non-nuclear use (such as the production of alloys or ceramics). The parties note that in making this judgment, a determination made by the IAEA in accordance with the provisions for the termination of safeguards contained in the relevant safeguards agreement between the party concerned and the IAEA will be accepted unless the other party disputes the IAEA determination. In the latter case, the material will remain subject to the agreement until the dispute is resolved.

The parties agree that ores containing fifty parts per million or less of uranium shall not be considered source material within the meaning of article 2(q).

It is understood that any transfer pursuant to article 3(3) will be made where technically and economically required for the development and demonstration of reactor fuel cycles.

With reference to article 4, it is understood that "military purpose" does not include power for a military base drawn from the civil power network or production of radioisotopes to be used for diagnosis in a military hospital.

The parties note that, excepting the production of tritium incidental to the operation of reactors, material, equipment or components transferred pursuant to the agreement shall not be used for the purposes of producing tritium.

The parties note their intention to agree, when so required, on a timely basis upon the arrangements to be made for the storage of materials referred to in article 7(1).

The United States notes that Sweden intends to develop facilities in Sweden for the permanent disposition of material discharged from Swedish reactors, including material subject to the agreement. With reference to such Swedish plans, the parties note that the provisions in article 7(1) do not apply to plutonium or uranium ²³³ contained in irradiated fuel elements.

The parties note that the United States has supplied high enriched uranium pursuant to the previous agreement for use as fuel at Sweden's Studsvik research reactor, and that it is Sweden's intention to obtain further fuel for this reactor from

the United States pursuant to the agreement. In this connection, the parties agree pursuant to article 7(1) to the storage of such material at the Studsvik research facility, prior or subsequent to its irradiation there, so long as Sweden continues to apply standards and measures which, as at present, conform with articles 3, 5, 6 and 7.

It is understood that the agreement of the parties referred to in article 7(1) shall relate to safeguards, physical protection and similar non-proliferation considerations attendant upon the storage of uranium 233 or plutonium (except as contained in irradiated fuel elements) or high enriched uranium referred to in that article.

For the purposes of implementing the rights specified in articles 7 and 8 with respect to special nuclear material produced through the use of material transferred pursuant to the agreement and not used in or produced through the use of equipment transferred pursuant to the agreement, such rights shall in practice be applied to that proportion of special nuclear material produced which represents the ratio of transferred material used in the production of the special nuclear material to the total amount of material so used, and similarly for subsequent generations.

With respect to article 12(2), in order to facilitate the application of the provisions of this agreement to material and

equipment subject to the previous agreement, the parties shall establish a list of such material and equipment.

Safeguards

The parties undertake to take such measures as are necessary to maintain and facilitate the application of safeguards provided for under article 5. In this context, the parties recall that they have both entered into agreements with the IAEA providing for application of safeguards by the IAEA. They reaffirm that they will fully implement those agreements in a timely and effective manner.

Each party shall establish and maintain a system of accounting for and control of all source and special nuclear material transferred pursuant to this agreement and any source or special nuclear material used in or produced through the use of any material, equipment or components so transferred. The procedures of such a system shall be comparable to those set forth in IAEA document INFCIRC/153 (corrected), or in any revision of that document agreed to by the parties. The parties note that in implementation of their respective obligations to the IAEA pursuant to the agreements referred to in article 5(2) and (3), each party has established and placed in effect such a system.

It is agreed that, at the request of either party, the other party will report or permit the IAEA to report as feasible to the requesting party on the status of all inventories of any material subject to article 5(2) and (3), as applicable.

With reference to article 5, it is understood that the agreement does not affect the rights or obligations of the United States or the IAEA pursuant to the Agreement referred to in article 5(3) or the implementation of that Agreement.

With reference to article 5(4), it is understood that safeguards arrangements referred to therein shall include the following characteristics in accordance with IAEA safeguards principles and procedures:

- (a) the review in a timely fashion of the design of any equipment transferred pursuant to the agreement, or of any facility which is to use, fabricate, process or store any material so transferred or any special nuclear material used in or produced through the use of material, equipment or components so transferred;
 - (b) the maintenance and production of records and of relevant reports for the purpose of assisting in ensuring accountability for material transferred pursuant to the agreement and any source or special nuclear material used in or produced through the use of material, equipment or components so transferred;
- and

(c) the designation of personnel acceptable to the safeguarded party who, accompanied if either party so requests by personnel designated by the safeguarded party, shall have access to all relevant places and data necessary to account for the material referred to in paragraph (b), to inspect any equipment or facility referred to in paragraph (a) for purposes of safeguards, and to install safeguarding devices and make such independent measurements as may be deemed necessary by the parties to account for such material. The safeguarded party shall not unreasonably withhold acceptance of such personnel designated by the safeguarding party.

The parties agree that in the event article 5(4) becomes applicable with respect to Sweden, safeguards having the foregoing characteristics shall immediately be applicable, and shall be applied by the IAEA or the United States as provided in article 5(4). The simultaneous application of safeguards by the IAEA and by the United States is not anticipated. If such an exceptional situation should occur, the parties will consult with a view to minimizing the duration of any simultaneous application of safeguards.

Physical Protection

The parties agree that the physical protection measures referred to in article 6 shall as a minimum provide protection comparable to the recommendations set forth in IAEA document INFCIRC/225/Rev.1 concerning the physical protection of nuclear material, or in any revision of that document agreed to by the parties.

The parties shall exchange information and consult at the request of either party concerning matters relating to the adequacy of physical protection measures maintained pursuant to article 6, including physical protection during international transportation.

Each party shall identify those agencies or authorities having responsibility for physical protection and shall also designate points of contact within its national authorities to cooperate on matters relating to physical protection.

Fuel Cycle Operations

The parties agree that their cooperation should be implemented so as to avoid hampering, delay or undue interference in their nuclear programs, and agree to the following arrangements in connection with the implementation of articles 7 and 8.

With regard to article 7(2), the parties agree that, without further agreement, low enriched uranium in quantities sufficient to meet the normal needs of Sweden's present program may be transferred to facilities outside Sweden for conversion, fabrication or other processing prior to irradiation, but not for further enrichment or permanent retention or use in a reactor outside Sweden. The quantities of low enriched uranium and the facilities to which it may be thus transferred are specified in an exchange of letters between the parties. Such transfers will be subject to the following understandings:

- (1) Sweden shall keep records of such transfers and shall promptly 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 an agreement for cooperation between the United States and EURATOM or the United States and the other country receiving the material; and
- (3) upon its return to Sweden, such material shall be subject to the agreement as provided in article 1(3), and Sweden shall notify the United States upon return of any such material to Sweden.

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 or any other country receiving such material.

With regard to article 8(2), the parties agree that, without further agreement, limited quantities of fuel elements withdrawn from a reactor after irradiation may be altered in form or content in facilities within Sweden to the extent necessary for testing or analysis (including destructive analysis). The quantities of irradiated low enriched uranium contained in fuel elements being so altered are specified in the exchange of letters referred to above. As one means of carrying out permanent disposition of spent fuel in a safe and proliferation-resistant manner, Sweden intends to utilize a process involving compaction and encapsulation of spent fuel elements. The parties agree to any alteration in form which is incidental to such process when used for the purpose of such disposition in Sweden. No plutonium will be separated from the irradiated fuel elements, except upon agreement of the parties. Upon request of the United States, Sweden will notify the United States of the quantity of material involved and nature of such alterations.

It is understood that the parties may agree, in connection with the specific terms of export licenses covering material supplied under the agreement or any other agreed manner, to activities envisaged in articles 7 or 8.

These understandings concerning fuel cycle operations may be terminated in whole or in part if either party considers that exceptional circumstances of concern from a
... .. security and insight so required. The

parties will consult prior to any such termination, unless circumstances preclude such consultations, and always bearing in mind the need to avoid the disruption of international nuclear trade and fuel cycle operations in the states concerned. Such circumstances include, but are not limited to, a determination by either party that these understandings cannot be continued without a significant increase in the risk of proliferation or jeopardizing its national security.

Spent Fuel Disposition

The parties note their common interest in ensuring that their nuclear cooperation promotes the energy security of each party and their mutual non-proliferation objectives. In this regard, the parties agree that material subject to articles 7 and 6 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;

- (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. The parties will consult prior to any such termination, unless circumstances preclude such consultations, and always bearing in mind the need to avoid the disruption of nuclear trade and fuel cycle operations in the states concerned. 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.

These understandings concerning spent fuel disposition do not limit the right of the parties to agree to other activities provided in articles 1 &

The United States notes that Sweden has expressed an interest in the future return of Swedish plutonium produced from U.S.-origin material from EURATOM to Sweden for use in the Swedish nuclear power program. The parties agree to consult at the request of either and make every effort to resolve such matters in a satisfactory and timely manner.

Environmental Protection

The parties express their willingness to consult with regard to activities under this agreement, to identify any international environmental implications which may arise from such activities and with regard to cooperation in protecting the international environment from radioactive, chemical or thermal contamination arising from peaceful nuclear activities under this agreement and in related matters of health and safety.





EMBASSY OF THE
UNITED STATES OF AMERICA
STOCKHOLM

OFFICE OF THE AMBASSADOR

December 19, 1983

The Honorable
Lennart Bodström
Minister for Foreign Affairs
Stockholm

Dear Mr. Minister:

I wish to acknowledge receipt of your letter dated today transmitting information relating to the implementation of the Agreement for Cooperation Between the United States of America and Sweden Concerning Peaceful Uses of Nuclear Energy, which was signed today.

I am pleased to confirm that the information relating to Fuel Cycle Operations within the Swedish nuclear power program and the understanding concerning modification of such information is acceptable to my Government.

Accept, Mr. Minister, the renewed assurances of my highest consideration.

Sincerely,

A handwritten signature in cursive script that reads "Franklin S. Forsberg".
Franklin S. Forsberg
American Ambassador

*The Minister
for
Foreign Affairs*

Your Excellency,

I refer to the Agreement for Cooperation Between Sweden and the United States of America Concerning Peaceful Uses of Nuclear Energy which was signed today and wish to transmit the following information relating to the implementation of that Agreement:

1. The Swedish nuclear power program consists of the following reactor units (nominal net electric power in MW):

Ringhals 1 (750)

Ringhals 2 (800)

Ringhals 3 (915)

Ringhals 4 (915)

Barsebäck 1 (570)

Barsebäck 2 (570)

Oskarshamn 1 (440)

Oskarshamn 2 (610)

Oskarshamn 3 (1 060)

Forsmark 1 (900)

Forsmark 2 (900)

Forsmark 3 (1 060)

These reactors operate on uranium enriched to less than five per cent in the isotope U-235.

cont'd

2. The average fuel need of the program corresponds to approximately 400 tons of uranium per annum. With reference to article 7 (2) of the Agreement, the quantity transferred abroad for fuel cycle services within this program can vary somewhat between years but will not exceed 500 tons per annum.

The following facilities perform such fuel cycle services for the Swedish nuclear program:

1. Conversion

Canada	Eldorado Nuclear Ltd, Port Hope
USA	Allied Chemical, Metropolis, Illinois
USA	Kerr-McGee, Gore, Oklahoma
United Kingdom	British Nuclear Fuels Ltd, Springfield
France	Comurhex: Malvesi and Pierrelatte

2. Enrichment

USA	Department of Energy: Oak Ridge, Tennessee, Paducah, Kentucky and Portsmouth, Ohio
United Kingdom	Urenco, Capenhurst
Netherlands	Urenco, Almelo
Fed. Rep. of Germany	Urenco, Gronau
France	Eurodif, Tricastin

3. Fuel Fabrication

USA	Westinghouse, Columbia, South Carolina
USA	General Electric, Wilmington, North Carolina
USA	Combustion Engineering, Windsor, Connecticut
USA	Babcock and Wilcox, Lynchburg, Virginia
USA	Exxon, Richland, Washington
United Kingdom	British Nuclear Fuels Ltd, Springfield
Fed. Rep. of Germany	KWU, Hanau

cont'd .../3

Fed. Rep. of Germany	Exxon, Lingen
Sweden	ASEA-ATOM, Västerås
Japan	Japan Nuclear Fuel Co. Ltd, Yokosuka Kumatori
Japan	Mitsubishi Atomic Power Ind. Inc, Saitama

4. Analysis and Testing

Norway	Institutt for Energiteknikk: Halden and Kjeller
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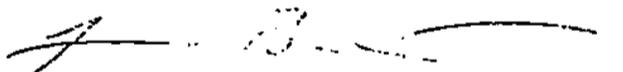
3. With reference to article 8 (2) of the Agreement, the amount of fuel altered in form or content in connection with testing and analysis (including destructive analysis) will not exceed 500 kilograms per annum.

It is our understanding that, in the event changes in the Swedish program should suggest modification of the information specified in this letter, such modification may be made by written communication from Sweden to the United States, and will take effect on written acceptance by the United States.

I suggest that this letter and your concurring reply constitute an understanding concerning the implementation of the Agreement as it relates to fuel cycle operations.

Accept, Your Excellency, the assurances of my highest consideration.

Stockholm, December 19, 1983



Lennart Bodström

His Excellency
Mr. Franklin S. Forsberg
Ambassador Extraordinary and Plenipotentiary
of the United States of America

STOCKHOLM

*The Minister
for
Foreign Affairs*

Your Excellency,

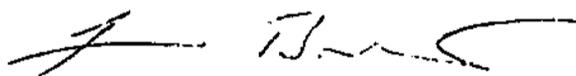
I wish to acknowledge receipt of your Note of today referring to the Agreement for Cooperation Between Sweden and the United States of America Concerning Peaceful Uses of Nuclear Energy which was signed today and to the following understanding reached during the negotiations leading to the conclusion of the Agreement.

"With respect to any contract executed between the United States Atomic Energy Commission and the Government of Sweden or authorized persons under its jurisdiction prior to June 27, 1974, prices for uranium enriched in the isotope U-235 or charges for enrichment services applicable to the Government of Sweden or to authorized persons under its jurisdiction will be those in effect for users in the United States of America at the time of delivery. This also applies to contracts executed after June 27, 1974, as a substitution for contracts entered into prior to that date."

I have the honor to confirm that the Government of Sweden concurs in the understanding contained in your letter.

Accept, Your Excellency, the assurances of my highest consideration.

Stockholm, December 19, 1983


Lennart Bodström

His Excellency
Mr. Franklin S. Forsberg
Ambassador Extraordinary and Plenipotentiary
of the United States of America

STOCKHOLM



EMBASSY OF THE
UNITED STATES OF AMERICA
STOCKHOLM

OFFICE OF THE AMBASSADOR

December 19, 1983

The Honorable
Lennart Bodström
Minister for Foreign Affairs
Stockholm

Dear Mr. Minister:

I refer to the Agreement for Cooperation Between the United States of America and Sweden Concerning Peaceful Uses of Nuclear Energy which was signed today and wish to confirm the following understandings which have been reached during the negotiations leading to the conclusion of the Agreement.

With respect to any contract executed between the United States Atomic Energy Commission and the Government of Sweden or authorized persons under its jurisdiction prior to June 27, 1974, prices for uranium enriched in the isotope U-235 or charges for enrichment services applicable to the Government of Sweden or to authorized persons under its jurisdiction will be those in effect for users in the United States of America at the time of delivery. This also applies to contracts executed after June 27, 1974, as a substitution for contracts entered into prior to that date.

I suggest that if the Government of Sweden concurs, this letter and your reply to that effect be regarded as placing this understanding on record.

Accept, Mr. Minister, the renewed assurances of my highest consideration.

Sincerely,

A handwritten signature in cursive script that reads "Franklin S. Forsberg".
Franklin S. Forsberg
American Ambassador

THE WHITE HOUSE

WASHINGTON

November 21, 1983

MEMORANDUM FOR THE SECRETARY OF STATE
THE SECRETARY OF ENERGY

SUBJECT: Proposed Agreement Between the United States
and Sweden Concerning Peaceful Uses of Nuclear
Energy

I have considered the proposed Agreement for Cooperation Between the United States of America and Sweden Concerning Peaceful Uses of Nuclear Energy, along with the views, recommendations and statements of the interested agencies.

I have determined that the performance of the agreement will promote, and will not constitute an unreasonable risk to, the common defense and security. Pursuant to section 123 b. of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2153(b)), I hereby approve the proposed agreement and authorize you to arrange for its execution.

Ronald Reagan

8329271
XR-8329270THE SECRETARY OF STATE
WASHINGTON

September 24, 1983

MEMORANDUM FOR THE PRESIDENT

FROM:

George P. Shultz
Donald P. HodelSUBJECT: Proposed Agreement for Cooperation Between
the United States and Sweden Concerning
Peaceful Uses of Nuclear Energy

A proposed new agreement for peaceful nuclear cooperation between the United States and Sweden, including an accompanying agreed minute which is an integral part of the agreement, is at attachment 3. A summary of the basic provisions of the proposed agreement is at attachment 4.

The agreement was negotiated 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 (ACDA), whose views and recommendations are at attachment 5. The Nuclear Proliferation Assessment Statement concerning the agreement is being submitted to you directly by the Director of ACDA.

The agreement was initialed in Stockholm on June 3, 1983. It is a renegotiation of, and upon entry into force will supersede, our 1966 nuclear cooperation agreement with Sweden. Under the Atomic Energy Act of 1954, as amended, the agreement may not be transmitted for Congressional review until you have determined that it will promote, and not constitute an unreasonable risk to, the common defense and security, and have approved it and authorized its signature. If you approve our recommendation, the agreement will then be signed and submitted for their review to both houses of Congress, in accordance with section 123(d) of the Act, where it must lie for 60 days of continuous session before it may enter into force.

The Nuclear Non-Proliferation Act (NNPA) of 1978 contains requirements for new agreements for peaceful nuclear cooperation. In our judgment, the proposed agreement meets all the requirements set forth in the NNPA.

-OADR-

The purpose of the agreement is to update and expand the existing provisions for peaceful nuclear cooperation between the United States and Sweden and to provide for strengthened controls reflecting our shared nonproliferation policies. It has an extendible term of 30 years, and provides for the transfer of equipment (including reactors), components and material (including fuel) for both nuclear research and power purposes. It does not provide for any transfers of sensitive nuclear technology or facilities.

The agreed minute contains certain important understandings relating to the implementation of the agreement. It sets forth understandings relating to the implementation of safeguards and U.S. fallback safeguards rights in the event that the International Atomic Energy Agency (IAEA) is not or will not be applying safeguards in Sweden.

The agreed minute also contains several features, which would constitute "subsequent arrangements" under the Atomic Energy Act if agreed separately from the agreement for cooperation, reflecting policies of this Administration aimed at improving the climate of cooperation and providing greater certainty for the civil nuclear programs of countries with unquestioned non-proliferation credentials. It provides advance U.S. consent to the transfer from Sweden to specified facilities in Europe of U.S.-supplied low-enriched uranium for conversion or fabrication and for the transfer to and reprocessing in the U.K. or France of spent nuclear fuel subject to the agreement. It provides such consent as well for alteration in form or content of spent fuel incident to a proposed Swedish program of compaction and encapsulation for permanent disposition of spent fuel. It approves storage of high-enriched uranium at the Studsvik facility under current conditions.

While the agreed minute provides for advance U.S. consent to the reprocessing of Swedish spent fuel at facilities in the U.K. and France, it notes that prior U.S. agreement is a requirement for the transfer of plutonium to Sweden or any other country or for any use of the plutonium. 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.

At Sweden's request, the agreement provides for reciprocity of safeguards obligations, rather than committing only Sweden to maintain safeguards on items transferred under the agreement.

In accordance with section 407 of the Nuclear Non-Proliferation Act, the agreed minute contains a provision relating to identification of environmental implications and protection of the international environment aspects of activities under the agreement, and in related matters of health and safety.

Sweden is a party to the Non-Proliferation Treaty and has long been among the strongest supporters of international non-proliferation efforts generally.

We believe the proposed agreement, including the agreed minute, meets all statutory requirements and will also serve United States non-proliferation and other foreign policy interests. Therefore, pursuant to Section 123 b. of the Atomic Energy Act, as amended, we recommend that you determine that performance of the agreement will promote, and will not constitute an unreasonable risk to, the common defense and security, approve the agreement, and authorize its execution.

ACDA Director Adelman concurs in this recommendation. The NRC views are at attachment 6.

Recommendation

That you sign the determination, approval and authorization at attachment 1 and the transmittal to the Congress at attachment 2. (The transmittal will be held until the agreement itself is signed).

Attachments

1. Draft Determination, Approval and Authorization
2. Draft Transmittal to the Congress
3. Proposed Revised Agreement for Cooperation Between the Government of the United States of America and the Government of Norway Concerning Peaceful Uses of Nuclear Energy, including Agreed Minute
4. Summary of Basic Provisions
5. Views and Recommendations of Director of the Arms Control and Disarmament Agency
6. Views of the Members of the Nuclear Regulatory Commission.

UNITED STATES · SWEDEN
PEACEFUL NUCLEAR COOPERATION AGREEMENT

SUMMARY OF BASIC PROVISIONS

Article 1 sets forth the scope of cooperation in the use of nuclear energy for peaceful purposes. It provides that transfers of material, equipment and components may be undertaken subject to the agreement and other applicable legal requirements. Material, equipment and components transferred between the parties for peaceful purposes will be regarded as having been transferred pursuant to the agreement for cooperation only upon confirmation by the recipient party that such item or items are to be subject to the terms of the agreement for cooperation. No sensitive nuclear technology, sensitive nuclear facilities or major critical components may

be transferred unless the agreement is amended or a separate agreement authorizing such transfers is concluded.

Article 2 contains definitions.

Article 3 provides the basic enabling framework for the transfer of material, equipment and components. Low-enriched uranium may be transferred for use as fuel in reactors or reactor experiments, and for such other purposes as may be agreed. Special nuclear material other than low-enriched uranium may be transferred by agreement of the parties for energy security and non-proliferation purposes. This article also provides that the quantity of special nuclear material transferred shall not at any time be in excess of the quantity necessary for the efficient and continuous operation of reactors or the conduct of reactor experiments, and the accomplishment of such other purposes as may be agreed. Any high-enriched uranium is not to be enriched to a higher level than the parties agree is necessary for the purposes noted above. The United States retains the right to require the return of excess high-enriched uranium. Small amounts of special nuclear material in the form of samples, standards, detectors, targets and other agreed purposes may also be transferred. Article 3 also provides that the United States

shall take actions as necessary and feasible to ensure a reliable supply of nuclear fuel to Sweden, including the export of nuclear material on a timely basis and the maintainance of capacity to provide enrichment services on a timely basis.

Article 4 contains a guarantee by each party that no material, equipment or components transferred pursuant to the agreement and no material used in or produced through their use, will be used for any nuclear explosive device or research on or development of any nuclear explosive device, and that no material, equipment or components transferred pursuant to the agreement or special nuclear material used in or provided through their use will be used for any military purpose. The agreed minute notes that military purpose does not include power for a military base drawn from the civil power network or production of radioisotopes to be used for diagnosis in a military hospital.

Article 5 provides that cooperation under the agreement shall require the application of International Atomic Energy Agency (IAEA) safeguards to all source or special nuclear material in all nuclear activities within Sweden, under its jurisdiction, or carried out under its control anywhere, and sets forth specific safeguards requirements applicable to material transferred to Sweden pursuant to the agreement, and to any

source or special nuclear material used in or produced through the use of material, equipment or components so transferred. Sweden's implementation of a safeguards agreement pursuant to article III(4) of the NPT shall be considered to fulfill these safeguards requirements. Article 5 also provides that source and special nuclear material transferred to the United States under the agreement and any source or special nuclear material used in or produced through the use of material, equipment or components so transferred shall be subject to the provisions of the U.S.-IAEA safeguards agreement.

If the United States or Sweden becomes aware of circumstances which demonstrate that the IAEA is not or will not be applying safeguards in accordance with that agreement, the parties agree that they shall, to ensure effective continuity of safeguards, immediately enter into arrangements which conform with IAEA safeguards principles and procedures and to coverage required under that agreement, which provide assurance equivalent to that intended to be secured by the system they replace. Safeguards under such arrangements are to be applied by the IAEA, unless either party considers that the IAEA is unable to apply such safeguards; in which case they are to be applied under bilateral arrangements. It is noted that the agreement does not affect IAEA, U.S. or Swedish rights under the U.S.-IAEA and Swedish-IAEA safeguards agreements.

Article 6 requires each party to maintain adequate physical security measures, in accordance with levels of protection set forth in the Annex to the agreement, with respect to all material and equipment subject to the agreement. The measures applied shall, as a minimum, provide protection comparable to that set forth in IAEA document INFCIRC/225/Rev 1 "Physical Protection of Nuclear Material", or in any revision of that document agreed to by the parties. The Annex describes physical security levels applicable with respect to the use, storage and transport of nuclear materials classified as Categories I (requiring the most stringent levels of protection), II and III. The parties agree to consult concerning the adequacy of these physical security measures.

Article 7 requires the parties' agreement (1) on facilities for the storage of plutonium and uranium 233 (except contained in irradiated fuel elements) or high-enriched uranium transferred pursuant to the agreement or used in or produced through the use of material or equipment so transferred; and (2) for the retransfer of any material, equipment or components so transferred and special nuclear material produced through the use of material or equipment so transferred. The agreed minute reflects the agreement of the parties that storage of

high-enriched uranium at Studsvik is approved so long as the standards and measures in articles 3, 5, 6 and 7 continue to be applied. The agreed minute contains the parties' agreement that low-enriched uranium in agreed quantities sufficient to meet the normal needs of Sweden's program may be transferred to facilities outside Sweden (specified by letter) for conversion, fabrication or other pre-irradiation processing other than further enrichment. Sweden is to maintain records, notify the United States of each transfer, obtain confirmation that while outside Sweden the low-enriched uranium will be subject to an agreement for cooperation with the United States, and notify the United States on return of the material to Sweden, at which time it is again subject to this agreement. The United States agrees to cooperate in efforts to obtain generic confirmation that such material will be subject to an agreement for cooperation with the United States.

Article 8 requires the parties' agreement (1) for the reprocessing of material transferred pursuant to the agreement and special nuclear material used in or produced through the use of any material or equipment so transferred, (2) for the alteration in form or content, except for irradiation and further irradiation, of plutonium, uranium 233, high-enriched uranium or irradiated source or special nuclear material so

transferred or used in or produced through the use of any material or equipment so transferred, and (3) for the enrichment to 20 percent or above of uranium so transferred or of any uranium used in any equipment so transferred.

The agreed minute states that the consent rights specified under articles 7 and 8 with respect to special nuclear material produced through the use of material transferred, and not used in or produced through the use of equipment transferred, shall in practice be applied to that proportion of produced special nuclear material which represents the ratio of transferred material used in its production to the total amount of material so used.

In the agreed minute the parties agree that limited quantities (specified by letter) of irradiated fuel elements may be subjected to testing and analysis. They also agree to any alteration in form or content incidental to compaction and encapsulation as part of a program of permanent disposition. They agree to reprocessing in the U.K. or France subject to conditions similar to those for pre-irradiation transfers under article 7. The parties agree to discuss return of plutonium to Sweden for use in the Swedish power program in the event of specific requests for return.

Article 9 provides that if an agreement between either party and another nation or group of nations provides such other

nation or group of nations rights equivalent to any or all of those set forth under articles 7 and 8 with respect to material, equipment or components subject to the agreement, the parties may agree that implementation of such rights will be accomplished by the other nation or group of nations.

Article 10 accords each party the rights to cease cooperation and to require the return of any material, equipment or components transferred under the agreement and any special nuclear material produced through their use if the other party does not comply with articles 4, 5, 6, 7 or 8, or materially breaches, terminates or abrogates a safeguards agreement with the IAEA. The United States shall have the same rights if Sweden detonates a nuclear explosive device. The parties agree to consult before exercise of these rights, to the extent time and circumstances permit. If these rights are exercised, the other party is to be reimbursed for the fair market value of returned material, equipment and components.

Article 11 provides for consultations at the request of either party regarding the implementation of the agreement.

Article 12 provides that the previous agreement, signed July 28, 1966, as amended, shall terminate on the date the present

agreement enters into force. It further stipulates that cooperation initiated under the previous agreement shall continue in accordance with the provisions of the new agreement and that provisions of the new agreement shall apply to material and equipment subject to the previous agreement.

Article 13 provides for amendment of the agreement.

Article 14 establishes a 30-year term for the agreement which may be extended if the parties agree, in accordance with their applicable requirements. In the event of suspension, termination or expiration of the agreement, articles 4, 5, 6, 7, 8 and 10 shall continue in effect as long as any material, equipment or components subject to those articles remains in the territory of the party concerned or under its jurisdiction or control, or until the parties agree that the material, equipment or components are no longer usable for any nuclear activity relevant from the point of view of safeguards.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D C. 20451

September 24, 1983

OFFICE OF
THE DIRECTOR

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Nuclear Proliferation Assessment Statement for the Proposed Agreement for Cooperation Between the United States and Sweden Concerning Peaceful Uses of Nuclear Energy

Pursuant to Section 123 a. of the Atomic Energy Act of 1954, as amended, I am submitting to you an unclassified Nuclear Proliferation Assessment Statement with respect to the proposed Agreement for Cooperation Between the United States and Sweden. After setting forth background on Sweden's nuclear policies (Part I), this statement describes how each of the applicable substantive requirements of the law are met (Part II). Part III of the statement discusses other non-proliferation policy issues and Part IV presents my conclusions.

I have concluded that the proposed Agreement meets all substantive statutory requirements. Further, I have reached a favorable assessment of the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the proposed Agreement to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose.

Sweden is a party to the Treaty on the Non-Proliferation of Nuclear Weapons and provides strong support to the major elements of U.S. non-proliferation policy. I am pleased that our peaceful nuclear cooperation has been placed on a firm long-term basis consistent with energy security and non-proliferation objectives.



Kenneth L. Adelman

Attachment:
As stated

September 24, 1983

NUCLEAR PROLIFERATION ASSESSMENT STATEMENT

Pursuant to Section 123 a. of the
Atomic Energy Act of 1954, as amended,
With respect to the Proposed
Agreement for Cooperation between the United States of
America and Sweden Concerning Peaceful Uses of Nuclear Energy

This Nuclear Proliferation Assessment Statement relates to the proposed Agreement for Cooperation between the United States of America and Sweden concerning Peaceful Uses of Nuclear Energy. This agreement for cooperation (which, together with its accompanying Agreed Minute, is hereinafter called the "proposed Agreement") is concurrently being submitted to the President for his authorization for execution.

Section 123 a. of the Atomic Energy Act of 1954, as amended ("Atomic Energy Act") provides that a Nuclear Proliferation Assessment Statement shall address the "adequacy of safeguards and other control mechanisms and the peaceful use assurances contained in the agreement for cooperation to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose." With this statutory mandate in mind, this assessment statement begins with background on the nuclear program and policies of Sweden (Part I); describes the nature and scope of cooperation contemplated in the proposed Agreement (Part II A), and reviews the applicable substantive requirements of the NNPA and the Atomic Energy Act and how they are met by the proposed Agreement (Part IIB); discusses other non-proliferation policy issues pertinent to this case (Part III); and then sets forth the net assessment, conclusions, views and recommendations of the United States Arms Control and Disarmament Agency, as contemplated by Section 123 a. of the Atomic Energy Act (Part IV).

I. Background

A. Sweden's Nuclear Program

Sweden has a very advanced peaceful nuclear program dedicated to research and to the production of electricity. They have several research reactors, the largest being the 50 MW(t) R-2 reactor located at Studsvik. This reactor is fueled with highly enriched uranium (HEU) and is used for materials testing, general research, and fuel testing.

Sweden's first large commercial power reactor went into operation in 1972 and to date they have six operational power reactors with six more planned to go on-line between now and 1986. The reactors currently producing power account for approximately 30% of the electricity generated in Sweden, one of the highest fractions in the world. Nine of these reactors are indigenous, and three are from the United States (Westinghouse). These reactors are fueled with low enriched uranium. Sweden has no facilities for enriching uranium and acquires its fuel principally from the US, and has one contract with the USSR. Sweden does have a commercial size fuel fabrication facility and fabricates its own fuel. Its uranium comes from Canada, the United States, Niger and Gabon. It has no reprocessing facilities and is building a central storage facility for spent power reactor fuel that is expected to begin receiving shipments in the mid-1980's. Approximately 10% of the total spent fuel from the 12 reactors will be sent to the UK and France for reprocessing under existing contracts. Sweden has no plans for breeder reactors and has not decided whether to use plutonium in its nuclear program. It seems unlikely that Sweden will go beyond its currently planned 12 power reactors.

In the mid-1970's the nuclear power program became a central issue in Swedish domestic politics. Following the oil embargo of 1973-74, the Swedish Government headed by Socialist Olaf Palme supported a vigorous expansion of nuclear power. However, in 1976 the first non-Socialist Government in 40 years was elected and was headed by Prime Minister Falldin, from the Center party, who had campaigned against nuclear power. By May 1977, the Swedish Parliament had passed a law requiring Swedish utilities to meet certain conditions before they could proceed further with the operation of additional nuclear power reactors. The utilities had to demonstrate to the government either that they had reprocessing contracts and that there were safe methods for disposing of high level waste from reprocessing, or alternatively that there were safe methods of disposing of spent fuel without reprocessing. This law and the internal political debate, including within the governing coalition, kept the nuclear

issue on the forefront of the national agenda. There were considerable pressures for continuing the program from outside and within the government. Falldin finally resigned over this issue in October 1978, giving way to a minority government headed by the Liberal party.

Elections were not planned until September 1979 and, in the interim, the minority government issued a short summary of Sweden's policy on reprocessing and plutonium use. It stated that Sweden had no plans to construct any reprocessing plants and had not yet decided on the recycle of plutonium through existing reactors. Uncertainty about plutonium usage resulted partially from the fact that the government had not yet determined whether the conditions of the 1977 law (see above) could be met. Swedish utilities had undertaken studies to demonstrate safe disposal of high level wastes or spent fuel, but the government had reached no conclusions on the studies. The policy statement indicated that no major decisions regarding choices for the back end of the fuel cycle (i.e. between reprocessing and disposal of spent fuel) were expected until the early 1980's. The government had approved a plan for the construction of a central facility for the storage of spent fuel.

The accident at Three Mile Island in the United States on March 30, 1979, caused additional tremors in Sweden's national debate and by the middle of 1979 there was a consensus among all parties that there should be a referendum on nuclear power early in 1980. The accident at TMI also contributed to a more cautious approach by the Socialist Party and Palme personally supported the referendum idea, which he had earlier opposed. The elections of September 1979 brought Falldin back to the Prime Minister's job and helped to set the stage for the debate leading up to the referendum, scheduled for March 23.

The referendum had three alternatives which were supported by different parties. Two of these alternatives were generally pro-nuclear (i.e. permit six on-line reactors to continue operation and complete construction of six planned reactors), and one was anti-nuclear (cease construction on six planned reactors and phase out six operational reactors within 10 years). The pro-nuclear alternatives jointly gained almost 60% of the vote in the referendum. It is now generally assumed that 12 power reactors will be the extent of Sweden's nuclear power program, and that nuclear power will be phased out of Sweden by 2010. At its maximum, this program will produce almost 50% of Sweden's electrical needs.

Socialist Olaf Palme is once again Sweden's Prime Minister and the nuclear debate has been somewhat muted since the 1980 referendum. The utilities have accepted the responsibility of finding acceptable means for disposing of nuclear wastes.

No decision has yet been made with regard to the use of plutonium in Sweden's nuclear power program. The storage capacity at existing Swedish reactors will be sufficient until 1985, and it is hoped that the central storage facility under construction will be ready to receive spent fuel by that time. Palme has proposed legislation that would affect the conditions act passed in 1977 -- principally by deleting any specific mention of reprocessing as one means for demonstrating spent fuel disposition. It appears the Socialist Government will honor existing reprocessing contracts, but there is little likelihood that there will be any further contracts.

B. Nuclear Cooperation with the United States

The United States and Sweden began cooperation in the nuclear area through an agreement for cooperation that was concluded in 1956. This agreement was superseded in 1966 when a new agreement was negotiated that established the basis for U.S. assistance to Sweden's nuclear power program. That agreement had a duration of 30 years and permitted the sale of power reactor fuel for up to 21 1000 MW(e) reactors. As noted earlier, while Sweden builds its own reactors, it acquires virtually all of its enrichment services from the United States, and these transfers take place pursuant to the 1966 agreement. A portion of Sweden's natural uranium requirements is also obtained from the United States. Sweden's principal research reactor, the R-2, is fueled with HEU obtained from the United States. There has been a long history of U.S. cooperation with Sweden's nuclear program.

The United States and Sweden have cooperated in recent years in an examination of whether the enrichment levels of the fuel used in the R-2 can be reduced. For several years the United States and other countries have been attempting to reduce the quantities of HEU in international commerce. HEU is weapons-usable material. Virtually all of the HEU used in peaceful applications around the world is used in research reactors. Many reactors that formally used HEU are now using LEU. The R-2, however, is not as easily convertible to the use of lower enriched fuel. It is a specially designed reactor for certain types of testing that to date has required the continued use of HEU. Research efforts are continuing on fuel fabrication techniques that hopefully will permit the use of lower enriched fuel in the R-2 at some point. For the present, the United States continues to provide HEU for the R-2 at the rate of 35 kilograms a year.

As required by the 1978 Nuclear Non-Proliferation Act, the United States approached those countries having agreements for nuclear cooperation with the United States indicating our desire to begin negotiations on upgrading these existing agreements. Sweden was approached in April 1978 and presented

the draft of a model agreement for cooperation. In August, Swedish authorities agreed to the United States' request to begin negotiations, but it was not until the spring of 1979 that the first round of negotiations was held. Sweden was aware that the purpose of the United States' request to renegotiate was to strengthen controls in all its agreements as a further protection against misuse of nuclear assistance for nuclear explosives. While Sweden was content with the provisions of the 1966 agreement, they agreed to such early negotiations in a spirit of cooperation with U.S. global efforts to strengthen controls against proliferation.

This first round of negotiations identified principal Swedish concerns with the agreement, and the United States provided a revised agreement later in 1979. This revision was responsive to many Swedish problems, but did not meet their concerns with regard to reprocessing as an alternative for spent fuel disposition. As noted in the previous section, one way for Swedish utilities to demonstrate their compliance with the 1977 conditions law -- which was necessary to obtain licenses to operate their reactors -- was to negotiate a contract for reprocessing (i.e. with the UK or France). Such a step was viewed by the utilities as the only available near-term approach to meeting the requirements of Sweden's domestic law. However, the United States had reprocessing consent rights over U.S.-origin fuel in Swedish reactors, and the policies of the United States at that time (1977-80) were to approve such reprocessing on a case-by-case basis and only when spent fuel congestion required the movement of some of the fuel. Swedish authorities believed that this U.S. approach to reprocessing would prevent Swedish utilities from demonstrating to the government that their reprocessing contracts with the UK and France indeed did meet the requirements of the conditions law. Sweden believed that some type of prior consent for reprocessing under these contracts was necessary.

In 1980, U.S. policy towards exercising our consent rights over reprocessing was under review in the aftermath of the conclusion of the International Nuclear Fuel Cycle Evaluation (INFCE) and negotiations with Sweden were deferred.

One of the major features of the policies of the Reagan Administration in 1981 was to develop a more predictable approach to exercising U.S. consent rights. Prior to a decision on this issue in mid-1982, there were three more rounds of discussions on the new agreement for cooperation -- including one detailed session where issues other than reprocessing consent were discussed. Finally, in August 1982, a clean text of the draft agreement was provided to Swedish authorities, including language that authorized prior U.S. approval for the transfer of spent fuel from Sweden to the UK and France for reprocessing. Following exchanges through

diplomatic channels, a final round of negotiations was held in early June of this year and an agreement was initialled on June 3, 1983.

C. Sweden's Non-Proliferation Policy

Sweden has been a traditional proponent of policies aimed at preventing the spread of nuclear explosives to additional countries. It was one of the early parties (1970) to the Nuclear Non-Proliferation Treaty (NPT), which continues today as the principal international mechanism against the spread of nuclear explosives. Sweden is one of the strongest proponents of the NPT. One of Sweden's most celebrated diplomats -- Noble Prize laureate Inga Thorsson -- was President of the first NPT Review Conference in 1975 and was instrumental in ensuring that a useful Final Declaration was adopted. Sweden is also one of the leading proponents of progress under Article VI of the NPT -- which requires the nuclear weapon states to undertake good faith negotiations on effective measures leading to nuclear disarmament.

Sweden is also a member of long standing in the International Atomic Energy Agency (IAEA), which is dedicated to the twin goals of sharing the peaceful uses of nuclear energy with all countries while ensuring the best possible safeguards to deter the diversion of nuclear material to military uses. Two of Sweden's most distinguished statesmen have served as Director General of the IAEA -- Sigvard Eklund who retired in 1981 after 20 years of leading this Agency, and the current Director General, Hans Blix, a former Foreign Minister of Sweden.

Sweden has also been in the forefront of countries recognizing the importance of adopting controls on nuclear exports to ensure against their misuse. Sweden is a member of the first such formal effort to ensure uniform nuclear export controls -- a committee of NPT nuclear exporters that met in the early 1970's to agree on which items could be exported only if any recipient non-NPT country agreed to accept IAEA safeguards on that item. In the mid-to-late 1970's, the UK chaired a gathering of major suppliers in London to consider more stringent controls in the wake of the Indian nuclear test of 1974. The so-called Nuclear Suppliers Group (NSG) Guidelines were published formally in 1978 and Sweden indicated its intention to abide by these common standards. In some respects, Sweden's nuclear export policies are more stringent than those agreed to by the NSG. For example, Sweden will only provide nuclear assistance to non-nuclear weapon states that are parties to the NPT. Sweden has been a strong supporter of U.S. efforts to urge all major suppliers to adopt a comprehensive safeguards policy, i.e. to enter into significant new nuclear supply commitments only with non-nuclear weapon states that have accepted IAEA safeguards on all their nuclear activities.

Sweden has also been responsive to U.S. efforts to prevent certain types of exports to countries posing major proliferation risks. Sweden understands that certain sensitive items should not be provided to some states and has been cooperative in consulting on these cases.

Sweden also played a leading role in INFCE as the co-chairman of the group examining alternatives for spent fuel disposition. This exemplified Sweden's recognition of the dual importance of solutions for spent fuel disposition -- from the perspective of the viability of national nuclear power programs as well as for non-proliferation.

Finally, as was noted in Section B, Sweden has been responsive to U.S. efforts to strengthen non-proliferation controls in the context of U.S.-Sweden civil nuclear cooperation. In particular, Sweden has been cooperative in efforts to examine the feasibility of lowering the enrichment level of the fuel used in the R-2 research reactor. Further, Sweden was willing to negotiate on a new nuclear cooperation agreement in the 1978-80 timeframe -- including on the sensitive issue of reprocessing -- even though they were embroiled in a domestic political controversy over the future of nuclear power that included reprocessing of Swedish spent fuel in the UK and France.

Excerpts from the principal Swedish address to the 1980 NPT Review Conference illustrate Sweden's non-proliferation policies:

"I...warmly welcome the states that have joined the NPT since the first Review Conference in 1975. Their adherence is an expression of a growing awareness that national and international security would suffer, should additional states acquire nuclear explosives. Still we have not yet achieved the goal of a 'fully universal NPT' as called for by the first Review Conference. It is vitally important that this consensus from 1975 be reaffirmed by this Conference. More countries must be encouraged to adhere to the NPT.

"Sweden for its part decided in the late 1960's that nuclear weapons would not be part of its national defense. This decision was freely arrived at. Our conclusion after extensive public debate was that Sweden's national security and defense interests would not be promoted by a nuclear arsenal of our own. This assessment was confirmed internationally through our ratification of the NPT.

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"... I consider it...absolutely necessary for this conference to call especially upon the two superpowers, who are, both of them, Depositary states of the NPT, to act in better accord with the Treaty. This should be done in no uncertain terms, in recognition of the fact that nuclear non-proliferation will always be a difficult and, in the end, even an impossible task as long as genuine nuclear disarmament has not been embarked upon.

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"...It is my sincere hope that this Conference will agree that full-scope safeguards should be required for exports to non-NPT parties. This would help eliminate what is in fact a quite unnecessary discrimination against NPT parties."

In summary, while Sweden on occasion has been a critic of U.S. arms control policies, it provides strong support to the major elements of international efforts against the spread of nuclear explosives.

II. COMPLIANCE WITH STATUTORY REQUIREMENTS

As shown below, the proposed Agreement meets all applicable requirements of the NNPA and the Atomic Energy Act.

Section 123 a. of the Atomic Energy Act, as amended by Section 401 of the NNPA, requires new or amended agreements for cooperation to include the terms, conditions, duration, nature and scope of the cooperation.

The nature and scope of the cooperation authorized by the proposed Agreement is described in Section A below.

The duration of the proposed Agreement is 30 years from its entry into force. Notwithstanding the suspension, termination or expiration of the proposed Agreement for any reason, certain specified articles will (as discussed below) continue in effect as long as any material, equipment or components subject to those articles remain in the territory of Sweden or under its jurisdiction or control anywhere or until such time as the parties agree that such material, equipment or components are no longer usable for any nuclear activity relevant from the point of view of safeguards (Articles 1(4) and 14 and the Agreed Minute (Coverage of Agreement)).

The most pertinent terms and conditions of the cooperation are discussed in Sections B, C, F and G of this Part below.

A. Nature and Scope of Cooperation

(1) Permitted Cooperation

Article 1 sets forth in general terms the scope of the cooperation envisaged, and paragraph 3 thereof sets forth a procedure with respect to such cooperation as follows:

"Material, equipment and components transferred from the territory of one party to the territory of the other party, whether directly or through a third country, will be regarded as having been transferred pursuant to the agreement only upon confirmation, by the appropriate government authority of the recipient party to the appropriate government authority of the supplier party, that such material, equipment or components will be subject to the agreement and that the proposed recipient of such material, equipment or components, if other than the party is an authorized person."

Nuclear material and equipment which under US law may be exported only under an agreement for cooperation are so designated in the licensing process, and confirmation that such items will be subject to the relevant agreement takes place at that time. The purpose of the above-quoted provision is to ensure that such nuclear exports are subject to the proposed Agreement and in addition to provide a procedure for bringing under the proposed Agreement other nuclear exports which the parties agree should be so transferred pursuant to the proposed Agreement.

All cooperation is subject to the general limitation in Article 5(1) which provides that cooperation under the proposed Agreement shall require the application of IAEA safeguards with respect to all nuclear activities in Sweden (See further discussion below).

Article 3 sets forth in more specific terms the scope of cooperation covered by the proposed Agreement. Article 3(2) permits the transfer of low enriched uranium ("LEU") (i.e., uranium enriched to less than 20% in the isotope 235) for use as fuel in reactors and in reactor experiments, for conversion or fabrication, including for third countries or for other mutually agreed purposes.

Article 3(3) permits the transfer of special nuclear material other than LEU, if the parties agree, for specified applications to meet energy security and non-proliferation objectives. Under this provision, as qualified by those described in the next two paragraphs, the United States could supply high enriched uranium ("HEU") (i.e., uranium enriched to 20% or greater in the isotope 235), plutonium, or uranium 233 to Sweden (For further discussion of this point, see Part III).

Although the proposed Agreement contains no specific ceiling on the amount of special nuclear material that can be exported to Sweden, Article 3(4) states that the quantity of special nuclear material transferred under the proposed Agreement shall not at any time be in excess of the quantity the parties agree is necessary for reactor loading or reactor experiments, including the efficient and continuous operation of such reactors or experiments, and for other mutually agreed purposes. These provisions should further ensure that unnecessary accumulation of US-supplied special nuclear material would not occur in Sweden.

With respect to HEU, Article 3(4) provides that if any accumulation of HEU occurs in Sweden in excess of what is needed for the stated purposes, the United States may require the return of any US-supplied HEU (including that in irradiated form) which contributes to such excess. In general, this is an important control mechanism for it enables the United States to ensure

that US supplied HEU will not contribute to any excess level of HEU in a recipient state.¹ Article 3(5) restricts the level of enrichment to that which the United States agrees is necessary for the purposes authorized in Article 3(4).

Article 3(6) authorizes the transfer of small amounts of special nuclear material for use as samples, standards, detectors, targets and other agreed purposes without being subject to the quantity limitation in Article 3(4).

Under Article 3(7) the United States is to take actions as may be necessary and feasible to ensure a reliable supply of nuclear fuel to Sweden and to ensure the availability of capacity to carry out the proposed Agreement.

(2) Types of Cooperation Not Authorized

The proposed Agreement excludes certain types of cooperation from its scope. Further it provides that amendment would be required for certain other types of cooperation. Thus:

(a) Article 1(5) provides that sensitive nuclear technology, sensitive nuclear facilities or major critical components² "may be transferred if provided for by an amendment to this agreement or by a separate agreement". This effectively constitutes a preclusion of such transfers under this proposed Agreement. The law does not require such a prohibition; but if such cooperation is authorized, the law requires that certain criteria be met in the agreement. If this were to be contemplated at any time in the future, additional control mechanisms would need to be obtained either in an amendment to the proposed Agreement or in a new agreement.

(b) Article 1(5) also provides that the United States shall not transfer Restricted Data³ under the proposed Agreement.

B. Specific Requirements for a New Agreement for Cooperation

Section 123 a. of the Atomic Energy Act provides that a new agreement for cooperation shall include nine specific requirements. These are quoted below, together with an explanation of how they are satisfied by the proposed Agreement.

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1. If exercised, Article 3(4) provides for payment to Sweden of the fair market value of the material and exempts any such HEU from application of the proposed Agreement after it is removed from Sweden.
 2. See definitions in Article 2(p), 2(o) and 2(f), respectively.
 3. See definition in Article 2(n).

(1) Safeguards and their Durability

Subparagraph (1) of Section 123 a. requires:

"a guaranty by the cooperating party that safeguards as set forth in the agreement for cooperation will be maintained with respect to all nuclear materials and equipment transferred pursuant thereto, and with respect to all special nuclear material used in or produced through the use of such nuclear materials and equipment, so long as the material or equipment remains under the jurisdiction or control of the cooperating party, irrespective of the duration of other provisions in the agreement or whether the agreement is terminated or suspended for any reason."

This provision is designed to require the application of safeguards with respect to items subject to the proposed Agreement and to provide protection against any termination of such safeguards. Articles 5 and 14(2) satisfy this requirement.

Article 5(2) of the proposed Agreement provides that the agreement signed April 14, 1975 between Sweden and the IAEA for the application of safeguards in connection with the NPT ("Norwegian NPT Safeguards Agreement") shall apply to material transferred to Sweden pursuant to the proposed Agreement and any "source or special nuclear material used in or produced through the use of any material, equipment or components so transferred...."

Further, Article 5(4) provides that if either party

"becomes aware of circumstances which demonstrate that the IAEA for any reason is not or will not be applying safeguards in accordance with the [Swedish NPT Safeguards Agreement], to ensure effective continuity of safeguards the parties shall immediately enter into arrangements which conform with IAEA safeguards principles and procedures and to the coverage pursuant to [Article 5(2) and (3)] and which provide assurance equivalent to that intended to be secured by the system they replace."

The Agreed Minute (Safeguards) provides the fallback safeguards which the United States may implement in the event that Article 5(4) becomes applicable. These safeguards would apply

to material or equipment transferred by the United States to Sweden or to any source or special nuclear material produced from or used in any material, equipment or components so transferred; and to any facility which is to use, fabricate or store any such material.

The Agreed Minute (Safeguards) also includes a guaranty by Sweden that it "shall take such measures as are necessary to maintain and facilitate the application of safeguards provided for under article 5."

The safeguards rights contained in the proposed Agreement continue in effect even if the Agreement terminates as required by the Act, since Article 14(2) provides that

"Notwithstanding the suspension, termination or expiration of this agreement or any cooperation hereunder for any reason, articles 4, 5, 6, 7, 8, and 10 [4] shall continue in effect so long as any material, equipment or components subject to these articles remain in the territory of the party concerned or under its jurisdiction or control anywhere, or until such time as the parties agree that such material, equipment or components are no longer usable for any nuclear activity relevant from the point of view of safeguards."

Moreover, Article 10 of the proposed Agreement provides that if either Party does not comply with the provisions of Articles 4, 5, 6, 7 or 8 of the proposed Agreement or "terminates, abrogates or materially violates a safeguards agreement with the IAEA," the other Party shall have the rights "to cease further cooperation under this agreement and to require the return of any material, equipment, or components transferred under this agreement and any special nuclear material produced through their use."

4. Thus, in addition to providing for the continuation of safeguards, Article 14(2) goes beyond the requirements of Section 123 a. by providing as a matter of policy for the continuation of other important controls contained in the proposed Agreement; viz., the requirements in Articles 7 and 8 for US approval regarding storage, retransfer, reprocessing, alteration or enrichment; the requirement in Article 6 that adequate physical security be maintained; the guaranty in Article 4 against military or explosive use; and the right of return in Article 10.

Three additional safeguards measures, not required by law to be included in agreements for cooperation, are contained in the Agreed Minute (Safeguards) of the proposed Agreement as follows:

It requires that with respect to source and special nuclear material subject to the proposed Agreement, Sweden shall maintain a system of accounting and control, the procedures of which shall be comparable to INFCIRC/153 (the IAEA document containing the terms used as a basis for NPT safeguards agreements).

It permits the United States to obtain information on the status of inventories of any material subject to safeguards as specified in article 5(2) and (3);

It provides that Sweden is to submit to the IAEA, in a timely fashion, design information of any new equipment required to be safeguarded under the proposed Agreement.

Although the first and third of the above provisions are obligations Sweden has undertaken by virtue of NPT adherence and are in the Swedish NPT Safeguards Agreement, their incorporation in the proposed Agreement establishes a bilateral commitment to the United States to undertake such actions and hence provide the means by which the United States could assist the IAEA in these areas. The US right to obtain information on the status of the inventory is important because it provides the basis by which the United States may obtain information on the inventory of source and special nuclear material subject to the proposed Agreement.

(2) Full-Scope Safeguards

Subparagraph (2) of Section 123 a. provides:

"in the case of non-nuclear-weapon states, a requirement, as a condition of continued United States nuclear supply under the agreement for cooperation, that IAEA safeguards be maintained with respect to all nuclear materials in all peaceful nuclear activities within the territory of such state, under its jurisdiction, or carried out under its control anywhere;"

Article 5(1) of the proposed Agreement meets this requirement by providing that cooperation under the proposed Agreement shall require the application of IAEA safeguards

"with respect to all source and special nuclear material in all nuclear activities within the territory of Sweden, under its jurisdiction[6] or carried out under its control anywhere. Implementation of the safeguards agreement pursuant to article III(4) of the NPT (i.e., the Swedish NPT Safeguards Agreement) shall be considered to fulfill the requirement stated in the foregoing sentence."

Since April 14, 1975, the Swedish NPT Safeguards Agreement has been in force, and under Article 1 of which Sweden undertakes

"to accept safeguards, in accordance with the terms of this Agreement, on all source or special fissionable material in all peaceful nuclear activities within its territory, under its jurisdiction or carried out under its control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices."

The purpose stated in the Swedish NPT Safeguards Agreement is that specified in Article III of the NPT. While this does not forbid non-explosive military uses, as discussed in subsection (3) below, Article 4 of the proposed Agreement includes a guaranty against use for any military purpose.

(3) No Military or Explosive Use

Subparagraph (3) of Section 123 a. requires:

"a guaranty by the cooperating party that no nuclear materials and equipment or sensitive nuclear technology to be transferred pursuant to such agreement, and no special nuclear material produced through the use of any nuclear materials and equipment or sensitive nuclear technology transferred pursuant to such agreement, will be used for any nuclear explosive device, or for research on or development of any nuclear explosive device, or for any other military purpose;"

6. Article 7(2) of the proposed Agreement contains a guaranty by Sweden that material, equipment, components or special nuclear material subject to the proposed Agreement and under its jurisdiction "shall not be transferred to unauthorized persons or, unless the parties agree, beyond its territorial jurisdiction." Accordingly, such items must remain subject to the jurisdiction of Sweden unless the United States approves transfer beyond such jurisdiction.

Article 4 meets this requirement wherein Sweden guarantees that:

"...no material, equipment or components transferred to and under its jurisdiction pursuant to this agreement and no material used in or produced through the use of any such material, equipment or components so transferred and under its jurisdiction shall be used for any nuclear explosive device, for research on or development of any nuclear explosive device.

Paragraph 2 of Article 4 meets this requirement regarding proscribing use for "any military purpose." [7]

There is no reference to sensitive nuclear technology because, as noted above, Article 1(5) of the proposed Agreement provides that an amendment is required before sensitive nuclear technology could be transferred under the proposed Agreement.

(4) Right of Return

Subparagraph (4) of Section 123 a. requires: "a stipulation that the United States shall have the right to require the return of any nuclear materials and equipment transferred pursuant thereto and any special nuclear material produced through the use thereof if the cooperating party detonates a nuclear explosive device or terminates or abrogates an agreement providing for IAEA safeguards;"

Article 10 of the proposed Agreement meets this requirement by providing that if Sweden detonates a nuclear explosive device, or terminates, abrogates or materially violates an IAEA safeguards agreement, the United States shall have the right to "require the return of any material, equipment or components transferred under this agreement and any special nuclear material produced through their use." [8] Article 10 also provides that this right of return is applicable if Sweden does not comply with the provisions of Articles 5, 6, 7 or 8 of the proposed Agreement.

7. The word "other" is not used to describe "military purpose" as is the case in Section 123 a.(3); however, there is no substantive difference.

8. This provision goes beyond the statutory requirements by including a right to require the return of any transferred component and special nuclear material produced through its use.

The mechanics for the implementation of this right of return are set forth in Article 10(3). Payment for the item removed would be made by the United States only after removal from Sweden. Also, once the right of return is exercised, the item would not be subject to the provisions of the proposed Agreement.

(5) Retransfer

Subparagraph (5) of Section 123 a. requires:

"a guaranty by the cooperating 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;"

Section 109 of the Atomic Energy Act requires that recipient nations also agree to obtain US approval before retransferring any components, items and substances exported from the United States which the Nuclear Regulatory Commission ("NRC") has found to be "significant for nuclear explosive purposes." The NRC has identified a series of such components, items and substances in regulations contained in 10 CFR Part 110 which are subject to this retransfer requirement.

Article 7(2) of the proposed Agreement satisfies both retransfer criteria of the Atomic Energy Act by providing a guaranty by Norway that material, equipment, or components transferred pursuant to the proposed Agreement and special nuclear material produced through the use of any such material or equipment, and under its jurisdiction, "shall not be transferred to unauthorized persons or, unless the parties agree, beyond its territorial jurisdiction." As noted above, Article 5(3) provides that Restricted Data shall not be transferred under the proposed Agreement; hence it is not referred to in Article 7(2).

The exercise of this control and certain others in the proposed Agreement is amplified by a provision in the Agreed Minute (Coverage of Agreement) which states that with respect to special nuclear material produced through the use of material transferred pursuant to the proposed Agreement, and not used in or produced through the use of any equipment so transferred, the exercise of the retransfer and other controls will be applied only to the proportion of special nuclear material produced which represents the ratio of transferred material used in such production to the total amount of material so used. This is the

principle of proportionality⁹ which is incorporated in the proposed Agreement. Thus, for example, irradiation of reactor fuel in a non-US reactor in Sweden only partially involving US material will not mean that US approval must be sought to re-transfer (or otherwise dispose of) all such spent fuel.

During the course of the negotiations, Sweden stated that occasionally it is necessary to retransfer outside Sweden low enriched uranium that has not been irradiated for further processing. They sought, and received in the Agreed Minute (Fuel Cycle Operations), permission for such retransfer. The Agreed Minute makes clear that such further processing does not include "further enrichment or permanent retention or use in a reactor outside Sweden." Further, the Agreed Minute requires that low enriched, unirradiated, uranium that is subject to retransfer will at all times be subject to the terms of the proposed Agreement or an agreement for cooperation with EURATOM or another country. In addition, the United States will at all times be aware of the location of the material in question. The Agreed Minute makes clear that approval granted for such retransfer "may be terminated in whole or in part if either party considers that exceptional circumstances from a non-proliferation or security standpoint so require." While traditionally consent for retransfer is given under the procedures governing subsequent arrangement set forth in Section 131 of the Atomic Energy Act, nothing in the Act precludes the granting of consent for retransfer in the agreement for cooperation itself. The procedural requirements and substantive findings that are required for an agreement for cooperation match or exceed those requirements applicable to subsequent arrangements as discussed in greater detail in Section II B(7) of this assessment statement. For the foregoing reasons, and those set forth in Section II B(7) it is concluded that the advance consent arrangement for retransfer to a facility subject to the U.S. agreement for cooperation of specified quantities of unirradiated low enriched uranium is consistent with requirements of the Atomic Energy Act.

9. This principle only applies to certain consent rights in the proposed Agreement and not to the basic obligations to maintain IAEA safeguards and not to engage in any military or explosive use of items subject to the proposed Agreement.

(6) Physical Security

Subparagraph (6) of Section 123 a. requires:

"a guaranty by the cooperating party that adequate physical security will be maintained with respect to any nuclear material transferred pursuant to such agreement and with respect to any special nuclear material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to such agreement;"

Article 6 of the proposed Agreement meets this requirement by providing a guaranty by Sweden that

"adequate physical protection shall be maintained with respect to any source material, special nuclear material and equipment transferred to and under its jurisdiction pursuant to this agreement, and with respect to any source material or special nuclear material used in or produced through the use of any material or equipment so transferred and under its jurisdiction.

With respect to the meaning of "adequate," Section 127(3) of the Atomic Energy Act, as added to the law by Section 305 of the NNPA, provides that physical security measures shall be deemed adequate if they provide a level of protection equivalent to that required by regulations promulgated by the NRC establishing levels of physical security (see NNPA Section 304(d)).¹⁰

The related Annex to the proposed Agreement contain implementing provisions, such as a description of the levels of physical security contemplated and measures to be taken. These provisions are consistent with the Guidelines for Nuclear Transfers published by the IAEA in February 1978 and the above-mentioned NRC regulations.

The Agreed Minute (Physical Protection) permits the United States to consult with Sweden concerning the adequacy of physical security measures in Sweden, and, in accordance with The Agreed Minute, the Swedish authorities responsible for physical security will be made known to the United States. These provisions will facilitate cooperation between the United States and Sweden on physical security matters of mutual interest, and will also enhance US ability to be assured as to the level of physical protection being maintained.

10. 10 CFR Part 110 Section 110.43 (May 19, 1979).

The proportionality provision in the Agreed Minute is inapplicable to Article 6.11

(7) Reprocessing, Enrichment or other Alteration

Subparagraph (7) of Section 123 a. requires:

"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;"

This criterion contains several restrictions. First, US approval must be obtained prior to any reprocessing of material supplied under a new or amended agreement or of any material produced from such material or produced or used in a production or utilization facility so supplied (e.g., a reactor). Second, such approval must be obtained for enrichment, after export, of any uranium supplied under a new or an amended agreement. Third, such approval must be obtained for any alteration of weapons useable material or irradiated nuclear material which has either been supplied under a new or an amended agreement or produced from such material or used in any such equipment so supplied.

Article 8 satisfies this criterion by providing the following guaranties by Sweden:

[Reprocessing]

"...material transferred to and under its jurisdiction pursuant to this agreement and any special nuclear material used in or produced through the use of any material or equipment so transferred and under its jurisdiction pursuant to this agreement shall be reprocessed only if the parties agree."

[Enrichment]

"...uranium transferred to and under its jurisdiction pursuant to this agree-

12. See discussion above at page II-10.

ment, and uranium used in any equipment so transferred and under its jurisdiction shall be enriched after transfer to twenty percent or greater in the isotope 235 only if the parties agree."

[Other Alteration]

"...any plutonium, uranium 233, high enriched uranium[12] or irradiated source or special nuclear material transferred to and under its jurisdiction pursuant to this agreement, or used in or through the use of any material or equipments transferred and under its jurisdiction, shall, with the exception of irradiation, be altered in form or content only if the parties agree."

In the course of the negotiation of the proposed Agreement, Sweden sought approval for the reprocessing of spent fuel covered by the foregoing guaranty.¹³ The conditions are set forth in the Agreed Minute (Spent Fuel Disposition) as follows:

The parties note their common interest in ensuring that their nuclear cooperation promotes the energy security of each party and their mutual non-proliferation objectives. In this regard, the parties agree that material subject to articles 7 and 8 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 any such transfers and shall upon shipment notify the United States of each transfer;

12. See definition in Article 2(d).

13. The Senate report favorably reporting S. 897 contemplates such negotiations. S. 897 as amended on the Senate floor became the NNPA. The report said: "Although the US may enter into an agreement at any time with a recipient nation setting forth conditions that would be required to obtain US approval for reprocessing, any such agreement should include sufficient flexibility to enable the US to respond to changed circumstances" Senate Report 95-467, p. 10-11 (Oct. 3, 1977)

- (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;
- (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. The parties will consult prior to any such termination, unless circumstances preclude such consultations, and always bearing in mind the need to avoid the disruption of nuclear trade and fuel cycle operations in the states concerned. 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.

These understandings concerning spent fuel disposition do not limit the right of the parties to agree to other activities envisaged in articles 7 and 8.

The United States notes that Sweden has expressed an interest in the future return of Swedish plutonium produced from U.S.-origin material from EURATOM to Sweden for use in the Swedish nuclear power program. The parties agree to consult at the request of either and make every effort to resolve such matters in a satisfactory and timely manner.

The advance approval for reprocessing of spent fuel subject to the proposed Agreement is limited to named facilities in the United Kingdom or France. The conditions for this advance approval will ensure that the United States is at all times aware of the location of the material in question. While the material is outside the Swedish jurisdiction, it will be subject to the agreement for cooperation between the United States and Euratom.

The material, therefore, will at all times be subject to an agreement for cooperation. The United States must give its agreement 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 territory of the United Kingdom or France back to Swedish territory. To give the United States the flexibility to respond to changed circumstances, the advance approval for reprocessing can be terminated immediately at any time the United States believes that exceptional circumstances from a non-proliferation or a security standpoint so require.

Sections 123 and 127 of the Atomic Energy Act require that the United States have reprocessing and retransfer approval rights. No provision of the Atomic Energy Act or the NNPA precludes the United States from granting such approvals in advance or for a specified duration or in any other manner limits the scope of such approvals.

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...."

The reference to "material proposed to be exported" makes clear consent for reprocessing may be granted prior to the export of any nuclear material which, following normal reactor operation, would not be reprocessed for five years or more. Therefore, it is clear that consent for reprocessing may be granted far in advance of the actual time that the material is to be reprocessed.

Section 131a(3) provides that expedited consideration will be given to requests for consent for reprocessing "when the terms and conditions for such action are set forth in [the] agreement for cooperation." This provision authorizes the U.S. to specify in the agreement for cooperation the condition that would have to be met for a subsequent approval of a request for reprocessing. There is no substantive difference between that and the Swedish agreement specifying approval for reprocessing contingent upon the continued compliance with those same conditions. In the situation posited by section 131a(3), the United

States would have given a commitment to the other Party that consent would be granted if certain conditions are met while in the situation provided in the proposed Agreement, Sweden may reprocess but only for so long as it complies with the established conditions.

Finally, Congressional review is not frustrated by setting forth advance consent for reprocessing in the proposed Agreement since Section 123 provides for a sixty-day review period of a new agreement for cooperation while Section 131 provides for only fifteen days for Congressional review of subsequent arrangements involving reprocessing. Moreover, the findings required by Section 123 for agreements for cooperation are comparable to those required by Section 131 for subsequent arrangements. It is, therefore, concluded that the provision of approval for reprocessing in the proposed Agreement is consistent with requirements of the Atomic Energy Act and the NNPA.

The enrichment control covers any degree of high enrichment and relates to uranium and not to other types of nuclear material since the usage of the term enrichment in this criterion of the law refers only to the increase of the isotope 235, in relationship to other uranium isotopes, beyond the amount which exists in nature. Any other "enrichment" of material not found in nature, such as uranium 233, could be controlled by the alteration provision which is discussed below. The enrichment control covers transferred uranium both before and after its irradiation and any uranium used in any transferred equipment. US consent for enrichment up to twenty percent will not be required with respect to material subject to the proposed Agreement.¹⁴

Another concern raised by Sweden during the course of the negotiations was their desire to conduct tests on fuel elements that include altering the form or content of the fuel elements. Furthermore, Sweden is investigating compaction and encapsulation of spent fuel elements for permanent storage. The Agreed Minute (Fuel Cycle Operation) states:

with regard to article 8(2), the parties agree that, without further agreement, limited quantities of fuel elements withdrawn from a reactor after irradiation may be altered in form or content in facilities within Sweden to the extent necessary for testing or analysis (including destructive

14. For a discussion of enrichment up to twenty percent, see discussion on pages II-19 and II-20.

analysis). The quantities of irradiated low enriched uranium contained in fuel elements being so altered are specified in the exchange of letters referred to above. As one means of carrying out permanent disposition of spent fuel in a safe and proliferation-resistant manner, Sweden intends to utilize a process involving compaction and encapsulation of spent fuel elements. The parties agree to any alteration in form which is incidental to such process when used for the purpose of such disposition in Sweden. No plutonium will be separated from the irradiated fuel elements, except upon agreement of the parties. Upon request of the United States, Sweden will notify the United States of the quantity of material involved and nature of such alterations.

The Agreed Minute also makes clear that this approval of alteration for testing or for permanent storage "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." The facts that the quantities to be altered for testing will be specified and that no plutonium will be separated are important guarantees for meeting our non-proliferation objectives. At any time, the U.S. may request Sweden to inform us of the quantity of material and the nature of the alteration. For the reasons discussed with respect to retransfer on page II-10 of this Assessment Statement and with respect to reprocessing on pages II-13 through II-16, it is believed that this advance approval in the proposed Agreement for altering irradiated fuel rods for testing or for permanent storage is consistent with the requirements of the Atomic Energy Act.

The controls in Article 8 are subject to the proportionality provisions in the Agreed Minute.¹⁴

(8) Storage

Subparagraph (8) of Section 123 a. requires:

" a guaranty by the cooperating party that no plutonium, no uranium 233, and no uranium enriched to greater than twenty percent in the isotope 235, transferred pursuant to the agreement for cooperation, or recovered from any source or special nuclear material so transferred or from any source or special nuclear material used in any production facility or utilization facility transferred pursuant to the agreement for cooperation, will be stored in any facility that has not been approved in advance by the United States;"

14. See discussion above at page II-10.

Article 7(1) of the proposed Agreement satisfies this requirement by providing a guaranty by Sweden that:

"...plutonium or uranium 233 (except as contained in irradiated fuel elements) or high enriched uranium transferred to and under its jurisdiction pursuant to this agreement, or used in or produced through the use of any material or equipment so transferred and under its jurisdiction, shall only be stored in a facility to which the parties agree.

The parenthetical phrase excluding plutonium or uranium 233 in irradiated fuel elements from the approval requirement of Article 5(1) is consistent with the storage criterion in the law, because the control is designed to cover material directly useable in nuclear explosives.¹⁵

The Agreed Minute (Coverage of Agreement) states that the parties intend to agree on a timely basis on storage arrangements. Consistent with the intent of the Act, the Agreed Minute states

It is understood that the agreement of the parties referred to in article 7(1) shall relate to safeguards, physical protection and similar non-proliferation considerations attendant upon the storage of uranium 233 or plutonium (except as contained in irradiated fuel elements) or high enriched uranium referred to in that article.

Finally, Sweden raised concerns about storage of high enriched uranium at the Studsvik research reactor. The Agreed Minute states:

The parties note that the United States has supplied high enriched uranium pursuant to the previous agreement for use as fuel at Sweden's Studsvik research reactor, and that it is Sweden's intention to obtain further fuel for this reactor from the United States pursuant to the agreement. In this connection, the parties agree pursuant to article 7(1) to the storage of such material at the Studsvik research facility, prior or subsequent to its irradiation there, so long as Sweden continues to apply standards and measures which, as at present, conform with articles 3, 5, 6 and 7.

15. Senate Report 95-467, pp. 22, 52-53 (October 3, 1977)

Article 3 limits the total amount of high enriched uranium in Sweden, article 5 requires safeguards and article 6 requires physical protection. So long as Sweden continues to conform with those standards, the U.S. has given approval for storage at Studsvik. For the reasons discussed with respect to retransfer on page II-10 of this Assessment Statement and with respect to reprocessing on pages II-13 through II-16, it is believed that this advance approval in the proposed Agreement for storage at Studsvik is consistent with the requirements of the Atomic Energy Act.

The storage control in Article 7(1) is subject to the proportionality provision in the Agreed Minute.¹⁶

(9) Sensitive Nuclear Technology

Subparagraph (9) of Section 123 a. requires:

"a guaranty by the cooperating party that any special nuclear material, production facility, or utilization facility produced or constructed under the jurisdiction of the cooperating party by or through the use of any sensitive nuclear technology transferred pursuant to such agreement for cooperation will be subject to all the requirements specified in this subsection."

Article 1(5) of the proposed Agreement provides that an amendment shall be required for any transfer of sensitive nuclear technology. Since the guaranty required by this criterion relates only to material or facilities produced or constructed through the use of sensitive nuclear technology transferred under the proposed Agreement, it is inapplicable to the proposed Agreement unless and until it is amended to provide for the transfer of such technology.

C. NNPA Section 402 -- Additional Requirements

Section 402(a) contains additional enrichment controls quoted and discussed below.

"Except as specifically provided in any agreement for cooperation, no source or special nuclear material hereafter exported from the United States may be enriched after export without the prior approval of the United States for such enrichment;"

16. See discussion above at page II-10.

Article 8(3) of the proposed Agreement, which deals with this restriction, is discussed above. By limiting the need to obtain US consent to enrichment of twenty percent or greater in the isotope 235, the United States is approving enrichment up to twenty percent of material subject to the proposed Agreement. Sweden does not have any enrichment capability; accordingly, in practice, US retransfer procedures will provide the opportunity for US control of such enrichment.

Section 402(a) further requires that:

"[N]o source or special nuclear material shall be exported for the purpose of enrichment or reactor fueling to any nation or group of nations which has, after the date of enactment of this Act, entered into a new or amended agreement for cooperation with the United States, except pursuant to such agreement."

As applied to the present case, this provision means that after entry into force of the proposed Agreement no US source or special nuclear material can be exported to Sweden for enrichment or reactor fueling except pursuant to the proposed Agreement. This will foreclose transfers of source material for such purposes outside an agreement for cooperation, which would otherwise be possible under Section 64 of the Atomic Energy Act.

Section 402(b) of the NNPA provides that:

"In addition to other requirements of law, no major critical component of any uranium enrichment, nuclear fuel reprocessing, or heavy water production facility shall be exported under any agreement for cooperation...unless such agreement for cooperation specifically designates such components as items to be exported pursuant to the agreement for cooperation."

As previously noted on page II-3 of this Assessment Statement, Article 1(5) of the proposed Agreement provides that there may be no transfer under the proposed Agreement of "sensitive nuclear facilities" -- which are defined in Article 2(o) to include uranium enrichment, reprocessing, and heavy water production facilities as well as facilities for the fabrication of nuclear fuel containing plutonium -- or "major critical components" as defined in Article 2(f), unless the proposed Agreement is amended.

D. NNPA Section 404 -- Relationship to Existing Agreement

The proposed Agreement results from a renegotiation of the agreement for cooperation between Sweden and the United States signed July 28, 1966, as amended, thus meeting the objective of Section 404(a) of the NNPA as applied to Sweden.

Section 404(a) contains three provisions with respect to the relationship of such a renegotiated agreement to the pre-existing agreement and transactions thereunder; the first two of which are as follows:

"To the extent that an agreement for cooperation in effect on the date of enactment of [the NNPA] with a cooperating party contains provisions equivalent to any or all of the criteria set forth in Section 127 of the [Atomic Energy] Act with respect to materials and equipment transferred pursuant thereto or with respect to any special nuclear material used in or produced through the use of any such material or equipment, any renegotiated agreement with that cooperating party shall continue to contain an equivalent provision with respect to such transferred materials and equipment and such special nuclear material.

* * * *

"To the extent that an agreement for cooperation in effect on the date of enactment of [the NNPA] with a cooperating party does not contain provisions with respect to any nuclear materials and equipment which have previously been transferred under an agreement for cooperation with the United States and which are under the jurisdiction or control of the cooperating party and with respect to any special nuclear material which is used in or produced through the use thereof and which is under the jurisdiction or control of the cooperating party, which are equivalent to any or all of those required for new and amended agreements for cooperation under Section 123 a. of the [Atomic Energy] Act, the President shall vigorously seek to obtain the application of such provisions with respect to such nuclear materials and equipment and such special nuclear material."

These requirements are satisfied by Article 12(2) of the proposed Agreement, which provides that: "The provisions of this agreement shall apply to material and equipment subject to the previous agreement." This includes both material and equipment that were transferred, used in, or produced through the use thereof and which is under the jurisdiction or control of Sweden. To facilitate such application, the Agreed Minute (Coverage of Agreement) declares that "the parties shall establish a list of ... material and equipment" subject to the existing agreement.

The third such requirement of Section 404(a) is as follows:

"Nothing in [the NNPA] or in the [Atomic Energy] Act shall be deemed to relinquish any rights which the United States may have under any agreement for cooperation in force on the date of enactment of [the NNPA]."

The rights of the United States under the proposed Agreement are in general more extensive than those provided for in the existing agreement for cooperation. While a few provisions of the existing agreement have no exact counterparts in the proposed Agreement, this does not amount to a relinquishment of rights attributable to any provision in the NNPA or the Atomic Energy Act.

E. NNPA Section 307 -- Conduct Resulting in Termination of Nuclear Exports

Section 307 added Section 129 to the Atomic Energy Act, which prohibits nuclear exports to nations which engage in certain proscribed activities. The activities in Section 129 are those which are directly related to weapons acquisition or which could have a weapons-related motivation. Based on all information of which ACDA is aware, it believes that there is no basis for a finding that Sweden has engaged in any of the types of conduct specified in Section 129.¹⁷

17. For a general discussion of the non-proliferation policy of Sweden, see Part I and Part III.

F. NNPA Section 309 -- Components, Items and Substances

Section 309 of the NNPA amended Section 109 of the Atomic Energy Act to authorize the NRC to determine that certain component parts, items and substances, because of their significance for nuclear explosive purposes, should be subject to its licensing authority. For such licenses, the NRC must find that the following criteria or their equivalent are met:

"(1) IAEA safeguards as required by Article III(2) of the [NPT] will be applied with respect to such component, substance, or item; (2) no such component, substance, or item will be used for any nuclear explosive device or for research on or development of any nuclear explosive device; and (3) no such component, substance or item will be retransferred to the jurisdiction of any other nation or group of nations unless the prior consent of the United States is obtained for such retransfer."

The NRC promulgated regulations on May 19, 1978 (10 CFR Part 110) which identified certain reactor components and two substances -- heavy water and nuclear grade graphite (moderator materials) -- the export of which would be subject to these criteria. In the case of Sweden the first two criteria are both met by reason of its status as a NPT party and because of the language in Articles 4 and 5. The third criterion (re-transfer) can be met by having components and moderator material identified as being exported under the proposed Agreement¹⁸, in which case Article 7(2) would apply.

18. The Atomic Energy Act does not require that such exports be transferred under an agreement for cooperation; however, they may be so transferred.

G. Multiple Supplier Controls

Article 9 of the proposed Agreement provides that if either party has an agreement with a third party which provides rights to such third party "equivalent to any or all of those set forth under Articles 7 or 8 with respect to material, equipment or components, subject to this agreement," then Sweden and the United States may agree to let one implement such rights the other has under the agreement with the third party. This provision does not derogate from US control rights in the proposed Agreement, but is an administrative arrangement to accommodate recipient nations by permitting them to obtain Swedish approval in the process of seeking US permission under Articles 7 or 8 or vice versa. Such arrangements are recognized in Section 126 of the Atomic Energy Act.

III. OTHER NON-PROLIFERATION POLICY ISSUES

Any decision by the United States to engage in nuclear cooperation with a given nation involves a number of non-proliferation policy considerations in addition to the legal rights, guarantees and safeguards contained in the applicable agreement for cooperation. These considerations could relate in a given case to such matters as scope and terms of the cooperation envisaged under such an agreement, the precedential implications of particular provisions of such an agreement, the degree to which extending nuclear cooperation may foster other non-proliferation efforts, the general role of the state concerned in non-proliferation efforts, and a number of other issues. These issues will vary from case to case. This section of the assessment statement addresses policy issues of this kind that specifically relate to the proposed Agreement.

A. Spent Fuel Disposition

The issue of spent fuel disposition is a subject of central importance to nuclear power programs. It also is of major interest with respect to non-proliferation, because one approach for dealing with spent fuel involves reprocessing. In reprocessing, the plutonium which has been produced through the irradiation of the nuclear fuel is separated from other material and waste products by chemical means. Plutonium is considered to be sensitive material since, like highly enriched uranium, it can be used in nuclear explosives. Or course, plutonium can also be used in peaceful nuclear programs, particularly for advanced reactors. While fully mindful of the need for particular caution in dealing with plutonium, the United States is seeking to grant certain U.S. nuclear trading partners more predictability in the exercise of U.S. consent rights over reprocessing and plutonium use by providing advanced long-term consent to such activities under certain conditions. This approach is available only to countries where such activities do not constitute a proliferation risk.

As was noted in Part I, Sweden has no plans for establishing its own reprocessing capability and has made no decision on using plutonium in its planned 12 power reactor program. However, Swedish utilities have entered into reprocessing contracts with the UK and France for approximately 10% of the spent fuel expected to be generated in its nuclear power program. The last such reprocessing contract was negotiated in 1978. Since negotiations began in 1979 on a new agreement for cooperation, Sweden has sought advance consent from the U.S. for transferring spent fuel to the UK and France for reprocessing -- under existing contracts or

others that may be entered into over the 30 year duration of the agreement. U.S. unwillingness in 1978-80 to consider providing advance consent for these reprocessing contracts placed us in direct conflict with the planning of Swedish utilities and made it more difficult for them to comply with Swedish domestic legal requirements for operating their power reactors. It is too soon to know whether there be any more such contracts. As mentioned in Part I, it does not appear that the present Socialist Government will approve any new reprocessing contracts.

Clearly, President Reagan's decision to offer advance long-term consent to certain countries with solid non-proliferation credentials was welcomed by Sweden. The Agreed Minute specifies that spent fuel subject to the agreement may be retransferred to the UK or France for reprocessing subject to certain conditions, two of which are particularly important. First, Sweden must retain legal control over any plutonium separated in the UK or France and must obtain U.S. consent prior to any further transfer to Sweden or any other country. Thus, the generic approval is limited to the transfer of the spent fuel to the UK and France; any use of the plutonium will be subject to further U.S. approval. The second key condition is that U.S. advance consent for this retransfer of spent fuel may be terminated "if either party considers that exceptional circumstances of concern from a non-proliferation or security standpoint so require." Sweden has also been informed that U.S. ability to offer such a long-term approval was predicated partly on the expectation of improved cooperation on non-proliferation matters.

As noted in Part II, this arrangement is consistent with statutory requirements. ACDA believes there is adequate protection of U.S. interests through our ability to terminate the arrangement under certain conditions, and through our continued control over any further disposition of the separated plutonium. Granting such an approval to Sweden does not create any unfavorable precedent. Sweden is precisely the type of country that deserves to benefit from this policy. And there is sufficient flexibility in this approach for the United States to reconsider the advance consent in the unlikely event of a material change in Sweden's non-proliferation policies.

The United States does not favor the unnecessary accumulation of plutonium or premature reprocessing, and is in favor of limiting the number of reprocessing facilities. The approach taken for Sweden simply permits a country with impeccable non-proliferation policies to carry out its existing reprocessing contracts in a predictable and orderly manner, and to have a similar option available in the future if considered necessary for spent fuel disposition. Swedish efforts to establish a central spent fuel storage facility indicate

that options other than reprocessing are also to be given serious consideration. Swedish utilities have considered the technical aspects of reprocessing and storage of high-level wastes from reprocessing and terminal storage of spent fuel.

This outcome for Sweden does not result in the creation of new reprocessing facilities, but permits the use of those that already exist. It will ensure the continued excellent cooperation of the Swedish Government on non-proliferation matters. Spent fuel disposition is a sensitive issue with many recipients of U.S. power reactor fuel that have good non-proliferation policies. The United States must recognize the importance of incorporating provisions in agreements for cooperation which allow these countries to manage their fuel cycles in a predictable manner consistent with energy security and non-proliferation objectives.

B. Other Fuel Cycle Activities

During the course of the negotiations, Swedish officials noted that U.S. consent rights over retransfer (Article 7(2)) and over alteration in form or content (Article 8(2)) of nuclear material would make it more difficult to carry out certain activities in their nuclear program. The Swedish officials indicated that these activities did not pose any proliferation risk and asked that the U.S. consider providing approval for these activities in the agreement. The arrangements agreed upon are contained in the Agreed Minute.

The first such activity concerns enriched uranium transferred from the U.S. for use in Sweden. It occasionally becomes necessary to retransfer such unirradiated fuel outside Sweden for further processing that was unforeseen at the time the export license was approved by the U.S.; thus, no U.S. approval was granted for this retransfer when the license was approved. Rather than having to seek another U.S. approval for such a retransfer, Sweden asked whether approvals for such retransfers could be included in the agreement. The U.S. agreed subject to an understanding that the fuel could not be further enriched or used or retained outside Sweden; and that the quantities and facilities outside Sweden would be specified in an exchange of letters. Sweden will also keep records of such retransfers and provide appropriate notification to the U.S.

The second such activity concerns Swedish desire to remove fuel elements from a reactor and conduct tests that may involve alteration in form or content of the fuel elements. The U.S. agreed to include approval of such activity in the agreement subject to an understanding that it would take place in Sweden and would involve limited quantities of fuel elements that would be specified in an exchange of letters.

Finally, Sweden also wished to have the agreement include U.S. consent to any alteration in form or content that may be necessary for Sweden to dispose permanently of spent fuel using a process involving compaction and encapsulation of the spent fuel elements. The U.S. agreed subject to an understanding that no plutonium would be separated from the fuel elements without U.S. consent, and that, upon U.S. request, Sweden would notify the U.S. of the quantities of material involved and the nature of any alteration.

As in the case of transferring spent fuel to the UK or France for reprocessing, these approvals may be terminated "if either party considers that exceptional circumstances of concern from a non-proliferation or security standpoint so require." ACDA believes that this is the type of flexibility in exercising U.S. consent rights that we must be prepared to provide for the nuclear programs of countries posing no proliferation risk. This approach permits the continued efficient operation of certain activities in Sweden's program, and sets no undesirable precedent given the unquestioned non-proliferation policies of Sweden. In any event, there is sufficient flexibility in this approach for the U.S. to reconsider this approval in the unlikely event there is a material change in Sweden's policies.

C. Scope of Cooperation/Weapons Usable Material

For the foreseeable future, exports under the agreement are likely to be limited to fuel for Sweden's reactors. The bulk of the transfers will be low enriched uranium for power reactors. Sweden builds its own reactors, and the agreement does not permit the transfer of sensitive nuclear technology or facilities.

The terms governing transfers of weapons-usable material (e.g. highly enriched uranium and plutonium) have been strengthened in the proposed Agreement. As noted earlier, Sweden has no present plans for using plutonium in its nuclear power program. Should such an eventuality arise, Sweden would likely seek to retransfer plutonium from the UK or France that had been separated from Swedish spent fuel. As noted earlier, U.S. consent would be required for such a retransfer.

Sweden does, however, use significant quantities of U.S.-origin HEU in its nuclear program (35 kilograms a year for the R-2 reactor). As noted in Part I, Sweden is cooperating in an examination of whether this reactor can use fuel of lower enrichments. While there has been considerable progress in developing fuels to be used in reactors that previously used HEU fuel, the R-2 is of special design and requires very high reactivity levels. It is not known when or if this reactor will be able to use lower enriched fuel.

Until such time, the U.S. will continue to provide HEU for the reactor in the context of existing export policy -- which includes a technical and economic justification for using HEU as well as efforts to keep the amount of inventory to a minimum.

D. Safeguards Considerations

As mentioned above, transfers under the proposed Agreement will likely be limited in the near term to enriched uranium fuel for power and research reactors. On the basis of its close familiarity with the IAEA safeguards system and its implementation with respect to such fuel, ACDA is confident that the IAEA safeguards applied to the nuclear material subject to the proposed Agreement can provide reasonable assurance regarding its continued peaceful non-explosive use. All peaceful nuclear activities in Sweden are safeguarded pursuant to the Swedish NPT Safeguards Agreement which entered into force in 1975. The Government of Sweden has consistently been a strong supporter of IAEA safeguards. Based on all information of which ACDA is aware, it has no reason to question Sweden's attitude toward safeguards, its cooperation with the IAEA in applying safeguards, or its compliance with all of its past and present safeguards obligations.

As a general point, the United States will continue to urge and assist the IAEA to examine critically the implementation of safeguards in order to enhance their effectiveness. Further, ACDA believes the licensing procedures under the Atomic Energy Act are fully sufficient to ensure that exports will be made only if the United States is satisfied with the adequacy of safeguards and other relevant controls.

E. NPT Considerations

Universal adherence to the NPT continues to be a major U.S. foreign policy goal and a cornerstone of its non-proliferation policy. Our ability to persuade countries to become parties to the NPT -- and to convince NPT parties that the United States is abiding by Article IV of the Treaty (dealing with nuclear cooperation) -- will be affected by the record of performance of the United States in giving special emphasis to NPT adherence in relation to peaceful nuclear cooperation. Sweden's strong support for the NPT is evidenced by its being among the first countries to adhere; by its continued support for promoting additional adherence; and by its commendable practice of exporting nuclear material only to NPT parties (which makes Sweden's export policies among the most stringent of any nuclear supplier).

F. Other Considerations

When assessing non-proliferation factors in connection with a civil nuclear cooperation agreement, it is appropriate to go beyond the specific terms of such an agreement to also consider a country's general non-proliferation credentials. Foremost among these is whether a state has undertaken a binding international obligation not to acquire nuclear weapons. As noted above, Sweden has been an NPT party since January 9, 1970, and was one of the first countries to undertake such an obligation. Sweden has also been an active member of the IAEA and has evidenced its support for non-proliferation in international meetings and bilateral consultations (see Part I). Sweden has also been responsive to U.S. concerns over certain sensitive nuclear export cases.

Sweden has followed a policy of political neutrality and has had good relations with the United States, although there were tensions during the Viet-Nam period. Sweden enjoys generally good relations with its neighbors, except for recent tensions with the Soviet Union due to the presence of Soviet submarines in Swedish waters. The Soviet Union poses the only discernible potential external threat to Sweden's security.

Sweden has an advanced nuclear program and while it has no enrichment or reprocessing facilities, it possesses the scientific and technical capacity to develop such facilities and to design and build nuclear weapons. However, Sweden chose not to develop nuclear weapons and in 1970 converted this commitment to a treaty obligation by becoming a party to the NPT. Over the years Sweden has earned the respect of the international community for its leadership in the field of disarmament and its strong stand against the acquisition of nuclear weapons.

IV. CONCLUSION

On the basis of the analysis in this assessment statement and all pertinent information of which the Agency is aware, the United States Arms Control and Disarmament Agency has arrived at the following assessment, conclusions, views and recommendations:

1. 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.
2. The proposed Agreement meets all the substantive requirements of the Atomic Energy Act and the NNPA.
3. Execution of the proposed Agreement would be compatible with the non-proliferation program, policy and objectives of the United States.
4. It is recommended that the President determine that the performance of the proposed Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security; and that the President approve and authorize the execution of the proposed Agreement.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

September 24, 1983

OFFICE OF
THE DIRECTOR

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Proposed Agreement for Cooperation Between the United States and Sweden Concerning Peaceful Uses of Atomic Energy

Pursuant to Section 123 a. of the Atomic Energy Act of 1954, as amended, I am submitting to you my views and recommendations with respect to the proposed Agreement for Cooperation between the United States and Sweden. ACDA has participated in the development of this agreement. The Nuclear Proliferation Assessment Statement required by the Act is being transmitted to you separately.

Sweden is a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and has a strong non-proliferation policy. It recognizes the importance of International Atomic Energy Agency safeguards and has urged non-nuclear-weapon states to place all their nuclear activities under such safeguards. Sweden has also been cooperative in certain sensitive nuclear export cases.

This will be one of the first agreements for nuclear cooperation to be submitted to the Congress that provides for advance long-term consent to transfer spent reactor fuel to France and the UK for reprocessing. Spent fuel disposition is a sensitive issue with many countries. For those recipients of U.S. power reactor fuel with strong non-proliferation policies, it is important to include provisions which allow them to manage their fuel cycles in a predictable manner consistent with non-proliferation objectives.

The Agreement's provisions on advance consent for spent fuel to be reprocessed in the UK and France are consistent with statutory requirements, and with U.S. nuclear cooperation and non-proliferation policy objectives. U.S. interests are protected through our continued control over any further disposition of the separated plutonium and through our ability to reconsider or terminate the advance consent under certain conditions, such as a material change in circumstances. Granting this approval to Sweden does not create any unfavorable precedent. Sweden -- an NPT party that poses no proliferation risk -- is precisely the type of country for which this policy is designed.

This approach permits Sweden to carry out its existing reprocessing contracts in a predictable manner, and to have this option available in the future if necessary. Swedish efforts to establish a central spent fuel storage facility indicate that options other than reprocessing will be seriously considered. This approach also can enhance the U.S. position as a reliable nuclear trading partner and contribute to our ability to cooperate with Sweden on sensitive country problems.

The Agreement also provides advance consent to certain other activities (e.g. alteration of fuel prior to permanent disposal) subject to notification and other requirements, and subject to reconsideration or termination under certain conditions. This again exemplifies the flexibility which we can and should exercise to resolve practical problems of nuclear cooperation with countries that strongly support non-proliferation.

The Agreement permits the continued export of significant quantities of U.S.-origin highly enriched uranium to fuel the Studsvik research reactor. This cooperation is consistent with our policy requiring a technical and economic justification for use of this sensitive material, as well as efforts to minimize in-country inventories. Sweden is also cooperating in examining whether this reactor can use lower enriched fuel.

The proposed Agreement meets all the substantive requirements of the Atomic Energy Act and the Nuclear Non-Proliferation Act of 1978, and its execution would be compatible with the non-proliferation policy of the United States. I recommend that you determine that its performance will promote, and will not constitute an unreasonable risk to, the common defense and security; and that you approve and authorize the execution of the Agreement.



Kenneth L. Adelman



CHAIRMAN

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 12, 1983

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

In view of the advanced state of negotiations on this proposed agreement and the nonproliferation credentials of the country involved, the U. S. Nuclear Regulatory Commission does not object to the proposed Agreement for Cooperation with Sweden, including the accompanying proposed "Agreed Minute" and exchange of letters with Sweden as forwarded to the Commission by the Department of State on June 21, 1983. However, the Commission is concerned about certain provisions of this Agreement and has the following comments.

The Commission is concerned about the precedential aspects of the provision in the proposed agreement which gives Sweden generic authority to enrich U.S.-supplied uranium up to 19.9 percent in the isotope U-235. As recognized in the Nuclear Nonproliferation Act of 1978, reprocessing and enrichment activities are equally sensitive from a proliferation standpoint. The Commission is concerned about the proliferation implications of this enrichment provision, particularly since it might imply U.S. acceptance of any future Swedish plans to construct an enrichment facility capable of enriching to 19.9 percent, which constitutes over 90 percent of the separative work unit effort required to produce high-enriched uranium. Approval of this provision for Sweden, particularly since it has no current domestic enrichment plans, might make it more difficult for the United States to resist its inclusion in future agreements, perhaps with countries having less acceptable nonproliferation credentials.

Consequently, the Commission is concerned that the Executive Branch has not to date established guidelines for approving the enrichment of U.S. material abroad. The Commission therefore recommends that the Executive Branch establish appropriate policy guidelines before generic enrichment authority is incorporated in any future proposed agreements.

Also, as indicated in previous letters to you concerning other Agreements for Cooperation, the Commission believes that it would have been desirable to include more specific language in the Agreement concerning the provision of information on safeguards implementation and the Swedish state system of accounting and control, and continues to believe that the Executive Branch should seek such language in negotiating new or amended agreements with other countries.

Commissioners Gilinsky and Asselstine are also concerned by the precedential aspects of including an authorization to reprocess spent fuel of U.S.-origin in a 30-year Agreement for Cooperation. Granting such an authorization in a long-term international agreement may unduly constrain future U.S. policy on reprocessing and adversely affect the national security. The U.S. policy on reprocessing has changed in the past and may well change again within the 30-year period of an Agreement for Cooperation. Instead of attempting to incorporate present policy into the Agreement, the U.S. should secure approval rights over reprocessing in the Agreements and retain the flexibility to make a separate policy decision on how those rights will be exercised.

Sincerely,



Nunzio J. Palladino

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