

THE NUCLEAR NON-PROLIFERATION TREATY

ORIGIN AND IMPLEMENTATION

1959-1979

Volume III

by

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ERRATA

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increase in the number of States Parties to the NPT from 95 before the convening of the NPT Review Conference in 1975 to 112 as of 1 January 1980? Most of these States have no or insignificant nuclear activities in their territory. Some of them hope that their adherence to the NPT would render some nuclear supplier States more amenable to assist them in the field of transfer of nuclear technology. Some others feel that as long as they have to submit to international safeguards, it is easier to accept them under the umbrella of the NPT rather than as a direct result of a bilateral agreement. On the other hand, what is more significant is that none of the reticent, potential nuclear-weapon Powers or the so-called Threshold States has adhered or expected to adhere to the NPT such as Argentina, Brazil, India, Israel, Pakistan and South Africa.

The forthcoming NPT Review Conference to be held in Geneva in August-September 1980 is one additional reason instigating a number of States to accelerate their adherence to the NPT, so as to participate fully in its deliberations and in formulating its results. At the end of 1979 some States which had signed but had not yet ratified the NPT were known to be taking steps towards ratification.

It is hoped that the 1980 Conference would give more thought to the two loop-holes in Articles I and II referred to above, as well as to the shortcomings of Article III. International safeguards should be applied at least to all the peaceful nuclear activities of the nuclear-weapon States Party to the NPT; all transfers of nuclear material to nuclear-weapon States should be subject to IAEA safeguards; and special inspections in case of suspicion that prohibited activities under Articles I and II are taking place should be provided for in the IAEA NPT safeguards system.

If the NPT is to survive, special attention should also be given by the nuclear-weapon States to the needs of the non-nuclear-weapon States in the field of peaceful uses of nuclear energy. The military potential of the peaceful atom should no longer be invoked to hold back nuclear assistance

to non-nuclear-weapon States, as long as such assistance is provided subject to international safeguards.

With regard to future complementary measures to the NPT, four measures appear to be of paramount and immediate importance. They are a comprehensive test-ban treaty, a complete cessation of the strategic arms race, a convention on the non-use of nuclear weapons against non-nuclear-weapon States, and the establishment of nuclear-weapon-free zones. The first and last of these measures deserve special attention in the light of the Indian explosion of May 1974.

The Indian explosion might have never taken place if a comprehensive test-ban Treaty would have been reached some time ago. Now that India exploded a "peaceful nuclear device," it is most urgent to conclude such a treaty whereby India and the nuclear-weapon States may proceed to carrying out peaceful nuclear explosions as exceptions and only under international observation to make sure that explosions are not carried out to serve military ends. Such a measure would partially contribute to the cessation of the nuclear arms race on the one hand, and help to maintain the Indian programme "peaceful", on the other hand. It would also appease the worries of India's rivals in the Asian scene.

The establishment of nuclear-weapon-free zones offers advantages which cannot otherwise be obtained through a universal instrument such as the NPT. The comparison already made between the provisions of the NPT and those of the Treaty of Tlatelolco clearly demonstrates this fact.

To conclude, if the further proliferation of nuclear weapons is to be really averted, the nuclear-weapon States have to take the first step in de-emphasising the role and importance of nuclear weapons as an instrument of policy. A reversal of the nuclear arms race is needed if humankind is to live in a more secure world.

APPENDIX 1

The Irish Resolution*

The General Assembly,

Recalling its resolutions 1380 (XIV) of 20 November 1959 and 1576 (XV) of 20 December 1960,

Convinced that an increase in the number of States possessing nuclear weapons is growing more imminent and threatens to extend and intensify the arms race and to increase the difficulties of avoiding war and of establishing international peace and security based on the rule of law,

Believing in the necessity of an international agreement, subject to inspection and control, whereby the States producing nuclear weapons would refrain from relinquishing control of such weapons to any nation not possessing them and whereby States not possessing such weapons would refrain from manufacturing them,

1. Calls upon all States, and in particular upon the States at present possessing nuclear weapons, to use their best endeavours to secure the conclusion of an international agreement containing provisions under which the nuclear States would undertake to refrain from relinquishing control of nuclear weapons and from transmitting the information necessary for their manufacture to States not possessing such weapons, and provisions under which States not possessing nuclear weapons would undertake not to manufacture or otherwise acquire control of such weapons;

2. Urges all States to co-operate to those ends.

* GA Res. 1665(XVI), 4 Dec. 1961. GAOR, 16th Sess., Anns., a.i. 81, p. 3.

APPENDIX 2

The Five Principles*

The General Assembly,

Conscious of its responsibility under the Charter of the United Nations for disarmament and the consolidation of peace,

Mindful of its responsibility in accordance with Article 11, paragraph 1, of the Charter, which stipulates that the General Assembly may consider the general principles of co-operation in the maintenance of international peace and security, including the principles governing disarmament and the regulation of armaments, and may make recommendations with regard to such principles to the Members or to the Security Council or to both,

Recalling its resolutions 1665 (XVI) of 4 December 1961 and 1908 (XVIII) of 27 November 1963,

Recognizing the urgency and great importance of the question of preventing the proliferation of nuclear weapons,

Noting with satisfaction the efforts of Brazil, Burma, Ethiopia, India, Mexico, Nigeria, Sweden and the United Arab Republic to achieve the solution of the problem of non-proliferation of nuclear weapons,¹ as contained in their joint memorandum of 15 September 1965,

Convinced that the proliferation of nuclear weapons would endanger the security of all States and make more difficult the achievement of general and complete disarmament under effective international control,

1 See Official Records of the Disarmament Commission, Supplement for January to December 1965, document DC/227, annex 1, sect. E.

* GA Res. 2028(XX), 19 Nov. 1965. GAOR, 20th Sess., Anns. (Vol. III), a.i. 106, p. 5.

Noting the declaration adopted by the Assembly of Heads of State and Government of the Organization of African Unity at its first regular session, held at Cairo in July 1964,² and the Declaration entitled "Programme for Peace and International Cooperation" adopted by the Second Conference of Heads of State or Government of Non-Aligned Countries, held at Cairo in October 1964,

Noting also the draft treaties to prevent the proliferation of nuclear weapons submitted by the United States of America³ and the Union of Soviet Socialist Republics (A/5976), respectively,

Noting further that a draft unilateral non-acquisition declaration has been submitted by Italy,⁴

Convinced that General Assembly resolutions 1652 (XVI) of 24 November 1961 and 1911 (XVIII) of 27 November 1963 aim at preventing the proliferation of nuclear weapons,

Believing that it is imperative to exert further efforts to conclude a treaty to prevent the proliferation of nuclear weapons,

1. Urges all States to take all steps necessary for the early conclusion of a treaty to prevent the proliferation of nuclear weapons;

2. Calls upon the Conference of the Eighteen-Nation Committee on Disarmament to give urgent consideration to the question of non-proliferation of nuclear weapons and, to that end, to reconvene as early as possible with a view to negotiating an international treaty to prevent the proliferation of nuclear weapons, based on the following main principles :

(a) The treaty should be void of any loop-holes which might permit nuclear or non-nuclear Powers to proliferate, directly or indirectly, nuclear weapons in any form;

(b) The treaty should embody an acceptable balance of mutual responsibilities and obligations of the nuclear and non-nuclear Powers;

2 For the resolution entitled "Denuclearization of Africa" adopted by the Assembly of Heads of State and Government, see Official Records of the General Assembly, Twentieth Session, Annexes, agenda item 105, document A/5975.

3 See Official Records of the Disarmament Commission, Supplement for January to December 1965, document DC/227, annex 1, sect. A.

4 Ibid., sect. D.

(c) The treaty should be a step towards the achievement of general and complete disarmament and, more particularly, nuclear disarmament;

(d) There should be acceptable and workable provisions to ensure the effectiveness of the treaty;

(e) Nothing in the treaty should adversely affect the right of any group of States to conclude regional treaties in order to ensure the total absence of nuclear weapons in their respective territories;

3. Transmits the records of the First Committee relating to the discussion of the item entitled "Non-proliferation of nuclear weapons", together with all other relevant documents, to the Eighteen-Nation Committee for its consideration;

4. Requests the Eighteen-Nation Committee to submit to the General Assembly at an early date a report on the results of its work on a treaty to prevent the proliferation of nuclear weapons.

APPENDIX 3 A

Treaty on the Non-Proliferation of Nuclear Weapons

The American Draft Treaty of 17 August 1965*

The Parties to this Treaty,

Desiring to promote international peace and security,

Desiring in particular to refrain from taking steps which will extend and intensify the arms race,

Believing that the further spread of nuclear weapons will jeopardize these ends,

Recalling that Resolution 1665 (XVI) of the General Assembly of the United Nations urges all States to co-operate for these purposes,

Desiring to achieve effective agreements to halt the nuclear arms race, and to reduce armaments, including particularly nuclear arsenals,

Reaffirming their determination to achieve agreement on general and complete disarmament under effective international control,

Have agreed as follows :

ARTICLE I

1. Each of the nuclear States Party to this Treaty undertakes not to transfer any nuclear weapons into the national control of any non-nuclear State, either directly, or indirectly through a military alliance, and each undertakes not to take any other action which would cause an increase in the total number of States and other organizations having independent power to use nuclear weapons.

2. Each of the nuclear States Party to this Treaty undertakes not to assist any non-nuclear State in the manufacture of nuclear weapons.

* DCOR, Suppl. for Jan. to Dec. 1965, Doc. DC/227, Ann. 1, Sec. A(ENDC/152, 17 Aug. 1965).

ARTICLE II

1. Each of the non-nuclear States Party to this Treaty undertakes not to manufacture nuclear weapons; each undertakes not to seek or to receive the transfer of such weapons into its national control, either directly, or indirectly through a military alliance; and each undertakes not to take any other action which would cause an increase in the total number of States and other organizations having independent power to use nuclear weapons.

2. Each of the non-nuclear States Party to this Treaty undertakes not to seek or to receive assistance in the manufacture of nuclear weapons, or itself to grant such assistance.

ARTICLE III

Each of the States Party to this Treaty undertakes to co-operate in facilitating the application of International Atomic Energy Agency or equivalent international safeguards on all peaceful nuclear activities.

ARTICLE IV

In this Treaty

(a) -- "nuclear State" means a State possessing independent power to use nuclear weapons as of _____ (date);

(b) "non-nuclear State" means any State which is not a nuclear State.

ARTICLE V

1. This Treaty shall be open to all States for signature. Any State which does not sign this Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics, and the United States of America, which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force on the deposit of instruments of ratification by _____ (a certain number of) governments, including those of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics, and the United States of America.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding states of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Treaty, and the date of its entry into force.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

ARTICLE VI

1. This Treaty shall remain in force indefinitely subject to the right of any Party to the Treaty to withdraw from the Treaty if it decides that extraordinary events related to the subject matter of the Treaty have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other signatory and acceding States and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

2. _____ years after the entry into force of this Treaty, a conference of parties may be held at a date and place to be fixed by agreement of two-thirds of the parties in order to review the operation of the Treaty.

ARTICLE VII

This Treaty, of which the Chinese, English, French, Russian, and Spanish texts are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in triplicate at the city of _____, the _____ day of _____, one thousand nine hundred and _____.

APPENDIX 3 B

The Soviet Draft Treaty of 24 September 1965*

The States concluding this Treaty (hereinafter referred to as "the Parties to the Treaty"),

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,

In conformity with the resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Desiring the earliest possible attainment of agreement on the complete prohibition and elimination of all types of nuclear weapons within the framework of general and complete disarmament under strict international control,

Desiring to further the easing of international tension and the strengthening of trust between States, thus facilitating the conclusion of a treaty on general and complete disarmament,

Have agreed as follows :

ARTICLE I

1. Parties to the Treaty possessing nuclear weapons undertake not to transfer such weapons in any form - directly or indirectly, through third States or groups of States - to the ownership or control of States or groups of States not possessing nuclear weapons and not to accord to such States or groups of States the right to participate in the ownership, control or use of nuclear weapons.

The said Parties to the Treaty shall not transfer nuclear weapons, or control over them or over their emplacement and use, to units of the armed forces or military personnel of States not possessing nuclear weapons, even if such units or personnel are under the command of a military alliance.

* GAOR, 20th Sess., Anns. (Vol. III), a.i. 106, Doc. A/5976, 24 Sept. 1965.

2. Parties to the Treaty possessing nuclear weapons undertake not to provide assistance - directly or indirectly, through third States or groups of States - to States not at present possessing nuclear weapons in the manufacture, in preparation for the manufacture or in the testing of such weapons and not to transmit to them any kind of manufacturing, research or other information or documentation which can be employed for purposes of the manufacture or use of nuclear weapons.

ARTICLE II

1. Parties to the Treaty not possessing nuclear weapons undertake not to create, manufacture or prepare for the manufacture of nuclear weapons either independently or together with other States, in their own territory or in the territory of other States. They also undertake to refrain from obtaining nuclear weapons in any form - directly or indirectly, through third States or groups of States - for purposes of ownership, control or use and shall not participate in the ownership, control or use of such weapons or in testing them.

The said Parties to the Treaty shall not seek to acquire control over nuclear weapons or over their emplacement and use for units of their armed forces or personnel thereof, even if such units or personnel are under the command of a military alliance.

2. Parties to the Treaty not possessing nuclear weapons undertake not to obtain or seek to obtain, from States possessing nuclear weapons, assistance in the manufacture of such weapons or relevant manufacturing, research or other information or documentation which can be employed for purposes of the manufacture or use of nuclear weapons.

ARTICLE III

The Parties to this Treaty shall refrain from offering any support, encouragement or inducement to States seeking to own, manufacture or exercise control over nuclear weapons.

ARTICLE IV

1. Any Party may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments, which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one third or more of the Parties, the Depositary Governments shall convene a conference, to which they shall invite all the Parties, to consider such amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all Parties possessing nuclear weapons. The amendment shall enter into force for all Parties upon the deposit of instruments of ratification of all Parties possessing nuclear weapons.

ARTICLE V

1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of ..., which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after its ratification by all Parties possessing nuclear weapons and the deposit of their instruments of ratification.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or accession to this Treaty, the date of its entry into force, and the date of receipt of any requests for conferences or other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

ARTICLE VI

This Treaty shall be of unlimited duration.

Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty three months in advance.

ARTICLE VII

This Treaty, the Russian, English, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified

copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

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

Done in ... copies at the city of on the ... day of

APPENDIX 3 C

The American Amendments to the Draft Treaty of 17 August 1965 Submitted on 21 March 1966*

Replace Articles I, II and IV of the draft treaty by the following text :

ARTICLE I

Each of the nuclear-weapon States party to this treaty undertakes :

1. Not to transfer nuclear weapons into the national control of any non-nuclear-weapon State, or into the control of any association of non-nuclear-weapon States.

2. Not to provide to any non-nuclear-weapon State or association of such States :

(a) assistance in the manufacture of nuclear weapons, in preparations for such manufacture, or in the testing of nuclear weapons; or

(b) encouragement or inducement to manufacture or otherwise acquire its own nuclear weapons.

3. Not to take any other action which would cause an increase in the total number of States and associations of States having control of nuclear weapons.

4. Not to take any of the actions prohibited in the preceding paragraphs of this Article directly, or indirectly through third States or associations of States, or through units of the armed forces or military personnel of any State, even if such units or personnel are under the command of a military alliance.

ARTICLE II

Each of the non-nuclear-weapon States party to this treaty undertakes :

* DCOR, Suppl. for 1966, Doc. DC/228, Ann. 1, Sec. K(ENDC/152/Add. 1, 21 Mar. 1966).

1. Not to manufacture nuclear weapons, and not to seek or to receive the transfer of nuclear weapons into its national control or into the control of any association of non-nuclear-weapon States of which it is a member.

2. Not to seek or receive, and not to provide, whether alone or in any association of non-nuclear-weapon States :

(a) assistance in the manufacture of nuclear weapons, in preparations for such manufacture, or in the testing of nuclear weapons; or

(b) encouragement or inducement to manufacture or otherwise acquire its own nuclear weapons.

3. Not to take any other action which would cause an increase in the total number of States and associations of States having control of nuclear weapons.

4. Not to take any of the actions prohibited in the preceding paragraphs of this Article directly, or indirectly through third States or associations of States, or through units of its armed forces or its military personnel, even if such units or personnel are under the command of a military alliance.

ARTICLE IV

In this treaty

(a) "Nuclear-weapon States" means a State controlling nuclear weapons as of ... (date).

(b) "Non-nuclear-weapon States" means any State which is not a "nuclear-weapon State".

(c) "Control" means right or ability to fire nuclear weapons without the concurrent decision of an existing nuclear-weapon State.

(d) "Nuclear weapon" means ... (definition to be supplied).

APPENDIX 3 D

The Identical Treaty Drafts of 24 August 1967*

The States concluding this Treaty, hereinafter referred to as the "Parties to the Treaty",

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,

Believing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,

In conformity with resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Undertaking to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,

Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points,

Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,

Convinced that in furtherance of this principle, all Parties to this Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in co-operation with other States to, the

DCOR, Suppl. for 1967 and 1968, Docs. DC/230 and Add. 1, Ann. IV, Sec. 6 (ENDC/192, 24 Aug. 1967 (US)) and Sec. 8 (ENDC/193, 24 Aug. 1967 (USSR)).

further development of the applications of atomic energy for peaceful purposes,

Declaring their intention that potential benefits from any peaceful applications of nuclear explosions should be available through appropriate international procedures to non-nuclear-weapon States Party to this Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used should be as low as possible and exclude any charge for research and development,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race,

Urging the co-operation of all States in the attainment of this objective,

Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a treaty on general and complete disarmament under strict and effective international control,

Noting that nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories,

Have agreed as follows :

ARTICLE I

Each nuclear-weapon State Party to this Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

ARTICLE II

Each non-nuclear-weapon State Party to this Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.

ARTICLE III
(International Control)

ARTICLE IV

Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with articles I and II of this Treaty, as well as the right of the Parties to participate in the fullest possible exchange of information for, and to contribute alone or in co-operation with other States to, the further development of the applications of nuclear energy for peaceful purposes.

ARTICLE V

1. Any Party to this Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to this Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for all Parties upon the deposit of instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to this Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency.

3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes and provisions of the Treaty are being realized.

ARTICLE VI

1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of, which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after its ratification by all nuclear-weapon States signatory to this Treaty, and other States signatory to this Treaty and the deposit of their instruments of ratification. For the purposes of this Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

ARTICLE VII

This Treaty shall be of unlimited duration.

Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

ARTICLE VIII

This Treaty, the Chinese, English, French, Russian and Spanish texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed the Treaty.

DONE IN ... at ... this ... of

The Identical Treaty Drafts of 18 January 1968*

The States concluding this Treaty, hereinafter referred to as the "Parties to the Treaty",

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,

Believing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,

In conformity with resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Undertaking to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,

Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points,

Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,

Convinced that in furtherance of this principle, all Parties to this Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in co-operation with other States to, the

* DCOR, Suppl. for 1967 and 1968, Docs. DC/230 and Add. 1, Ann. IV, Sec. 7 (ENDC/192/Rev. 1, 18 Jan. 1967 (US)) and Sec. 9 (ENDC/193/Rev. 1, 18 Jan. 1968 (USSR)).

further development of the applications of atomic energy for peaceful purposes,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race,

Urging the co-operation of all States in the attainment of this objective,

Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament under strict and effective international control,

Have agreed as follows :

ARTICLE I

(Same as in Appendix 3-D)

ARTICLE II

(Same as in Appendix 3-D)

ARTICLE III

1. Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. Procedures for the safeguards required by this Article shall be followed with respect to source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility. The safeguards required by this Article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.

2. Each State Party to the Treaty undertakes not to provide : (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this article.

3. The safeguards required by this Article shall be implemented in a manner designed to comply with Article IV of this Treaty, and to avoid hampering the economic or technological development of the Parties or international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provisions of this article and the principle of safeguarding set forth in the Preamble.

4. Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this Article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification after the 180-day period, negotiation of such agreements shall commence not later than the date of such deposit. Such agreements shall enter into force not later than eighteen months after the date of initiation of negotiations.

ARTICLE IV

1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.

2. All the Parties to the Treaty have the right to participate in the fullest possible exchange of scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also co-operate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty.

ARTICLE V

Each Party to this Treaty undertakes to co-operate to insure that potential benefits from any peaceful applications of nuclear explosions will be made available through appropriate international procedures to non-nuclear-weapon States Party to this Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. It is understood that non-nuclear-weapon States Party to this Treaty so desiring may, pursuant to a special agreement

or agreements, obtain any such benefits on a bilateral basis or through an appropriate international body with adequate representation of non-nuclear-weapon States.

ARTICLE VI

Each of the Parties to this Treaty undertakes to pursue negotiations in good faith on effective measures regarding cessation of the nuclear arms race and disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

ARTICLE VII

Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories.

ARTICLE VIII

1. Any Party to this Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to this Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for each Party that deposits its instrument of ratification of the amendment upon the deposit of instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to this Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment.

3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes and provisions of the Treaty are being realized.

ARTICLE IX

1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of ..., which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after its ratification by all nuclear weapon States signatory to this Treaty, and 40 other States signatory to this Treaty and the deposit of their instruments of ratification. For the purposes of this Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

ARTICLE X

1. Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

2. Twenty-five years after the entry into force of the Treaty, a Conference shall be convened to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods. This decision shall be taken by a majority of the Parties to the Treaty.

ARTICLE XI

This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in ... at ... this ... of

APPENDIX 3 F

The Joint American-Soviet Draft of 11 March 1968*

The States concluding this Treaty, hereinafter referred to as the "Parties to the Treaty",

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,

Believing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,

In conformity with resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Undertaking to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,

Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points,

Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,

Convinced that in furtherance of this principle, all Parties to this Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in co-operation with other States to, the further development of the applications of atomic energy for peaceful purposes,

* DCOR, Suppl. for 1967 and 1968, Docs. 230 and Add. 1, Ann. 1.

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race,

Urging the co-operation of all States in the attainment of this objective,

Recalling the determination expressed by the Parties to the partial-test-ban treaty of 1963^b in its preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end,

Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament under strict and effective international control,

Have agreed as follows :

ARTICLE I

(Same as in Appendix 3-D)

ARTICLE II

(Same as in Appendix 3-D)

ARTICLE III

(Same as in Appendix 3-E)

ARTICLE IV

(Same as in Appendix 3-E)

ARTICLE V

(Same as in Appendix 3-E)

ARTICLE VI

Each of the Parties to this Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.

^b Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water, signed in Moscow on 5 August 1963; for the text, see United Nations, Treaty Series, vol. 480 (1963), No. 6964.

ARTICLE VII

(Same as in Appendix 3-E)

ARTICLE VIII

1. Any Party to this Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to this Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for each Party that deposits its instrument of ratification of the amendment upon the deposit of instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to this Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment.

3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized. At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by submitting a proposal to this effect to the Depositary Governments, the convening of further conferences with the same objective of reviewing the operation of the Treaty.

ARTICLE IX

(Same as in Appendix 3-E)

ARTICLE X

(Same as in Appendix 3-E)

ARTICLE XI

(Same as in Appendix 3-E)

APPENDIX 3 G

The Final Draft Treaty as Commended
by the UN General Assembly on 12 June 1968*

The General Assembly,

Recalling its resolutions 2346 A (XXII) of 19 December 1967, 2153 A (XXI) of 17 November 1966, 2149 (XXI) of 4 November 1966, 2028 (XX) of 19 November 1965 and 1665 (XVI) of 4 December 1961,

Convinced of the urgency and great importance of preventing the spread of nuclear weapons and of intensifying international co-operation in the development of peaceful applications of atomic energy,

Having considered the report of the Conference of the Eighteen-Nation Committee on Disarmament, dated 14 March 1968,¹ and appreciative of the work of the Committee on the elaboration of the draft non-proliferation treaty, which is attached to that report,²

Convinced that, pursuant to the provisions of the treaty, all signatories have the right to engage in research, production and use of nuclear energy for peaceful purposes and will be able to acquire source and special fissionable materials, as well as equipment for the processing, use and production of nuclear material for peaceful purposes,

Convinced further that an agreement to prevent the further proliferation of nuclear weapons must be followed as soon as possible by effective measures on the cessation of the nuclear arms race and on nuclear disarmament, and that the non-proliferation treaty will contribute to this aim,

1 Official Records of the General Assembly, Twenty-second Session, Annexes, agenda item 28, document A/7072-DC/230.

2 Ibid., annex I.

* GA Res. 2373 (XXII), 12 June 1968. GAOR, 22nd Sess., Suppl. No. 16 (A/6716/Add. 1), pp. 5-7.

Affirming that in the interest of international peace and security both nuclear-weapon and non-nuclear-weapon States carry the responsibility of acting in accordance with the principles of the Charter of the United Nations that the sovereign equality of all States shall be respected, that the threat or use of force in international relations shall be refrained from and that international disputes shall be settled by peaceful means,

1. Commends the Treaty on the Non-Proliferation of Nuclear Weapons, the text of which is annexed to the present resolution;
2. Requests the Depositary Governments to open the Treaty for signature and ratification at the earliest possible date;
3. Expresses the hope for the widest possible adherence to the Treaty by both nuclear-weapon and non-nuclear-weapon States;
4. Requests the Conference of the Eighteen-Nation Committee on Disarmament and the nuclear-weapon States urgently to pursue negotiations on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control;
5. Requests the Conference of the Eighteen-Nation Committee on Disarmament to report on the progress of its work to the General Assembly at its twenty-third session.

ANNEX

Treaty on the Non-Proliferation of Nuclear Weapons

The States concluding this Treaty, hereinafter referred to as the "Parties to the Treaty",

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,

Believing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,

In conformity with resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Undertaking to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,

Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points,

Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,

Convinced that, in furtherance of this principle, all Parties to the Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in co-operation with other States to, the further development of the applications of atomic energy for peaceful purposes,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament,

Urging the co-operation of all States in the attainment of this objective,

Recalling the determination expressed by the Parties to the 1963 Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water in its Preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end,

Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a treaty on general and complete disarmament under strict and effective international control,

Recalling that, in accordance with the Charter of the United Nations, States must refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations, and that the establishment and maintenance of international peace and security are to be promoted with the least diversion for armaments of the world's human and economic resources,

Have agreed as follows :

ARTICLE I

Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

ARTICLE II

Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.

ARTICLE III

1. Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfilment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. Procedures for the safeguards required by this article shall be followed with respect to source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility. The safeguards required by this article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.

2. Each State Party to the Treaty undertakes not to provide : (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this article.

3. The safeguards required by this article shall be implemented in a manner designed to comply with article IV of this Treaty, and to avoid hampering the economic or technological

development of the Parties or international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provisions of this article and the principle of safeguarding set forth in the Preamble of the Treaty.

4. Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification or accession after the 180-day period, negotiation of such agreements shall commence not later than the date of such deposit. Such agreements shall enter into force not later than eighteen months after the date of initiation of negotiations.

ARTICLE IV

1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with articles I and II of this Treaty.

2. All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also co-operate in contributing alone or together with other States in international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.

ARTICLE V

Each Party to the Treaty undertakes to take appropriate measures to ensure that, in accordance with this Treaty, under appropriate international observation and through appropriate international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. Non-nuclear-weapon States

Party to the Treaty shall be able to obtain such benefits, pursuant to a special international agreement or agreements, through an appropriate international body with adequate representation of non-nuclear-weapon States. Negotiations on this subject shall commence as soon as possible after the Treaty enters into force. Non-nuclear-weapon States Party to the Treaty so desiring may also obtain such benefits pursuant to bilateral agreements.

ARTICLE VI

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

ARTICLE VII

Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories.

ARTICLE VIII

1. Any Party to the Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for each Party that deposits its instrument of ratification of the amendment upon the deposit of such instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Energy Agency. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment.

3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized. At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by submitting a proposal to this effect to the Depositary Governments, the convening of further conferences with the same objective of reviewing the operation of the Treaty.

ARTICLE IX

1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America, which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after its ratification by the States, the Governments of which are designated Depositaries of the Treaty, and forty other States signatory to this Treaty and the deposit of their instruments of ratification. For the purposes of this Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to article 102 of the Charter of the United Nations.

ARTICLE X

1. Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that

extraordinary events, related to the subject-matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

2. Twenty-five years after the entry into force of the Treaty, a conference shall be convened to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods. This decision shall be taken by a majority of the Parties to the Treaty.

ARTICLE XI

This Treaty, the Chinese, English, French, Russian and Spanish texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed the Treaty.

DONE in ... at ... this ... day of³

³ The Treaty was signed in London, Moscow and Washington on 1 July 1968.

APPENDIX 4

Security Council Resolution 255.

19 June 1968*

The Security Council,

Noting with appreciation the desire of a large number of States to subscribe to the Treaty on the Non-Proliferation of Nuclear Weapons,⁴² and thereby to undertake not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly or indirectly, not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices,

Taking into consideration the concern of certain of these States that, in conjunction with their adherence to the Treaty on the Non-Proliferation of Nuclear Weapons, appropriate measures be undertaken to safeguard their security,

Bearing in mind that any aggression accompanied by the use of nuclear weapons would endanger the peace and security of all States,

1. Recognizes that aggression with nuclear weapons or the threat of such aggression against a non-nuclear-weapon State would create a situation in which the Security Council, and above all its nuclear-weapon State permanent members, would have to act immediately in accordance with their obligations under the United Nations Charter;

2. Welcomes the intention expressed by certain States that they will provide or support immediate assistance, in accordance with the Charter, to any non-nuclear-weapon State Party

42 General Assembly resolution 2373 (XXII), annex.

* SCOR, 23rd Yr., 1968, Resolutions and Decisions, p. 13.

to the Treaty on the Non-Proliferation of Nuclear Weapons that is a victim of an act or an object of a threat of aggression in which nuclear weapons are used;

Reaffirms in particular the inherent right, recognized under Article 51 of the Charter, of individual and collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security.

The Antarctic Treaty *

The Governments of Argentina, Australia, Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, the Union of Soviet Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America,

Recognizing that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Acknowledging the substantial contributions to scientific knowledge resulting from international cooperation in scientific investigation in Antarctica;

Convinced that the establishment of a firm foundation for the continuation and development of such cooperation on the basis of freedom of scientific investigation in Antarctica as applied during the International Geophysical Year accords with the interests of science and the progress of all mankind;

Convinced also that a treaty ensuring the use of Antarctica for peaceful purposes only and the continuance of international harmony in Antarctica will further the purposes and principles embodied in the Charter of the United Nations;

Have agreed as follows:

Article I

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, *inter alia*, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons.

2. The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purpose.

*Status of Multilateral Arms Regulation and Disarmament Agreements. Special Supplement to the United Nations Disarmament Yearbook, Vol. II: 1977. (New York: United Nations, 1978), pp. 11-17. The Treaty was signed at Washington on 1 December 1959.

Article II

Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty.

Article III

1. In order to promote international cooperation in scientific investigation in Antarctica, as provided for in Article II of the present Treaty, the Contracting Parties agree that, to the greatest extent feasible and practicable:

(a) information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations;

(b) scientific personnel shall be exchanged in Antarctica between expeditions and stations;

(c) scientific observations and results from Antarctica shall be exchanged and made freely available.

2. In implementing this Article, every encouragement shall be given to the establishment of cooperative working relations with those Specialized Agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

Article IV

1. Nothing contained in the present Treaty shall be interpreted as:

(a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty in Antarctica;

(b) a renunciation or diminution by any Contracting Party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise;

(c) prejudicing the position of any Contracting Party as regards its recognition or non-recognition of any other State's right of or claim or basis of claim to territorial sovereignty in Antarctica.

2. No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.

Article V

1. Any nuclear explosions in Antarctica and the disposal there of radioactive waste material shall be prohibited.

2. In the event of the conclusion of international agreements concerning the use of nuclear energy, including nuclear explosions and the disposal of radioactive waste material, to which all the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX are parties, the rules established under such agreements shall apply in Antarctica.

Article VI

The provisions of the present Treaty shall apply to the area south of 60° South Latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

Article VII

1. In order to promote the objectives and ensure the observance of the provisions of the present Treaty, each Contracting Party whose representatives are entitled to participate in the meetings referred to in Article IX of the Treaty shall have the right to designate observers to carry out any inspection provided for by the present Article. Observers shall be nationals of the Contracting Parties which designate them. The names of observers shall be communicated to every other Contracting Party having the right to designate observers, and like notice shall be given of the termination of their appointment.

2. Each observer designated in accordance with the provisions of paragraph 1 of this Article shall have complete freedom of access at any time to any or all areas of Antarctica.

3. All areas of Antarctica, including all stations, installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica, shall be open at all times to inspection by any observers designated in accordance with paragraph 1 of this Article.

4. Aerial observation may be carried out at any time over any or all areas of Antarctica by any of the Contracting Parties having the right to designate observers.

5. Each Contracting Party shall, at the time when the present Treaty enters into force for it, inform the other Contracting Parties, and thereafter shall give them notice in advance, of

(a) all expeditions to and within Antarctica, on the part of its ships or nationals, and all expeditions to Antarctica organized in or proceeding from its territory;

- (b) all stations in Antarctica occupied by its nationals; and
- (c) any military personnel or equipment intended to be introduced by it into Antarctica subject to the conditions prescribed in paragraph 2 of Article I of the present Treaty.

Article VIII

1. In order to facilitate the exercise of their functions under the present Treaty, and without prejudice to the respective positions of the Contracting Parties relating to jurisdiction over all other persons in Antarctica, observers designated under paragraph 1 of Article VII and scientific personnel exchanged under subparagraph 1 (b) of Article III of the Treaty, and members of the staffs accompanying any such persons, shall be subject only to the jurisdiction of the Contracting Party of which they are nationals in respect of all acts or omissions occurring while they are in Antarctica for the purpose of exercising their functions.

2. Without prejudice to the provisions of paragraph 1 of this Article, and pending the adoption of measures in pursuance of subparagraph 1 (e) of Article IX, the Contracting Parties concerned in any case of dispute with regard to the exercise of jurisdiction in Antarctica shall immediately consult together with a view to reaching a mutually acceptable solution.

Article IX

1. Representatives of the Contracting Parties named in the preamble to the present Treaty shall meet at the City of Canberra within two months after the date of entry into force of the Treaty, and thereafter at suitable intervals and places, for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering, and recommending to their Governments, measures in furtherance of the principles and objectives of the Treaty, including measures regarding:

- (a) use of Antarctica for peaceful purposes only;
- (b) facilitation of scientific research in Antarctica;
- (c) facilitation of international scientific cooperation in Antarctica;
- (d) facilitation of the exercise of the rights of inspection provided for in Article VII of the Treaty;
- (e) questions relating to the exercise of jurisdiction in Antarctica;
- (f) preservation and conservation of living resources in Antarctica.

2. Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to

appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as that Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the despatch of a scientific expedition.

3. Reports from the observers referred to in Article VII of the present Treaty shall be transmitted to the representatives of the Contracting Parties participating in the meetings referred to in paragraph 1 of the present Article.

4. The measures referred to in paragraph 1 of this Article shall become effective when approved by all the Contracting Parties whose representatives were entitled to participate in the meetings held to consider those measures.

5. Any or all of the rights established in the present Treaty may be exercised as from the date of entry into force of the Treaty whether or not any measures facilitating the exercise of such rights have been proposed, considered or approved as provided in this Article.

Article X

Each of the Contracting Parties undertakes to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty.

Article XI

1. If any dispute arises between two or more of the Contracting Parties concerning the interpretation or application of the present Treaty, those Contracting Parties shall consult among themselves with a view to having the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.

2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement; but failure to reach agreement on reference to the International Court shall not solve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means referred to in paragraph 1 of this Article.

Article XII

1. (a) The present Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX. Any such modification or amendment shall enter

into force when the depositary Government has received notice from all such Contracting Parties that they have ratified it.

(b) Such modification or amendment shall thereafter enter into force as to any other Contracting Party when notice of ratification by it has been received by the depositary Government. Any such Contracting Party from which no notice of ratification is received within a period of two years from the date of entry into force of the modification or amendment in accordance with the provisions of subparagraph 1 (a) of this Article shall be deemed to have withdrawn from the present Treaty on the date of the expiration of such period.

2. (a) If after the expiration of thirty years from the date of entry into force of the present Treaty, any of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX so requests by a communication addressed to the depositary Government, a Conference of all the Contracting Parties shall be held as soon as practicable to review the operation of the Treaty.

(b) Any modification or amendment to the present Treaty which is approved at such a Conference by a majority of the Contracting Parties there represented, including a majority of those whose representatives are entitled to participate in the meetings provided for under Article IX, shall be communicated by the depositary Government to all the Contracting Parties immediately after the termination of the Conference and shall enter into force in accordance with the provisions of paragraph 1 of the present Article.

(c) If any such modification or amendment has not entered into force in accordance with the provisions of subparagraph 1 (a) of this Article within a period of two years after the date of its communication to all the Contracting Parties, any Contracting Party may at any time after the expiration of that period give notice to the depositary Government of its withdrawal from the present Treaty; and such withdrawal shall take effect two years after the receipt of the notice by the depositary Government.

Article XIII

1. The present Treaty shall be subject to ratification by the signatory States. It shall be open for accession by any State which is a Member of the United Nations, or by any other State which may be invited to accede to the Treaty with the consent of all the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX of the Treaty.

2. Ratification of or accession to the present Treaty shall be affected by each State in accordance with its constitutional processes.

3. Instruments of ratification and instruments of accession shall be deposited with the Government of the United States of America, hereby designated as the depositary Government.

4. The depositary Government shall inform all signatory and acceding States of the date of each deposit of an instrument of ratification or accession, and the date of entry into force of the Treaty and of any modification or amendment thereto.

5. Upon the deposit of instruments of ratification by all the signatory States, the present Treaty shall enter into force for those States and for States which have deposited instruments of accession. Thereafter the Treaty shall enter into force for any acceding State upon the deposit of its instrument of accession.

6. The present Treaty shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

Article XIV

The present Treaty, done in the English, French, Russian and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transmit duly certified copies thereof to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF, the undersigned Plenipotentiaries, duly authorized, have signed the present Treaty.

DONE at Washington this first day of December, one thousand nine hundred and fifty-nine.

Treaty Banning Nuclear Weapon Tests
in the Atmosphere, in Outer Space and Under Water*

The Governments of the United States of America, the United Kingdom of Great Britain and Northern Ireland, and the Union of Soviet Socialist Republics, hereinafter referred to as the "Original Parties",

Proclaiming as their principal aim the speediest possible achievement of an agreement on general and complete disarmament under strict international control in accordance with the objectives of the United Nations which would put an end to the armaments race and eliminate the incentive to the production and testing of all kinds of weapons, including nuclear weapons,

Seeking to achieve the discontinuance of all test explosions of nuclear weapons for all time, determined to continue negotiations to this end, and desiring to put an end to the contamination of man's environment by radioactive substances,

Have agreed as follows :

ARTICLE I

1. Each of the Parties to this Treaty undertakes to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction or control :

(a) in the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas; or

(b) in any other environment if such explosion causes radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted. It is understood in this connection that

* DCOR, Suppl. for Jan. to Dec. 1963, Doc. DC/208, Ann. 1, Sec. E (ENDC/100/Rev. 1, 30 July 1963). The Treaty was signed in Moscow on 5 August 1963.

the provisions of this subparagraph are without prejudice to the conclusion of a treaty resulting in the permanent banning of all nuclear test explosions, including all such explosions underground, the conclusion of which, as the Parties have stated in the Preamble to this Treaty, they seek to achieve.

2. Each of the Parties to this Treaty undertakes furthermore to refrain from causing, encouraging, or in any way participating in, the carrying out of any nuclear weapon test explosion, or any other nuclear explosion, anywhere which would take place in any of the environments described, or have the effect referred to, in paragraph 1 of this Article.

ARTICLE II

1. Any Party may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to this Treaty. Thereafter, if requested to do so by one-third or more of the Parties, the Depositary Governments shall convene a conference, to which they shall invite all the Parties, to consider such amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to this Treaty, including the votes of all of the Original Parties. The amendment shall enter into force for all Parties upon the deposit of instruments of ratification by a majority of all the Parties, including the instruments of ratification of all of the Original Parties.

ARTICLE III

1. This Treaty shall be open to all States for signature. Any State which does not sign this Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the Original Parties - the United States of America, the United Kingdom of Great Britain and Northern Ireland, and the Union of Soviet Socialist Republics - which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after its ratification by all the Original Parties and the deposit of their instruments of ratification.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Treaty, the date of its entry into force, and the date of receipt of any requests for conferences or other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

ARTICLE IV

This Treaty shall be of unlimited duration.

Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty three months in advance.

ARTICLE V

This Treaty, of which the English and Russian texts are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in triplicate at the city of Moscow the day of one thousand nine hundred and sixty-three.

Treaty on Principles Governing the Activities of States in the Exploration and use of Outer Space, including the Moon and Other Celestial Bodies*

The States Parties to this Treaty,

Inspired by the great prospects opening up before mankind as a result of man's entry into outer space,

Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,

Desiring to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

Believing that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples,

Recalling resolution 1962 (XVIII), entitled "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space", which was adopted unanimously by the United Nations General Assembly on 13 December 1963,

Recalling resolution 1884 (XVIII), calling upon States to refrain from placing in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction or from installing such weapons on celestial bodies, which was adopted unanimously by the United Nations General Assembly on 17 October 1963,

Taking account of United Nations General Assembly resolution 110 (II) of 3 November 1947, which condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression, and considering that the aforementioned resolution is applicable to outer space,

Convinced that a Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, will further the Purposes and Principles of the Charter of the United Nations,

Have agreed on the following:

*Status of Multilateral Arms Regulation and Disarmament Agreements. Special Supplement to the United Nations Disarmament Yearbook, Vol. II: 1977. (New York: United Nations, 1978), pp. 31-36. The Treaty was signed at London, Moscow and Washington on 27 January 1967.

Article I

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.

Article II

Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

Article III

States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.

Article IV

States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, instal such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manœuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.

Article V

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.

States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the moon and other celestial bodies, which could constitute a danger to the life or health of astronauts.

Article VI

States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

Article VII

Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the moon and other celestial bodies.

Article VIII

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.

Article IX

In the exploration and use of outer space, including the moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies, may request consultation concerning the activity or experiment.

Article X

In order to promote international co-operation in the exploration and use of outer space, including the moon and other celestial bodies, in conformity with the purposes of this Treaty, the States Parties to the Treaty shall consider on a basis of equality any requests by other States Parties to the Treaty to be afforded an opportunity to observe the flight of space objects launched by those States.

The nature of such an opportunity for observation and the conditions under which it could be afforded shall be determined by agreement between the States concerned.

Article XI

In order to promote international co-operation in the peaceful exploration and use of outer space, States Parties to the Treaty conducting activities in outer space, including the moon and other celestial bodies, agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities. On receiving the said information, the Secretary-General of the United Nations should be prepared to disseminate it immediately and effectively.

Article XII

All stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.

Article XIII

The provisions of this Treaty shall apply to the activities of States Parties to the Treaty in the exploration and use of outer space, including the moon and other celestial bodies, whether such activities are carried on by a single State Party to the Treaty or jointly with other States, including cases where they are carried on within the framework of international inter-governmental organizations.

Any practical questions arising in connexion with activities carried on by international inter-governmental organizations in the exploration and use of outer space, including the moon and other celestial bodies, shall be resolved by the States Parties to the Treaty either with the appropriate international organization or with one or more States members of that international organization, which are Parties to this Treaty.

Article XIV

1. This Treaty shall be open to all States for signature. Any State which does not sign this Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics and the United States of America, which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force upon the deposit of instruments of ratification by five Governments including the Governments designated as Depositary Governments under this Treaty.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Treaty, the date of its entry into force and other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article XV

Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party to the Treaty on the date of acceptance by it.

Article XVI

Any State Party to the Treaty may give notice of its withdrawal from the Treaty one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification.

Article XVII

This Treaty, of which the English, Russian, French, Spanish and Chinese texts are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in triplicate, at the cities of London, Moscow and Washington, the twenty-seventh day of January, one thousand nine hundred and sixty-seven.

APPENDIX 8

Treaty for the Prohibition of Nuclear Weapons in Latin America*

Preamble

In the name of their peoples and faithfully interpreting their desires and aspirations, the Governments of the States which have signed the Treaty for the Prohibition of Nuclear Weapons in Latin America,

Desiring to contribute, so far as lies in their power, towards ending the armaments race, especially in the field of nuclear weapons, and towards strengthening a world at peace, based on the sovereign equality of States, mutual respect and good neighbourliness,

Recalling that the United Nations General Assembly, in its resolution 808 (IX), adopted unanimously as one of the three points of a co-ordinated programme of disarmament "the total prohibition of the use and manufacture of nuclear weapons and weapons of mass destruction of every type",

Recalling that militarily denuclearized zones are not an end in themselves but rather a means for achieving general and complete disarmament at a later stage,

Recalling United Nations General Assembly resolution 1911 (XVIII), which established that the measures that should be agreed upon for the denuclearization of Latin America should be taken "in the light of the principles of the Charter of the United Nations and of regional agreements",

Recalling United Nations General Assembly Resolution 2028 (XX), which established the principle of an acceptable balance of mutual responsibilities and duties for the nuclear and non-nuclear powers, and

Recalling that the Charter of the Organization of American States proclaims that it is an essential purpose of the organization to strengthen the peace and security of the hemisphere,

* ENDC/186, 21 Feb. 1967, pp. 12-33. The Treaty was signed at Mexico City on 14 Feb. 1967.

Convinced :

That the incalculable destructive power of nuclear weapons has made it imperative that the legal prohibition of war should be strictly observed in practice if the survival of civilization and of mankind itself is to be assured,

That nuclear weapons, whose terrible effects are suffered, indiscriminately and inexorably, by military forces and civilian population alike, constitute, through the persistence of the radioactivity they release, an attack on the integrity of the human species and ultimately may even render the whole earth uninhabitable,

That general and complete disarmament under effective international control is a vital matter which all the peoples of the world equally demand,

That the proliferation of nuclear weapons, which seems inevitable unless States, in the exercise of their sovereign rights, impose restrictions on themselves in order to prevent it, would make any agreement on disarmament enormously difficult and would increase the danger of the outbreak of a nuclear conflagration,

That the establishment of militarily denuclearized zones is closely linked with the maintenance of peace and security in the respective regions,

That the military denuclearization of vast geographical zones, adopted by the sovereign decision of the States comprised therein, will exercise a beneficial influence on other regions where similar conditions exist,

That the privileged situation of the signatory States, whose territories are wholly free from nuclear weapons, imposes upon them the inescapable duty of preserving that situation both in their own interests and for the good of mankind,

That the existence of nuclear weapons in any country of Latin America would make it a target for possible nuclear attacks and would inevitably set off, throughout the region, a ruinous race in nuclear weapons which would involve the unjustifiable diversion, for warlike purposes, of the resources required for economic and social development,

That the foregoing reasons, together with the traditional peace-loving outlook of Latin America, give rise to an inescapable necessity that nuclear energy should be used in that region exclusively for peaceful purposes, and that the Latin American countries should use their right to the greatest and most equitable possible access to this new source of energy in order to expedite the economic and social development of their peoples,

Convinced finally :

That the military denuclearization of Latin America - being understood to mean the undertaking entered into internationally in this Treaty to keep their territories forever free from nuclear weapons - will constitute a measure which will spare their peoples from the squandering of their limited resources on nuclear armaments and will protect them against possible nuclear attacks on their territories, and will also constitute a significant contribution towards preventing the proliferation of nuclear weapons and a powerful factor for general and complete disarmament, and

That Latin America, faithful to its tradition of universality, must not only endeavour to banish from its homelands the scourge of a nuclear war, but must also strive to promote the well-being and advancement of its peoples, at the same time co-operating in the fulfilment of the ideals of mankind, that is to say, in the consolidation of a permanent peace based on equal rights, economic fairness and social justice for all, in accordance with the principles and purposes set forth in the Charter of the United Nations and in the Charter of the Organization of American States,

Have agreed as follows :

Obligations

Article 1

1. The Contracting Parties hereby undertake to use exclusively for peaceful purposes the nuclear material and facilities which are under their jurisdiction, and to prohibit and prevent in their respective territories :

(a) The testing, use, manufacture, production or acquisition by any means whatsoever of any nuclear weapons, by the Parties themselves, directly or indirectly, on behalf of anyone else or in any other way; and

(b) The receipt, storage, installation, deployment and any form of possession of any nuclear weapon, directly or indirectly, by the Parties themselves, by anyone on their behalf or in any other way.

2. The Contracting Parties also undertake to refrain from engaging in, encouraging or authorizing, directly or indirectly, or in any way participating in the testing, use, manufacture, production, possession or control of any nuclear weapon.

Definition of the Contracting Parties

Article 2

For the purposes of this Treaty, the Contracting Parties are those for whom the Treaty is in force.

Definition of territory

Article 3

For the purposes of this Treaty, the term "territory" shall include the territorial sea, air space and any other space over which the State exercises sovereignty in accordance with its own legislation.

Zone of application

Article 4

1. The zone of application of the Treaty is the whole of the territories for which the Treaty is in force.

2. Upon fulfilment of the requirements of article 28, paragraph 1, the zone of application of the Treaty shall also be that which is situated in the western hemisphere within the following limits (except the continental part of the territory of the United States of America and its territorial waters) : starting at a point located at 35° north latitude, 75° west longitude; from this point directly southward to a point at 30° north latitude, 75° west longitude; from there, directly eastward to a point at 30° north latitude, 50° west longitude; from there along a loxodromic line to a point at 5° north latitude, 20° west longitude; from there directly southward to a point at 60° south latitude, 115° west longitude; from there directly northward to a point at 0° latitude, 115° west longitude; from there, along a loxodromic line to a point at 35° north latitude, 150° west longitude; from there, directly eastward to a point at 35° north latitude, 75° west longitude.

Definition of nuclear weapons

Article 5

For the purposes of this Treaty, a nuclear weapon is any device which is capable of releasing nuclear energy in an uncontrolled manner and which has a group of characteristics that are appropriate for use for warlike purposes. An instrument that may be used for the transport or propulsion of the device is not included in this definition if it is separable from the device and not an indivisible part thereof.

Meeting of signatories

Article 6

At the request of any of the signatories or if the Agency established by article 7, should so decide, a meeting of all the signatories may be convoked to consider in common questions which may affect the very essence of this instrument, including possible amendments to it. In either case, the meeting will be convoked by the General Secretary.

Organization

Article 7

1. In order to ensure compliance with the obligations of this Treaty, the Contracting Parties hereby establish an international organization to be known as the "Agency for the Prohibition of Nuclear Weapons in Latin America", hereinafter referred to as "the Agency". Only the Contracting Parties shall be affected by its decisions.

2. The Agency shall be responsible for the holding of periodic or extraordinary consultations among member States on matters relating to the purposes, measures and procedures set forth in this Treaty and to supervision of compliance with the obligations arising therefrom.

3. The Contracting Parties agree to extend to the Agency full and prompt co-operation in accordance with the provisions of this Treaty, of any agreements they may conclude with the Agency and of any agreements the Agency may conclude with any other international organization or body.

4. The headquarters of the Agency shall be in Mexico City.

Organs

Article 8

1. There are hereby established as principal organs of the Agency a General Conference, a Council and a Secretariat.

2. Such subsidiary organs as are considered necessary by the General Conference may be established within the purview of this Treaty.

The General Conference

Article 9

1. The General Conference, the supreme organ of the Agency, shall be composed of all the Contracting Parties; it shall hold

regular sessions every two years, and may also hold special sessions whenever this Treaty so provides, or, in the opinion of the Council, the circumstances so require.

2. The General Conference :

- (a) May consider and decide on matters or questions covered by the Treaty, within the limits thereof, including those referring to powers and functions of any organ provided for in this Treaty.
- (b) Shall establish procedures for the control system to ensure observance of this Treaty in accordance with its provisions.
- (c) Shall elect the members of the Council and the General Secretary.
- (d) May remove the General Secretary from office if the proper functioning of the Agency so requires.
- (e) Shall receive and consider the biennial and special reports submitted by the Council and the General Secretary.
- (f) Shall initiate and consider studies designed to facilitate the optimum fulfilment of the aims of this Treaty, without prejudice to the power of the General Secretary independently to carry out similar studies for submission to and consideration by the Conference.
- (g) Shall be the organ competent to authorize the conclusion of agreements with Governments and other international organizations and bodies.

3. The General Conference shall adopt the Agency's budget and fix the scale of financial contributions to be paid by member States, taking into account the systems and criteria used for the same purpose by the United Nations.

4. The General Conference shall elect its officers for each session and may establish such subsidiary organs as it deems necessary for the performance of its functions.

5. Each member of the Agency shall have one vote. The decisions of the General Conference shall be taken by a two-thirds majority of the members present and voting in the case of matters relating to the control system and measures referred to in article 20, the admission of new members, the election or removal of the General Secretary, adoption of the budget and matters related thereto. Decisions on other matters, as well as procedural questions, and also determination of

which questions must be decided by a two-thirds majority, shall be taken by a simple majority of the members present and voting.

6. The General Conference shall adopt its own rules of procedure.

The Council

Article 10

1. The Council shall be composed of five members of the Agency elected by the General Conference from among the contracting Parties, due account being taken of equitable geographical distribution.

2. The members of the Council shall be elected for a term of four years. However, in the first election three will be elected for two years. Outgoing members may not be re-elected for the following period unless the limited number of States for which the Treaty is in force so requires.

3. Each member of the Council shall have one representative.

4. The Council shall be so organized as to be able to function continuously.

5. In addition to the functions conferred upon it by this Treaty and to those which may be assigned to it by the General Conference, the Council shall, through the General Secretary, ensure the proper operation of the control system in accordance with the provisions of this Treaty and with the decisions adopted by the General Conference.

6. The Council shall submit an annual report on its work to the General Conference as well as such special report as it deems necessary or which the General Conference requests of it.

7. The Council shall elect its officers for each session.

8. The decisions of the Council shall be taken by a simple majority of its members present and voting.

9. The Council shall adopt its own rules of procedure.

The Secretariat

Article 11

1. The Secretariat shall consist of a General Secretary, who shall be the chief administrative officer of the Agency, and of such staff as the Agency may require. The term of office of the General Secretary shall be four years and he may be re-elected for a single additional term. The General Secretary may not be a national of the country in which the Agency

has its headquarters. In case the office of General Secretary becomes vacant, a new election shall be held to fill the office for the remainder of the term.

2. The staff of the Secretariat shall be appointed by the General Secretary, in accordance with rules laid down by the General Conference.

3. In addition to the functions conferred upon him by this Treaty and to those which may be assigned to him by the General Conference, the General Secretary shall ensure, as provided by article 10, paragraph 5, the proper operation of the control system established by this Treaty, in accordance with the provisions of the Treaty and the decisions taken by the General Conference.

4. The General Secretary shall act in that capacity in all meetings of the General Conference and of the Council and shall make an annual report to both bodies on the work of the Agency and any special reports requested by the General Conference or the Council or which the General Secretary may deem desirable.

5. The General Secretary shall establish the procedures for distributing to all Contracting Parties information received by the Agency from governmental sources, and such information from non-governmental sources as may be of interest to the Agency.

6. In the performance of their duties the General Secretary and the staff shall not seek or receive instructions from any Government or from any other authority external to the Agency and shall refrain from any action which might reflect on their position as international officials responsible only to the Agency; subject to their responsibility to the Agency, they shall not disclose any industrial secrets or other confidential information coming to their knowledge by reason of their official duties in the Agency.

7. Each of the Contracting Parties undertakes to respect the exclusively international character of the responsibilities of the General Secretary and the staff and not to seek to influence them in the discharge of their responsibilities.

Control system

Article 12

1. For the purpose of verifying compliance with the obligations entered into by the Contracting Parties in accordance with article 1, a control system shall be established which shall be put into effect in accordance with the provisions of articles 13 - 18 of this Treaty.

2. The control system shall be used in particular for the purpose of verifying :

a. That devices, services and facilities intended for peaceful uses of nuclear energy are not used in the testing or manufacture of nuclear weapons;

b. That none of the activities prohibited in article 1 of this Treaty are carried out in the territory of the Contracting Parties with nuclear materials or weapons introduced from abroad, and

c. That explosions for peaceful purposes are compatible with article 18 of this Treaty.

IAEA safeguards

Article 13

Each Contracting Party shall negotiate multilateral or bilateral agreements with the International Atomic Energy Agency for the application of its safeguards to its nuclear activities. Each Contracting Party shall initiate negotiations within a period of 180 days after the date of the deposit of its instrument of ratification of this Treaty. These agreements shall enter into force, for each Party, not later than eighteen months after the date of the initiation of such negotiations except in case of unforeseen circumstances or force majeure.

Reports of the parties

Article 14

1. The Contracting Parties shall submit to the Agency and to the International Atomic Energy Agency, for their information, semi-annual reports stating that no activity prohibited under this Treaty has occurred in their respective territories.

2. The Contracting Parties shall simultaneously transmit to the Agency a copy of any report they may submit to the International Atomic Energy Agency which relates to matters that are the subject of this Treaty and to the application of safeguards.

3. The Contracting Parties shall also transmit to the Organization of American States, for its information, any reports that may be of interest to it, in accordance with the obligations established by the Inter-American System.

Special reports requested by the General Secretary

Article 15

1. With the authorization of the Council, the General Secretary may request any of the Contracting Parties to provide

the Agency with complementary or supplementary information regarding any event or circumstance connected with compliance with this Treaty, explaining his reasons. The Contracting Parties undertake to co-operate promptly and fully with the General Secretary.

2. The General Secretary shall inform the Council and the Contracting Parties forthwith of such requests and of the respective replies.

Special inspections

Article 16

1. The International Atomic Energy Agency and the Council established by this Treaty have the power of carrying out special inspections in the following cases :

- (a) In the case of the International Atomic Energy Agency, in accordance with the agreements referred to in article 13 of the Treaty;
- (b) In the case of the Council :
 - (i) When so requested, the reasons for the request being stated, by any Party which suspects that some activity prohibited by this Treaty has been carried out or is about to be carried out, either in the territory of any other Party or in any other place on such latter Party's behalf, the Council shall immediately arrange for such an inspection in accordance with article 10, paragraph 5.
 - (ii) When requested by any Party which has been suspected of or charged with having violated the Treaty, the Council shall immediately arrange for the special inspection requested, in accordance with article 10, paragraph 5.

The above requests will be made to the Council through the General Secretary.

2. The costs and expenses of any special inspection carried out under paragraph 1; sub-paragraph (b), sections (i) and (ii) of this article shall be borne by the requesting Party or Parties, except where the Council concludes on the basis of the report on the special inspection that, in view of the circumstances existing in the case, such costs and expenses should be borne by the Agency.

3. The General Conference shall formulate the procedures for the organization and execution of the special inspections carried out in accordance with paragraph 1, sub-paragraph (b), sections (i) and (ii) of this article.

4. The Contracting Parties undertake to grant the inspectors carrying out such special inspections full and free access to all places and all information which may be necessary for the performance of their duties and which are directly and intimately connected with the suspicion of violation of this Treaty. If so requested by the Contracting Party in whose territory the inspection is carried out, the inspectors designated by the General Conference shall be accompanied by representatives of the authorities of that Contracting Party, provided that this does not in any way delay or hinder the work of the inspectors.

5. The Council shall immediately transmit to all the Parties, through the General Secretary, a copy of any report resulting from special inspections.

6. Similarly, the Council shall send through the General Secretary to the Secretary-General of United Nations for transmission to the United Nations Security Council and General Assembly, and to the Council of the Organization of American States, for its information, a copy of any report resulting from any special inspection carried out in accordance with paragraph 1, sub-paragraph (b), sections (i) and (ii) of this article.

7. The Council may decide, or any Contracting Party may request, the convening of a special session of the General Conference for the purpose of considering the reports resulting from any special inspection. In such a case, the General Secretary shall take immediate steps to convene the special session requested.

8. The General Conference, convened in special session under this article, may make recommendations to the Contracting Parties and submit reports to the Secretary-General of the United Nations to be transmitted to the Security Council and the General Assembly.

Use of nuclear energy for peaceful purposes

Article 17

Nothing in the provisions of this Treaty shall prejudice the rights of the Contracting Parties, in conformity with this Treaty, to use nuclear energy for peaceful purposes, in particular for their economic development and social progress.

Explosions for peaceful purposes

Article 18

1. The Contracting Parties may carry out explosions of nuclear devices for peaceful purposes - including explosions

which involve devices similar to those used in nuclear weapons - or collaborate with third parties for the same purpose, provided that they do so in accordance with the provisions of this article and the other articles of the Treaty, particularly articles 1 and 5.

2. Contracting Parties intending to carry out, or co-operate in the carrying out of such, an explosion shall notify the Agency and the International Atomic Energy Agency, as far in advance as the circumstances require, of the date of the explosion and shall at the same time provide the following information :

- (a) The nature of the nuclear device and the source from which it was obtained,
- (b) The place and purpose of the planned explosion,
- (c) The procedures which will be followed in order to comply with paragraph 3 of this article,
- (d) The expected force of the device,
- (e) The fullest possible information on any possible radioactive fall-out that may result from the explosion or explosions, and the measures which will be taken to avoid danger to the population, flora and fauna, and territories of any other Party or Parties.

3. The General Secretary and the technical personnel designated by the Council and the International Atomic Energy Agency may observe all the preparations, including the explosion of the device, and shall have unrestricted access to any area in the vicinity of the site of the explosion in order to ascertain whether the device and the procedures followed during the explosion are in conformity with the information supplied under paragraph 2 of the present article and the other provisions of this Treaty.

4. The Contracting Parties may accept the collaboration of third parties for the purpose set forth in paragraph 1 of the present article, in accordance with paragraphs 2 and 3 thereof.

Relations with other international organizations

Article 19

1. The Agency may conclude such agreements with the International Atomic Energy Agency as are authorized by the General Conference and as it considers likely to facilitate the efficient operation of the control system established by this Treaty.

2. The Agency may also enter into relations with any international organization or body, especially any which may be established in the future to supervise disarmament or measures for the control of armaments in any part of the world.

3. The Contracting Parties may, if they see fit, request the advice of the Inter-American Nuclear Energy Commission on all technical matters connected with the application of the Treaty with which the Commission is competent to deal under its Statute.

Measures in the event of violation of the Treaty

Article 20

1. The General Conference shall take note of all cases in which, in its opinion, any Contracting Party is not complying fully with its obligations under this Treaty and shall draw the matter to the attention of the Party concerned, making such recommendations as it deems appropriate.

2. If, in its opinion, such non-compliance constitutes a violation of this Treaty which might endanger peace and security, the General Conference shall report thereon simultaneously to the Security Council and the General Assembly through the Secretary-General of the United Nations and to the Council of the Organization of American States. The General Conference shall likewise report to the International Atomic Energy Agency for such purposes as are relevant in accordance with its Statute.

United Nations and Organization of American States

Article 21

None of the provisions of this Treaty shall be construed as impairing the rights and obligations of the Parties under the Charter of the United Nations or, in the case of States members of the Organization of American States, under existing regional treaties.

Privileges and immunities

Article 22

1. The Agency shall enjoy in the territory of each of the Contracting Parties such legal capacity and such privileges and immunities as may be necessary for the exercise of its functions and the fulfilment of its purposes.

2. Representatives of the Contracting Parties accredited to the Agency and officials of the Agency shall similarly enjoy such privileges and immunities as are necessary for the performance of their functions.

3. The Agency may conclude agreements with the Contracting Parties with a view to determining the details of the application of paragraphs 1 and 2 of this article.

Notification of other agreements

Article 23

Once this Treaty has entered into force, the Secretariat shall be notified immediately of any international agreement concluded by any of the Contracting Parties on matters with which this Treaty is concerned; the Secretariat shall register it and notify the other Contracting Parties.

Settlement of disputes

Article 24

Unless the Parties concerned agree on another mode of peaceful settlement, any question or dispute concerning the interpretation or application of this Treaty which is not settled shall be referred to the International Court of Justice with the prior consent of the parties to the controversy.

Signature

Article 25

1. This Treaty shall be open indefinitely for signature by :

- a. All the Latin American Republics;
- b. All other sovereign States situated in their entirety south of latitude 35° north in the western hemisphere; and, except as provided in paragraph 2 of this article, all such States which become sovereign, when they have been admitted by the General Conference.

2. The General Conference shall not take any decision regarding the admission of a political entity part of all of whose territory is the subject, prior to the date when this Treaty is opened for signature, of a dispute or claim between an extra-continental country and one or more Latin American States, so long as the dispute has not been settled by peaceful means.

Ratification and deposit

Article 26

1. This Treaty shall be subject to ratification by signatory States in accordance with their respective constitutional procedures.

2. This Treaty and the instruments of ratification shall be deposited with the Government of the United States of Mexico, which is hereby designated the Depositary Government.

3. The Depositary Government shall send certified copies of this Treaty to the Governments of signatory States and shall notify them of the deposit of each instrument of ratification.

Reservations

Article 27

This Treaty shall not be subject to reservations.

Entry into Force

Article 28

1. Subject to the provisions of paragraphs 2 and 3 of this article, this Treaty shall enter into force among the States that have ratified it as soon as the following requirements have been met :

- (a) Deposit of the instruments of ratification of this Treaty with the Depositary Government by the Governments of the States mentioned in article 25 which are in existence on the date when this Treaty is opened for signature and which are not affected by the provisions of article 25, paragraph 2;
- (b) Signature and ratification of Additional Protocol I annexed to this Treaty by all extracontinental States having de jure or de facto international responsibility for territories situated in the zone of application of the Treaty;
- (c) Signature and ratification of the Additional Protocol II annexed to this Treaty by all powers possessing nuclear weapons;
- (d) Conclusion of bilateral agreements on the application of the Safeguards System of the International Atomic Energy Agency in accordance with article 13 of this Treaty.

2. All signatory States shall have the imprescriptible right to waive, wholly or in part, the requirements laid down in the preceding paragraph. They may do so by means of a declaration which shall be annexed to their respective instruments of ratification and which may be formulated at the time of deposit of the instrument or subsequently. For those States which exercise this right, this Treaty shall enter into force

upon deposit of the declaration, or as soon as those requirements have been met which have not been expressly waived.

3. As soon as this Treaty has entered into force in accordance with the provisions of paragraph 2 for eleven States, the Depositary Government shall convene a preliminary meeting of those States in order that the Agency may be set up and commence its work.

4. After the entry into force of the Treaty for all the countries of the zone, the rise of a new power possessing nuclear weapons shall have the effect of suspending the execution of this Treaty for those countries which have ratified it without waiving the requirements of paragraph 1, sub-paragraph (c) of this article, and which request such suspension; the Treaty shall remain suspended until the new power, on its own initiative or upon request by the General Conference, ratifies the annexed Additional Protocol.

Amendments

Article 29

1. Any Contracting Party may propose amendments to this Treaty and shall submit their proposals to the Council through the General Secretary, who shall transmit them to all the other Contracting Parties and, in addition, to signatories in accordance with Article 6. The Council, through the General Secretary, shall, immediately following the meeting of signatories, convene a special session of the General Conference to examine the proposals made, for the adoption of which a two-thirds majority of the Contracting Parties present and voting shall be required.

2. Amendments adopted shall enter into force as soon as the requirements set forth in article 28 of this Treaty have been complied with.

Duration and denunciation

Article 30

1. This Treaty shall be of a permanent nature and shall remain in force indefinitely, but any Party may denounce it by notifying the General Secretary of the Agency if, in the opinion of the denouncing State, there have arisen or may arise circumstances connected with the content of the Treaty or of the annexed Additional Protocols I and II which affect its supreme interests and the peace and security of one or more Contracting Parties.

2. The denunciation shall take effect three months after the delivery to the General Secretary of the Agency of the

notification by the Government of the signatory State concerned. The General Secretary shall immediately communicate such notification to the other Contracting Parties and to the Secretary-General of the United Nations for the information of the Security Council and the General Assembly of the United Nations. He shall also communicate it to the Secretary General of the Organization of American States.

Authentic texts and registration

Article 31

This Treaty, of which the Spanish, Chinese, English, French, Portuguese and Russian texts are equally authentic, shall be registered by the Depositary Government in accordance with Article 102 of the United Nations Charter. The Depositary Government shall notify the Secretary-General of the United Nations of the signatures, ratifications and amendments relating to this Treaty and shall communicate them to the Secretary General of the Organization of American States for his information.

Transitional Article

Denunciation of the declaration referred to in Article 28, paragraph 2, shall be subject to the same procedures as the denunciation of the Treaty, except that it shall take effect on the date of delivery of the respective notification.

In witness whereof the undersigned Plenipotentiaries, having deposited their full powers, found in good and due form, sign this Treaty on behalf of their respective Governments.

Done at Mexico, Distrito Federal, on the Fourteenth day of February, one thousand nine hundred and sixty-seven.

ADDITIONAL PROTOCOL I

The undersigned Plenipotentiaries, furnished with full powers by their respective Governments,

Convinced that the Treaty for the Prohibition of Nuclear Weapons in Latin America, negotiated and signed in accordance with the recommendations of the General Assembly of the United Nations in resolution 1911 (XVIII) of 27 November 1963, represents an important step towards ensuring the non-proliferation of nuclear weapons,

Aware that the non-proliferation of nuclear weapons is not an end in itself but rather a means of achieving general and complete disarmament at a later stage,

Desiring to contribute, so far as lies in their power, toward ending the armaments race, especially in the field of nuclear weapons, and towards strengthening a world at peace, based on mutual respect and sovereign equality of States,

Have agreed as follows :

Article 1. To undertake to apply the status of denuclearization in respect of warlike purposes as defined in Articles 1, 3, 5 and 13 of the Treaty for the Prohibition of Nuclear Weapons in Latin America in territories for which, de jure or de facto, they are internationally responsible and which lie within the limits of the geographical zone established in that Treaty.

Article 2. The duration of this Protocol shall be the same as that of the Treaty for the Prohibition of Nuclear Weapons in Latin America of which this Protocol is an annex, and the provisions regarding ratification and denunciation contained in the Treaty shall be applicable to it.

Article 3. This Protocol shall enter into force, for the States which have ratified it, on the date of the deposit of their respective instruments of ratification.

In witness whereof the undersigned Plenipotentiaries, having deposited their full powers, found in good and due form, sign this Treaty on behalf of their respective Governments.

ADDITIONAL PROTOCOL II

The undersigned Plenipotentiaries, furnished with full powers by their respective Governments,

Convinced that the Treaty for the Prohibition of Nuclear Weapons in Latin America, negotiated and signed in accordance with the recommendations of the General Assembly of the United Nations in resolution 1911 (XVIII) of 27 November 1963, is an important step towards ensuring the non-proliferation of nuclear weapons,

Aware that the non-proliferation of nuclear weapons is not an end in itself but rather a means of achieving general and complete disarmament at a later stage,

Desiring to contribute, so far as lies in their power, towards ending the armaments race, especially in the field of nuclear weapons, and towards promoting and strengthening a world at peace based on mutual respect and sovereign equality of States,

Have agreed as follows :

Article 1. The status of denuclearization of Latin America in respect of warlike purposes, as defined, delimited and set forth in the Treaty for the Prohibition of Nuclear Weapons in Latin America of which this instrument is an annex, shall be fully respected by the Parties to this Protocol in all its express aims and provisions.

Article 2. The Governments represented by the undersigned Plenipotentiaries undertake, therefore, not to contribute in any way to the performance of acts involving a violation of the obligations of article 1 of the Treaty in the territories to which the Treaty applies in accordance with article 4 thereof.

Article 3. The Governments represented by the undersigned Plenipotentiaries also undertake not to use or threaten to use nuclear weapons against the Contracting Parties of the Treaty for the Prohibition of Nuclear Weapons in Latin America.

Article 4. The duration of this Protocol shall be the same as that of the Treaty for the Prohibition of Nuclear Weapons in Latin America of which this Protocol is an annex, and the definitions of territory and nuclear weapons set forth in articles 3 and 5 of the Treaty shall be applicable to the Protocol, as well as the provisions regarding ratification, reservations, denunciation, authentic texts and registration contained in articles 26, 27, 30 and 31 of the Treaty.

Article 5. This Protocol shall enter into force, for the States which have ratified it, on the date of the deposit of their respective instruments of ratification.

In witness whereof the undersigned Plenipotentiaries, having deposited their full powers, found in good and due form, sign this Treaty on behalf of their respective Governments.

GENERAL ASSEMBLY
OFFICIAL RECORDS
TWENTY-THIRD SESSION
Agenda item 96
FINAL DOCUMENT
OF THE CONFERENCE OF NON-NUCLEAR-WEAPON STATES

REPORT OF THE CONFERENCE OF NON-NUCLEAR-WEAPON STATES*

INTRODUCTION

1. By resolution 2153 B (XXI) of 17 November 1966, the General Assembly decided to convene a conference of non-nuclear-weapon States to meet not later than July 1968 to consider the following and other related questions:

"(a) How can the security of the non-nuclear States best be assured?

"(b) How may non-nuclear Powers co-operate among themselves in preventing the proliferation of nuclear weapons?

"(c) How can nuclear devices be used for exclusively peaceful purposes?"

By the same resolution, the General Assembly requested its President immediately to set up a preparatory committee, widely representative of the non-nuclear-weapon States, to make appropriate arrangements for convening the Conference and to consider the question of associating nuclear-weapon States with the work of the Conference and report thereon to the General Assembly at its twenty-second session.

2. In accordance with the provisions of resolution 2153 B (XXI), the President of the General Assembly at its twenty-first session announced on 20 December 1966 ^{1/} that the Preparatory Committee for the Conference of Non-Nuclear-Weapon States would be composed of the following Member States: Chile, Dahomey, Kenya, Kuwait, Malaysia, Malta, Nigeria, Pakistan, Peru, Spain, United Republic of Tanzania. The Preparatory Committee, under the chairmanship of Mr. Burudi Nabwera (Kenya), held a series of meetings between February and September 1967, and on 15 September 1967 adopted its report to the General Assembly. ^{2/}

3. At its 1640th plenary meeting on 19 December 1967, the General Assembly adopted its resolution 2346 B (XXII), reading as follows:

"The General Assembly,

"Recalling its resolution 2153 B (XXI) of 17 November 1966, by which it decided that a conference of non-nuclear-weapon States should be convened not later than July 1968,

"Having considered with appreciation the report of the Preparatory Committee for the Conference of Non-Nuclear-Weapon States,

* Previously issued under the symbol A/CONF.35/10.

^{1/} See Official Records of the General Assembly, Twenty-first Session, Plenary Meetings, 1500th meeting.

^{2/} Document A/6817 and Corr.1 (mimeographed).

"1. Approves the recommendations of the Preparatory Committee for the Conference of Non-Nuclear-Weapon States, subject to paragraph 2 below;

"2. Decides to convene the Conference of Non-Nuclear-Weapon States at Geneva from 29 August to 28 September 1968;

"3. Decides to invite to the Conference non-nuclear-weapon States Members of the United Nations and members of the specialized agencies and of the International Atomic Energy Agency;

"4. Requests the Secretary-General to make appropriate arrangements for convening the Conference in accordance with the recommendations of the Preparatory Committee."

ORGANIZATION OF THE CONFERENCE

4. The Conference was convened on 29 August 1968 at the Palais des Nations, Geneva. After the opening of the Conference by Mr. Vittorio Winspeare Guicciardi, Director-General of the United Nations Office at Geneva, the Conference elected as its President Mr. M. Arshad Husain, Minister for External Affairs of Pakistan.

5. At its second plenary meeting, on 30 August, the Conference established the Credentials Committee, consisting of the following States: Australia, Bulgaria, Ceylon, Costa Rica, Ireland, Jamaica, Japan, Madagascar, Morocco. Mr. Sean P. Kennan (Ireland) was elected Chairman of the Committee.

6. At the same meeting the Conference elected Mr. Hector Gros Espiell (Uruguay) and Mr. Burudi Nabwera (Kenya) Chairmen of its two main committees, Committee I and Committee II respectively.

7. At the same meeting, the Conference also elected twelve Vice-Presidents, as follows: Dr. Heinrich Haymerle (Austria), Mr. Julio Cesar Turbay Ayala (Colombia), Dr. José R. Martínez Cobo (Ecuador), Mr. Richard Maximilian Akwei (Ghana), Mr. Azim Husain (India), Mr. Piero Vinci (Italy), Mr. Senjin Tsuruoka (Japan), Mr. George Macovescu (Romania), Mr. Eduardo De Laiglesia (Spain), Dr. Hussein Khallaf (United Arab Republic), Mr. Earle E. Seaton (United Republic of Tanzania) and Mr. Dimçe Belovski (Yugoslavia).

8. At its 16th meeting, on 16 September 1968, the Conference decided to set up a drafting committee composed of Algeria, Argentina, Brazil, Canada, Ghana, India, Italy, Japan, Mexico, Nigeria, Pakistan, Poland, Romania, Switzerland and Zambia. Mr. Piero Vinci (Italy) and Mr. Antonio Gómez Robledo (Mexico) were elected Chairman and Vice-Chairman respectively.

9. The Conference held a series of meetings between 29 August and 28 September 1968. Ninety-six countries participated in the Conference (see annex I below). The International Atomic Energy Agency, the International Labour Organisation and the World Meteorological Organization were represented at the Conference by observers. The delegations of Austria, the Federal Republic of Germany, Italy, Pakistan, Somalia, Thailand and Uganda were represented by their Foreign Ministers and Cabinet Ministers.

AGENDA OF THE CONFERENCE

10. In its report to the General Assembly at its twenty-second session the Preparatory Committee had recommended a provisional agenda for the Conference which was circulated as a document of the Conference (see annex II).

11. The General Committee of the Conference, at its first meeting, decided to recommend to the Conference modifications in items 11 to 15 of the provisional agenda. The agenda, as recommended by the General Committee, was adopted by the

Conference at its third plenary meeting on 3 September 1968 (see annex III). The Conference also decided to allocate agenda items 11, 12 and 13 to Committee I, agenda item 14 to Committee II, and agenda item 15 to the plenary.

RULES OF PROCEDURE OF THE CONFERENCE

12. In its report to the General Assembly at its twenty-second session the Preparatory Committee had recommended draft rules of procedure for the Conference.^{3/}

13. At its second plenary meeting, the Conference adopted the draft rules of procedure, as recommended by the Preparatory Committee, with one modification, namely, rule 6 to be amended by the number of Vice-Presidents being increased from four to twelve (A/CONF.35/1).

WORK OF THE CONFERENCE

14. The Conference held twenty plenary meetings. Of these, fifteen meetings were taken up by the general debate during which fifty-four delegations took the floor. Committee I held twenty-two meetings between 4 and 26 September 1968 and Committee II held seventeen meetings between 4 and 25 September 1968. The reports of Committees I and II are annexed to the present report (annexes IV and V).

15. At its 20th plenary meeting, the Conference approved the report of the Credentials Committee (A/CONF.35/CR.1 and Add.1).

DOCUMENTATION

16. The Conference had before it a large number of documents. Apart from the pre-conference documentation prepared by the Secretariat of the United Nations in accordance with resolution 2346 B (XXII) of the General Assembly, the Conference had several working papers and a substantial number of draft proposals in the Committees and in plenary. A check-list of all those documents and the records of the Conference are annexed to the present report (annex VI).

DECISIONS TAKEN BY THE CONFERENCE

17. The Conference adopted the following resolutions and declaration and authorized its President to transmit them to the Secretary-General of the United Nations.

I. RESOLUTION RELATING TO MEASURES TO ASSURE THE SECURITY OF NON-NUCLEAR-WEAPON STATES (agenda item 11)

Resolution A

The Conference of Non-Nuclear-Weapon States,

Aware that mankind will continue to be exposed to the danger of nuclear war and destruction as long as there exist nuclear weapons,

Considering the perspectives opened up by the Treaty on the Non-Proliferation of Nuclear Weapons which has been recommended by resolution 2373 (XXII) of the United Nations General Assembly for the widest possible adherence by both nuclear-weapon and non-nuclear-weapon States,

^{3/} Ibid., annex II.

Conscious that all States, and in particular the non-nuclear-weapon States, will find lasting security only through general and complete disarmament by which all weapons, both nuclear and non-nuclear, will eventually be abolished, and that to this end a first condition is that the nuclear arms race be stopped,

Concerned that the basically unequal defensive capabilities of nuclear-weapon States and non-nuclear-weapon States must not jeopardize the inalienable right of every State to choose its political, economic, social and cultural system without interference in any form by other States,

Convinced that, therefore, the overriding principle of the non-use of force and the prohibition of the threat of force in relations between States, as expressed in Article 2 of the United Nations Charter, should be reaffirmed, and that this principle is indivisible and cannot be applied selectively, that every State has an equal and inalienable right to enjoy the protection afforded by this principle,

Convinced of the importance of the inherent right, recognized under Article 51 of the United Nations Charter, of individual or collective self-defence,

1. Reaffirms

(a) The principle, indivisible in its application, of the non-use of force and the prohibition of the threat of force in relations between States by employing nuclear or non-nuclear weapons, and the belief that all States without exception have an equal and inalienable right to enjoy the protection afforded by this principle, recognized under Article 2 of the United Nations Charter;

(b) The right to equality, sovereignty, territorial integrity, non-intervention in internal affairs and self-determination of every State;

(c) The inherent right, recognized under Article 51 of the United Nations Charter, of individual or collective self-defence which, apart from measures taken or authorized by the Security Council of the United Nations, is the only legitimate exception to the overriding principle of the non-use of force in relations between States,

2. Requests the nuclear-weapon States to reaffirm these principles on their behalf.

II. RESOLUTION RELATING TO THE ESTABLISHMENT OF NUCLEAR-WEAPON-FREE ZONES
(agenda item 12)

Resolution B

The Conference of Non-Nuclear-Weapon States,

Considering that the establishment of nuclear-weapon-free zones, on the initiative of the States situated within each zone concerned, is one of the measures which can contribute most effectively to halting the proliferation of those instruments of mass destruction and to promoting progress towards nuclear disarmament,

Noting that a nuclear-weapon-free zone is of benefit to the security and economic development of the States within the zone, since it frees their territories from the danger of nuclear attacks and avoids the squandering of their resources on the production of nuclear armaments,

Taking into account the conclusions which follow from resolutions 1911 (XVIII) and 2033 (XX) of the United Nations General Assembly,

Recalling that General Assembly resolution 2028 (XX) established the principle of an acceptable balance of mutual responsibilities and obligations of the nuclear-weapon and non-nuclear-weapon States,

Recalling further that in resolution 2153 A (XXI) the General Assembly expressly called upon all nuclear-weapon Powers to refrain from the use, or the threat of use, of nuclear weapons against States which might conclude regional treaties in order to ensure the total absence of nuclear weapons in their respective territories,

Convinced that, for the maximum effectiveness of any treaty establishing a nuclear-weapon-free zone, the co-operation of the nuclear-weapon States is necessary and that such co-operation should take the form of commitments likewise undertaken in a formal international instrument which is legally binding, such as a treaty, convention or protocol,

Observing that the Treaty for the Prohibition of Nuclear Weapons in Latin America, ^{4/} also known as the Treaty of Tlatelolco, has already established a nuclear-weapon-free zone comprising territories densely populated by man,

Noting that Additional Protocol II of that Treaty defines the following obligations to be assumed by the nuclear-weapon States:

(a) To respect "in all its express aims and provisions" the "statute of denuclearization of Latin America in respect of warlike purposes, as defined, delimited and set forth" in the Treaty of Tlatelolco;

(b) "not to contribute in any way to the performance of acts involving a violation of the obligations of article 1 of the Treaty in the territories to which the Treaty applies",

(c) "not to use or threaten to use nuclear weapons against the Contracting Parties of the Treaty",

Recalling that in resolution 2286 (XXII) the General Assembly invited Powers possessing nuclear weapons "to sign and ratify Additional Protocol II of the Treaty as soon as possible",

I.

Recommends that all non-nuclear-weapon States not comprised in the zone established by the Treaty of Tlatelolco initiate or continue such studies as they may deem opportune concerning the possibility and desirability of establishing by treaty the military denuclearization of their respective zones, provided that political and security conditions permit.

II.

1. Regrets the fact that not all the nuclear-weapon States have yet signed Additional Protocol II of the Treaty of Tlatelolco;

2. Urges the nuclear-weapon Powers to comply fully with paragraph 4 of resolution 2286 (XXII), adopted by the United Nations General Assembly on 5 December 1967.

^{4/} See Official Records of the General Assembly, Twenty-second Session, Annexes, agenda item 91, document A/C.1/946.

III. RESOLUTIONS RELATING TO EFFECTIVE MEASURES FOR THE PREVENTION OF FURTHER PROLIFERATION OF NUCLEAR WEAPONS, THE CESSATION OF THE NUCLEAR ARMS RACE AT AN EARLY DATE AND NUCLEAR DISARMAMENT (agenda item 13)

Resolution C

The Conference of Non-Nuclear-Weapon States,

Having discussed the question of "Effective measures for the prevention of further proliferation of nuclear weapons, the cessation of the nuclear arms race at an early date and nuclear disarmament",

Bearing in mind that the achievement of the goal of nuclear non-proliferation necessitates the adoption of measures to prevent both horizontal and vertical proliferation,

Recognizing the growing concern of world opinion at the continuous expansion of research and development relating to new nuclear weapons,

Mindful of the report of the Conference of the Eighteen-Nation Committee on Disarmament to the United Nations General Assembly of 4 September 1968, 5/

Convinced that an agreement on nuclear disarmament would be facilitated by the adoption of various collateral measures,

Considering that such collateral measures should promote general and complete disarmament under international control,

Requests the United Nations General Assembly, at its twenty-third regular session, to recommend that the Conference of the Eighteen-Nation Committee on Disarmament should begin, not later than March 1969, to undertake negotiations for:

(a) The prevention of the further development and improvement of nuclear weapons and their delivery vehicles;

(b) The conclusion of a comprehensive test-ban treaty, as an important step in the field of nuclear disarmament, and as a matter of high priority;

(c) Reaching agreement on the immediate cessation of the production of fissile materials for weapons purposes and the stoppage of the manufacture of nuclear weapons;

(d) The reduction and subsequent elimination of all stockpiles of nuclear weapons and their delivery systems.

Resolution D

The Conference of Non-Nuclear-Weapon States,

Noting the agreement reached between the Governments of the Union of Soviet Socialist Republics and the United States of America in July 1968 to enter in the nearest future into bilateral discussion on the limitation of both offensive strategic nuclear-weapons delivery systems and systems of defence against ballistic missiles,

Observing that such discussions have not yet taken place,

5/ Official Records of the Disarmament Commission, Supplement for 1967 and 1968, document DC/231.

Recalling that article VI of the Treaty on Non-Proliferation of Nuclear Weapons embodies an undertaking of the Parties to the Treaty to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament,

Convinced that negotiations between the two nuclear-weapon Powers should aim at, and lead to, negotiations among all such Powers with a view to the cessation of the nuclear arms race and to the achievement of nuclear disarmament and relaxation of tensions,

Deeply concerned at the imminent danger of a renewal of the strategic nuclear arms race and its escalation to new levels which would become uncontrollable and of the consequent grave threat to the security of all States,

Emphasizing the special responsibility of the Union of Soviet Socialist Republics and the United States of America to avert that danger,

Conscious of the vital need of mankind for a diversion to peaceful purposes of the resources at present consumed by the maintenance and augmentation of nuclear destructive power,

Urges the Governments of the Union of Soviet Socialist Republics and the United States of America to enter at an early date into bilateral discussions on the limitation of offensive strategic nuclear-weapons delivery systems and systems of defence against ballistic missiles.

Resolution E

The Conference of Non-Nuclear-Weapon States,

Convinced that the proliferation of nuclear weapons would endanger the security of all States,

Recognizing the urgency and great importance of preventing the proliferation of nuclear weapons,

Recognizing further that the danger continues to exist that an increase in the number of States possessing nuclear weapons may occur, aggravating international tension and the difficulty of maintaining regional and world peace and security,

Mindful that the International Atomic Energy Agency is most suited to administer safeguards designed to prevent the diversion of source or special fissionable material from peaceful uses to the production of nuclear weapons or other nuclear explosive devices,

Recommends the acceptance of that Agency's system of safeguards, as it may evolve from time to time, by all the non-nuclear-weapon States, as set forth in an agreement to be negotiated and concluded with the Agency in accordance with its safeguards system, which would provide against diversion of source or fissionable material, whether it is produced, processed or used in any principal nuclear facility or is outside any such facility established with or without the assistance of the Agency, including those principal nuclear facilities which may have been established in pursuance of any bilateral or multilateral arrangements, as a step towards the non-proliferation of nuclear weapons.

Resolution F

The Conference of Non-Nuclear-Weapon States,

Considering that the non-proliferation of nuclear weapons is regarded as a step towards effective nuclear disarmament and a contribution to international co-operation in the peaceful uses of nuclear energy,

Recalling that both nuclear-weapon and non-nuclear-weapon States carry the responsibility of acting in accordance with the principles of the United Nations Charter, including the principle that the sovereign equality of all States should be respected,

Considering that, because of the present structure of the International Atomic Energy Agency, many countries are not adequately represented in its Board of Governors, which is the organ responsible for safeguards in that Agency,

Considering that any system of collective inspection must be based on the principle that every country inspected must be adequately represented in the body responsible for carrying out the inspections,

Considering also that it is necessary to improve and simplify the safeguards system at present being applied by the International Atomic Energy Agency, so that it can better discharge its new responsibilities,

Emphasizing the desirability of promoting activities for the establishment of a modern and efficient safeguards system based on supervision of the flow of fissionable materials, by means of instruments and other techniques at certain strategic points.

1. Recommends the establishment, within the International Atomic Energy Agency and under its Board of Governors, of institutional machinery on safeguards of which both countries supplying nuclear materials, and member countries, whether possessing nuclear facilities or not, shall form part;

2. Recommends to the International Atomic Energy Agency that, in the process of improving and simplifying the safeguards system, inter alia, the following objectives be given appropriate consideration;

(a) The safeguard procedures should be simplified by the use of instruments and other technical devices at certain strategic points of the flow of nuclear materials, with a view to restricting the safeguarding operations to the necessary minimum,

(b) Simplification of safeguards in respect of fissionable materials in small quantities for use in scientific research,

(c) Incorporation in the agreements of the rules laid down against industrial risks, including industrial espionage, by the statute of the International Atomic Energy Agency, the decisions of the Board of Governors and the directives of the Director General, particularly with regard to the possibility of challenging inspectors;

3. Urges the nuclear-weapon Powers to conclude with the International Atomic Energy Agency safeguard agreements consistent with the relevant rules;

4. Considers it essential that rules should be drawn up to avoid duplication of safeguard procedures and consequent commercial discrimination;

5. Invites the Secretary-General of the United Nations, Secretary-General of the Conference, to communicate this resolution to the International Atomic Energy Agency, together with the records of the discussions thereon and other relevant documents.

IV. RESOLUTIONS RELATING TO PROGRAMMES FOR CO-OPERATION IN THE FIELD OF PEACEFUL USES OF NUCLEAR ENERGY (agenda item 14)

Resolution G

The Conference of Non-Nuclear-Weapon States,

Considering that nuclear energy has opened up new perspectives for the progress of mankind, and especially for the economic and scientific advancement of developing countries,

Having in mind the conclusions of the Board of Governors of the International Atomic Energy Agency contained in the latest report of the Agency, 6/ in which it is observed that many developing countries are not sufficiently aware of the contribution which atomic energy can bring to the development of their economies,

Believing that the peoples of the world, and especially the peoples of the developing countries, should be made fully aware of the present and potential opportunities,

Noting the interest in acquiring a thorough knowledge of the various aspects of the question of peaceful applications of nuclear energy, as reflected in the deliberations of the Conference of Non-Nuclear-Weapon States,

1. Requests the Secretary-General of the United Nations to appoint a group of experts, chosen on a personal basis, to prepare a full report on all possible contributions of nuclear technology to the economic and scientific advancement of the developing countries;

2. Recommends the Secretary-General to draw the attention of the group of experts to the desirability of taking advantage of the experience of the International Atomic Energy Agency in preparing the report;

3. Requests the Secretary-General to transmit the report to the Governments of States Members of the United Nations, its specialized agencies and the Agency in time to permit its consideration at the twenty-fourth regular session of the General Assembly.

Resolution H

The Conference of Non-Nuclear-Weapon States,

Recalling resolutions 2028 (XX), 2153 B (XXI), 2346 B (XXII) and 2373 (XXII) of the United Nations General Assembly,

Mindful of the relevant articles of the statute of the International Atomic Energy Agency,

Recognizing that many speakers have emphasized their Government's increasing interest in the peaceful uses of nuclear energy for economic and social development, an interest further stimulated by article IV of the Treaty on the Non-Proliferation of Nuclear Weapons and compatible with recent advances in the technology of nuclear power,

Recalling also that article V of the Treaty calls for appropriate international procedures in order for non-nuclear-weapon States to receive the potential benefits arising from any peaceful applications of nuclear explosions,

Noting the International Atomic Energy Agency's activities to carry out the function of stimulating international exchange of scientific and technological information and its efforts to assist developing countries in their efforts to acquire technical capabilities in the field of peaceful uses of nuclear power, .

Noting that the Agency during the decade of its existence has gained valuable experience in carrying out these functions and has therefore already enlarged the contribution of atomic energy for peace, health and prosperity throughout the world,

6/ International Atomic Energy Agency, Review of the Agency's Activities (document GC (XI)/362).

Taking note of the fact that several delegations have expressed the opinion that the membership of the Board of Governors of the International Atomic Energy Agency should be enlarged so as to reflect equitable geographical distribution,

Aware that member States of the Agency have agreed to place certain amounts of fissionable materials at the disposal of the Agency, for use in Agency projects,

I

1. Calls upon the Agency to continue its utmost efforts for compilation and dissemination of public information concerning the peaceful uses of nuclear energy, including those related to the peaceful application of nuclear explosions;
2. Recommends that the Agency study appropriate international arrangements to facilitate the exchange of scientific and technical information which has commercial or industrial value and is not publicly available, so as to make it possible for interested countries to know of the existence and outline of such information and to enable the interested parties to enter into negotiations about the acquisition of such information with the owners thereof;
3. Invites the nuclear-weapon States to advise the Agency at regular intervals as to the possibility of their declassifying scientific and technical information which has become essential for the development of the peaceful uses of nuclear energy, as soon as there is no longer any reason for its classification on national security grounds, bearing in mind all the benefits to be derived from the dissemination of scientific knowledge.

II

Recommends that the Agency study further the ways and means of increasing the funds available for technical assistance, taking into full consideration the views of interested countries, particularly those of the developing countries, expressed in this Conference;

III

1. Recommends that the Agency study the most effective means of ensuring access to special fissionable materials on a commercial basis;
2. Urges the nuclear-weapon States to facilitate, to the fullest extent possible, the availability of fissionable materials for the peaceful nuclear programmes of the non-nuclear-weapon States accepting the application of safeguards as envisaged in article III of the Treaty.

IV

Recommends that the Agency, in relation to the question of nuclear explosions for peaceful purposes, initiate necessary studies that are deemed advisable on its possible functions in this field.

V

Expresses its assumption that the Agency will examine at an appropriate time its procedures and arrangements, as well as the question of the composition of the Board of Governors, with a view to adapting them as necessary in the light of its new responsibilities.

VI

1. Requests the Secretary-General of the United Nations to bring this

resolution to the attention of the Agency, together with the relevant records of the proceedings of the Conference of Non-Nuclear-Weapon States and the relevant proposals submitted thereto;

2. Invites the Agency to bear the present resolution in mind in preparing its annual reports for the General Assembly.

Resolution I

The Conference of Non-Nuclear-Weapon States,

Considering that nuclear power technology and the uses of radiation sources and radioisotopes in the fields of agriculture, hydrology, medicine and industry have been developed to the extent that they can accelerate the programmes of economic development of a large number of developing countries,

Realizing that the nuclear projects are generally capital intensive and require a well-trained corps of nuclear scientists, engineers and technicians,

Noting that the technical assistance provided by the International Atomic Energy Agency through voluntary contributions of its member States, has fallen short of the demands made by developing member States of the Agency, for fellowships, services of experts, equipment and materials,

Aware of the difficulties experienced by a large number of developing countries in securing financial support for the nuclear projects and training of their personnel for the operation and maintenance of those projects, even when such projects have been found to be technically feasible and economically viable,

Recommends that the International Atomic Energy Agency should undertake to examine the basis on which arrangements can be made by the Agency to secure finances from international sources for the creation of a "Special Nuclear Fund" (SNF) to be made available in the form of grants and low-interest-bearing loans, repayable over long periods of time, for financing the nuclear projects which have been found by the Agency to be technically feasible and economically viable in the territories of non-nuclear-weapon States which are members of the Agency, particularly those in the developing areas of the world, and which may make request to the Agency under the provisions of article XI B of the Agency's statute.

Resolution J

The Conference of Non-Nuclear-Weapon States,

Convinced that non-nuclear-weapon States have the inalienable right to use nuclear energy for their technological and economic development,

Considering that non-nuclear-weapon States should have full access on a non-discriminatory basis to equipment, materials and scientific and technological information for the peaceful applications of nuclear energy,

Mindful that international co-operation should play a decisive role in disseminating the peaceful applications of nuclear energy,

Considering that it is urgently necessary to increase multilateral assistance and co-operation in order to promote and facilitate those applications,

Recognizing the desirability of strengthening existing activities and establishing new programmes designed to effect a rapid increase in the use of nuclear energy for peaceful purposes,

Noting that international co-operation with a view to the peaceful utilization of nuclear energy is at present limited by the shortage of financial resources at the disposal of developing non-nuclear-weapon States and by the fact that it is not given priority in the programmes of the various suppliers of international finance,

Expressing its conviction that the financial resources and fissionable materials that would be released by the adoption of nuclear disarmament measures should also be used to serve the economic development of the developing countries, and especially their technological and scientific progress,

Considering that the existence of an adequate supply of special fissionable materials is one of the essential conditions for the peaceful utilization of nuclear energy,

Observing that although some nuclear countries, pursuant to article IX of the statute of the International Atomic Energy Agency, have made various quantities of special fissionable materials available to the Agency, an increasing demand by non-nuclear-weapon States for such materials can be foreseen for the future, and that it is therefore necessary to keep an adequate reserve accessible to those States,

I

1. Requests the United Nations General to consider at its twenty-third regular session the establishment, within the United Nations Development Programme, of a nuclear technology research and development programme to be executed as a matter of priority with the co-operation of the International Atomic Energy Agency for the benefit of the developing countries;

2. Requests the International Bank for Reconstruction and Development to consider, at the next meeting of its Board of Governors, the establishment for the benefit of the developing countries of a programme for the use of nuclear energy in economic development projects which would be a matter of priority and under which finance would be granted on the most favourable terms as regards interest and repayment periods;

3. Invites the nuclear-weapon States to assume the main responsibility for financing the two programmes;

II

1. Requests the General Conference of the International Atomic Energy Agency to consider at its next meeting the establishment of a fund of special fissionable materials for the benefit of non-nuclear-weapon States and in particular of developing countries;

2. Invites the nuclear-weapon States to give a firm undertaking regarding the supply of such materials to that fund at reasonable prices and in adequate quantities at the request of non-nuclear-weapon States;

III

Also recommends the nuclear-weapon States, independently of the contributions provided for in section I, paragraph 3, and section II, paragraph 2, above, to channel into the proposed programmes and fund a substantial share of such financial resources and special fissionable materials as may be released in the future as a result of the adoption of nuclear disarmament measures.

Resolution K

The Conference of Non-Nuclear-Weapon States,

Recalling that article III of the statute of the International Atomic Energy Agency has the following aims:

"1. To encourage and assist research on, and development and practical application of, atomic energy for peaceful uses throughout the world; and, if requested to do so, to act as an intermediary for the purposes of securing the performance of services or the supplying of materials, equipment, or facilities by one member of the Agency for another; and to perform any operation or service useful in research on, or development or practical application of, atomic energy for peaceful purposes;

"2. To make provision, in accordance with this Statute, for materials, services, equipment, and facilities to meet the needs of research on, and development and practical application of, atomic energy for peaceful purposes; including the production of electric power, with due consideration for the needs of the under-developed areas of the world;

"3. To foster the exchange of scientific and technical information on peaceful uses of atomic energy;

"4. To encourage the exchange and training of scientists and experts in the field of peaceful uses of atomic energy;"

Appreciating the work already done by the Agency in this field;

Noting however the wide dissatisfaction expressed by participants in the Conference of Non-Nuclear-Weapon States with regard to the unrepresentative nature of the Agency and that the views of the developing countries are not given full expression;

Recommends to the Agency that representation on its Board of Governors be broadened so as to reflect equitable geographical distribution and the views of a broad spectrum of the developing countries.

Resolution L

The Conference of Non-Nuclear-Weapon States,

Recognizing the importance and urgency of halting all nuclear-weapon tests by the rapid conclusion of a comprehensive test-ban treaty,

Aware that, with further technological progress, important benefits may be derived from the peaceful uses of nuclear explosives,

Bearing in mind the discrimination and different treatment of States inherent in the present situation, allowing nuclear-weapon States to conduct without international conference any project in the field of nuclear explosions, the only internationally formalized limitation being the rules of the Partial Test Ban Treaty, 7/ while other States would be able to obtain the benefits from nuclear explosions for peaceful purposes only in an indirect way under the rules of article V of the Treaty on the Non-Proliferation of Nuclear Weapons,

Convinced, therefore, of the urgent need, on the one hand, to obtain a comprehensive test ban treaty, prohibiting in principle all nuclear explosions, on the other hand, to create, in a separate international instrument, a régime,

7/ Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water, signed on 5 August 1963 in Moscow.

aiming at regulating and controlling, internationally, all explosions for peaceful purposes as exceptions from the general prohibition under the comprehensive test ban,

Noting the joint memorandum on a comprehensive test ban treaty presented on 26 August 1968 to the Conference of the Eighteen-Nation Committee on Disarmament by the delegations of Brazil, Burma, Ethiopia, India, Mexico, Nigeria, Sweden and the United Arab Republic, 8/

Endorses the opinion expressed in that document that the question of nuclear explosions for peaceful purposes is also closely linked with a comprehensive test ban, this aspect of the matter underlining the urgency of a universal and comprehensive solution of the problem of nuclear explosions for peaceful purposes compatible with a comprehensive test ban treaty.

Resolution M

The Conference of Non-Nuclear-Weapon States,

Believing that freedom of access to scientific institutions and nuclear establishments engaged in research and development of the peaceful uses of nuclear energy, as well as access to scientific and technological information in the nuclear field among the non-nuclear-weapon States and between the non-nuclear-weapon States and the nuclear-weapon States, leads to the promotion of nuclear technology,

Realizing that technical assistance rendered by nuclear-weapon States and such non-nuclear-weapon States as have advanced in the field of nuclear technology, through bilateral or multilateral channels, to those non-nuclear-weapon States which are less advanced, helps them to acquire the benefits of nuclear technology,

Considering the importance of strengthening all possible measures to prevent the proliferation of nuclear weapons,

Requests all nuclear-weapon States and those non-nuclear-weapon States which are in a position to do so, to provide access for students and scientists for purposes of training and acquisition of knowledge on a non-discriminatory basis to their scientific institutions and nuclear establishments engaged in research and development of the peaceful uses of nuclear energy.

V. RESOLUTION AND DECLARATION RELATING TO THE ADOPTION OF THE FINAL DOCUMENT AND THE IMPLEMENTATION OF THE DECISIONS OF THE CONFERENCE (agenda item 15)

Resolution N

The Conference of Non-Nuclear-Weapon States,

Considering that, in order to ensure that the aims of the Conference are fully achieved, it is necessary to establish a procedure for the preparation of the studies and drafts called for in the recommendations adopted by the Conference,

Bearing in mind that the multiplicity and importance of the resolutions adopted by the Conference call for the continuity of the work undertaken,

Invites the General Assembly, at its present session, to consider the best ways and means for the implementation of the decisions taken by the Conference, and the continuity of the work undertaken, and at a subsequent session, to consider the question of the convening of a second conference of non-nuclear-weapon States.

8/ See Official Records of the Disarmament Commission, Supplement for 1967 and 1968, document DC/231, annex I, sect. 10.

Declaration of the Conference of Non-Nuclear-Weapon States

The Conference of Non-Nuclear-Weapon States was held at Geneva from 29 August to 28 September 1968 with the participation of ninety-two non-nuclear-weapon States - Afghanistan, Algeria, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Bulgaria, Burma, Burundi, Cameroon, Canada, Ceylon, Chile, China, Colombia, Costa Rica, Czechoslovakia, Dahomey, Denmark, the Dominican Republic, Ecuador, El Salvador, Ethiopia, the Federal Republic of Germany, Finland, Ghana, Greece, Guatemala, Hungary, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Japan, Jordan, Kenya, Kuwait, Laos, Lebanon, Liberia, Libya, Liechtenstein, Luxembourg, Madagascar, Malta, Mauritius, Mexico, Mongolia, Morocco, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Korea, the Republic of Viet-Nam, Romania, San Marino, Saudi Arabia, Somalia, South Africa, Southern Yemen, Spain, Sweden, Switzerland, Syria, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, the United Arab Republic, the United Republic of Tanzania, Uruguay, Venezuela, Yemen, Yugoslavia and Zambia - as well as of France, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

Guided by the conviction that peace and security, like development in the world, are indivisible, and recognizing the universal responsibilities and obligations in this regard, the Conference addressed itself to the problems of universal peace and, in particular, the security of non-nuclear-weapon States, cessation of the nuclear arms race, general and complete disarmament and harnessing of nuclear energy exclusively for peaceful purposes, and has agreed on the following:

1. The participants of the Conference noted that there was a general acceptance of the fact that the future of mankind cannot be secure without the complete elimination of the use or threat of use of force in the spirit of the United Nations Charter. The Conference agreed that peace and progress could not be safeguarded for any nation unless the security of all nations is assured. The Conference stresses the necessity of further steps for an early solution of the question of security assurances in the nuclear era.

2. The participants consider as their sacred duty to appeal to all countries of the world to observe the United Nations Charter and the generally accepted norms of international law governing relations among States.

3. The Conference considers that an immediate cessation of the arms race and the acceleration of the process of nuclear disarmament and general and complete disarmament under effective international control are indispensable for the safeguarding of world peace and security, independence and economic progress of all countries.

The Conference recommends that, pending the achievement of general and complete disarmament under effective international control, steps be undertaken urgently with a view to reaching agreements on various collateral measures.

4. In this context, the Conference has noted the Treaty on the Non-Proliferation of Nuclear weapons, which was commended by United Nations General Assembly resolution 2373 (XXII). The Conference considers that the Treaty should be followed up by measures of disarmament, in particular nuclear disarmament.

5. The Conference considers that nuclear-weapon-free zones, established under appropriate conditions, constitute an effective contribution to the prevention of the proliferation of nuclear weapons and to the promotion of disarmament. It notes with satisfaction the progress already achieved with regard to nuclear-weapon-free zones established by the Treaty for the Prohibition of Nuclear Weapons in Latin America.

6. The Conference further considers that possibilities for the peaceful use of nuclear energy have increased, which is of particular importance for the economic development of non-nuclear-weapon countries and for an accelerated development of the developing countries. It is imperative to ensure conditions which would promote the peaceful uses of nuclear energy, encourage international co-operation in this area, ensure unhampered flow of nuclear materials under appropriate and effective international safeguards, as well as information, scientific knowledge and advanced nuclear technology exclusively for peaceful purposes on a non-discriminatory basis. The Conference stresses the importance of the potential use of nuclear explosive devices for peaceful purposes within appropriate and effective international safeguards which should be prepared as soon as possible and under strict international control.

The Conference reiterates the need for appropriate international assistance, including financing, for the purposes of greater application of the peaceful uses of nuclear energy. In this respect the Conference underlines the necessity of an active co-operation and co-ordination of the programmes of all international organizations and agencies concerned with the development of developing countries. At the same time it recognizes the important role of the International Atomic Energy Agency, whose resources should be increased but which should adapt itself adequately for its further responsibilities.

The Conference is therefore of the view that all nations and particularly nuclear-weapon Powers should accordingly be urged to facilitate international co-operation in the use of nuclear energy for peaceful purposes. At the same time, every assistance should be given to develop the indigenous facilities for research and application of scientific knowledge for peaceful purposes to meet the challenge of modernization and progress which confronts the developing nations.

7. The Conference notes with satisfaction the spirit of co-operation which prevailed among participants in the Conference and expresses the hope that this co-operation would be further developed among the non-nuclear-weapon States and between them and the nuclear-weapon States in the interests of world peace and progress.

8. Bearing in mind the complexity of the problems mentioned above and the need for their further consideration, the Conference recommends to the General Assembly of the United Nations the continuation of the efforts to deal with these problems, considering the best ways and means for the implementation of the decisions taken by the Conference, including the consideration of the question of convening another conference at an appropriate time.

9. The participants of the Conference wish to reaffirm, on this occasion also, their full adherence to the principles of the United Nations Charter and to the obligations assumed on the basis thereof. They confirm their determination to contribute through concrete efforts to the constant strengthening of the Organization of the United Nations and to the acceptance of its principles, as well as to the implementation of its noble objectives.

Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof*

The States Parties to this Treaty.

Recognizing the common interest of mankind in the progress of the exploration and use of the sea-bed and the ocean floor for peaceful purposes,

Considering that the prevention of a nuclear arms race on the sea-bed and the ocean floor serves the interests of maintaining world peace, reduces international tensions and strengthens friendly relations among States,

Convinced that this Treaty constitutes a step towards the exclusion of the sea-bed, the ocean floor and the subsoil thereof from the arms race,

Convinced that this Treaty constitutes a step towards a treaty on general and complete disarmament under strict and effective international control, and determined to continue negotiations to this end,

Convinced that this Treaty will further the purposes and principles of the Charter of the United Nations, in a manner consistent with the principles of international law and without infringing the freedoms of the high seas,

Have agreed as follows:

Article I

1. The States Parties to this Treaty undertake not to emplant or emplace on the sea-bed and the ocean floor and in the subsoil thereof beyond the outer limit of a sea-bed zone, as defined in article II, any nuclear weapons or any other types of weapons of mass destruction as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons.

2. The undertakings of paragraph 1 of this article shall also apply to the sea-bed zone referred to in the same paragraph, except that within such sea-bed zone, they shall not apply either to the coastal State or to the sea-bed beneath its territorial waters.

*Status of Multilateral Arms Regulation and Disarmament Agreements. Special Supplement to the United Nations Disarmament Yearbook, Vol. II: 1977. (New York: United Nations, 1978), pp. 97-101. The Treaty was signed at London, Moscow and Washington on 11 February 1971.

3. The States Parties to this Treaty undertake not to assist, encourage or induce any State to carry out activities referred to in paragraph 1 of this article and not to participate in any other way in such actions.

Article II

For the purpose of this Treaty, the outer limit of the sea-bed zone referred to in article I shall be coterminous with the twelve-mile outer limit of the zone referred to in part II of the Convention on the Territorial Sea and the Contiguous Zone, signed at Geneva on 29 April 1958, and shall be measured in accordance with the provisions of part I, section II, of that Convention and in accordance with international law.

Article III

1. In order to promote the objectives of and ensure compliance with the provisions of this Treaty, each State Party to the Treaty shall have the right to verify through observation the activities of other States Parties to the Treaty on the sea-bed and the ocean floor and in the subsoil thereof beyond the zone referred to in article I, provided that observation does not interfere with such activities.

2. If after such observation reasonable doubts remain concerning the fulfilment of the obligations assumed under the Treaty, the State Party having such doubts and the State Party that is responsible for the activities giving rise to the doubts shall consult with a view to removing the doubts. If the doubts persist, the State Party having such doubts shall notify the other States Parties, and the Parties concerned shall co-operate on such further procedures for verification as may be agreed, including appropriate inspection of objects, structures, installations or other facilities that reasonably may be expected to be of a kind described in article I. The Parties in the region of the activities, including any coastal State, and any other Party so requesting, shall be entitled to participate in such consultation and co-operation. After completion of the further procedures for verification, an appropriate report shall be circulated to other Parties by the Party that initiated such procedures.

3. If the State responsible for the activities giving rise to the reasonable doubts is not identifiable by observation of the object, structure, installation or other facility, the State Party having such doubts shall notify and make appropriate inquiries of States Parties in the region of the activities and of any other State Party. If it is ascertained through these inquiries that a particular State Party is responsible for the activities, that State Party shall consult and co-operate with other Parties as provided in paragraph 2 of this article. If the identity of the State responsible for the activities cannot be ascertained through these inquiries, then further verification procedures, including inspection, may be undertaken by the inquiring State Party,

which shall invite the participation of the Parties in the region of the activities, including any coastal State, and of any other Party desiring to co-operate.

4. If consultation and co-operation pursuant to paragraphs 2 and 3 of this article have not removed the doubts concerning the activities and there remains a serious question concerning fulfilment of the obligations assumed under this Treaty, a State Party may, in accordance with the provisions of the Charter of the United Nations, refer the matter to the Security Council, which may take action in accordance with the Charter.

5. Verification pursuant to this article may be undertaken by any State Party using its own means, or with the full or partial assistance of any other State Party, or through appropriate international procedures within the framework of the United Nations and in accordance with its Charter.

6. Verification activities pursuant to this Treaty shall not interfere with activities of other States Parties and shall be conducted with due regard for rights recognized under international law, including the freedoms of the high seas and the rights of coastal States with respect to the exploration and exploitation of their continental shelves.

Article IV

Nothing in this Treaty shall be interpreted as supporting or prejudicing the position of any State Party with respect to existing international conventions, including the 1958 Convention on the Territorial Sea and the Contiguous Zone, or with respect to rights or claims which such State Party may assert, or with respect to recognition or non-recognition of rights or claims asserted by any other State, related to waters off its coasts, including, *inter alia*, territorial seas and contiguous zones, or to the sea-bed and the ocean floor, including continental shelves.

Article V

The Parties to this Treaty undertake to continue negotiations in good faith concerning further measures in the field of disarmament for the prevention of an arms race on the sea-bed, the ocean floor and the subsoil thereof.

Article VI

Any State Party may propose amendments to this Treaty. Amendments shall enter into force for each State Party accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and, thereafter, for each remaining State Party on the date of acceptance by it.

Article VII

Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held at Geneva, Switzerland, in order

to review the operation of this Treaty with a view to assuring that the purposes of the preamble and the provisions of the Treaty are being realized. Such review shall take into account any relevant technological developments. The review conference shall determine, in accordance with the views of a majority of those Parties attending, whether and when an additional review conference shall be convened.

Article VIII

Each State Party to this Treaty shall in exercising its national sovereignty have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject-matter of this Treaty have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other States Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it considers to have jeopardized its supreme interests.

Article IX

The provisions of this Treaty shall in no way affect the obligations assumed by States Parties to the Treaty under international instruments establishing zones free from nuclear weapons.

Article X

1. This Treaty shall be open for signature to all States. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and of accession shall be deposited with the Governments of the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America, which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after the deposit of instruments of ratification by twenty-two Governments, including the Governments designated as Depositary Governments of this Treaty.

4. For States whose instruments of ratification or accession are deposited after the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform the Governments of all signatory and acceding States of the date of each signature, of the date of deposit of each instrument of ratification or of accession, of the date of the entry into force of this Treaty, and of the receipt of other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article XI

This Treaty, the Chinese, English, French, Russian and Spanish texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the States signatory and acceding thereto.

IN WITNESS WHEREOF the undersigned, being duly authorized thereto, have signed this Treaty.

DONE in triplicate, at the cities of London, Moscow and Washington, this seventh day of February, one thousand nine hundred seventy-one.

APPENDIX 11 A

Strategic Arms Limitation Agreements

1972

Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems*

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Proceeding from the premise that nuclear war would have devastating consequences for all mankind,

Considering that effective measures to limit anti-ballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms and would lead to a decrease in the risk of outbreak of war involving nuclear weapons,

Proceedings from the premise that the limitation of anti-ballistic missile systems, as well as certain agreed measures with respect to the limitation of strategic offensive arms, would contribute to the creation of more favorable conditions for further negotiations on limiting strategic arms,

Mindful of their obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to take effective measures toward reductions in strategic arms, nuclear disarmament, and general and complete disarmament,

Desiring to contribute to the relaxation of international tension and the strengthening of trust between States,

Have agreed as follows :

ARTICLE I

1. Each Party undertakes to limit anti-ballistic missile (ABM) systems and to adopt other measures in accordance with the provisions of this Treaty.

* DOSB, Vol. LXVI, No. 1722, 26 June 1972, pp. 918-920.

2. Each Party undertakes not to deploy ABM systems for a defense of the territory of its country and not to provide a base for such a defense, and not to deploy ABM systems for defense of an individual region except as provided for in Article III of this Treaty.

ARTICLE II

1. For the purposes of this Treaty an ABM system is a system to counter strategic ballistic missiles or their elements in flight trajectory, currently consisting of :

(a) ABM interceptor missiles, which are interceptor missiles constructed and deployed for an ABM role, or of a type tested in an ABM mode;

(b) ABM launchers, which are launchers constructed and deployed for launching ABM interceptor missiles; and

(c) ABM radars, which are radars constructed and deployed for an ABM role, or of a type tested in an ABM mode.

2. The ABM system components listed in paragraph 1 of this Article include those which are :

(a) operational;

(b) under construction;

(c) undergoing testing;

(d) undergoing overhaul, repair or conversion; or

(e) mothballed.

ARTICLE III

Each Party undertakes not to deploy ABM systems or their components except that :

(a) within one ABM system deployment area having a radius of one hundred and fifty kilometers and centered on the Party's national capital, a Party may deploy : (1) no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles at launch sites, and (2) ABM radars within no more than six ABM radar complexes, the area of each complex being circular and having a diameter of no more than three kilometers; and

(b) within one ABM system deployment area having a radius of one hundred and fifty kilometers and containing ICBM silo launchers, a Party may deploy : (1) no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles at launch sites, (2) two large phased-array ABM radars comparable in potential to corresponding ABM radars operational or under construction on the date of signature of the Treaty in an ABM system deployment area containing ICBM silo launchers, and (3) no more than eighteen ABM radars each having a potential less than the potential of the smaller of the above-mentioned two large phased-array ABM radars.

ARTICLE IV

The limitations provided for in Article III shall not apply to ABM systems or their components used for development or testing, and located within current or additionally agreed test ranges. Each Party may have no more than a total of fifteen ABM launchers at test ranges.

ARTICLE V

1. Each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based.

2. Each Party undertakes not to develop, test, or deploy ABM launchers for launching more than one ABM interceptor missile at a time from each launcher, nor to modify deployed launchers to provide them with such a capability, nor to develop, test, or deploy automatic or semi-automatic or other similar systems for rapid reload of ABM launchers.

ARTICLE VI

To enhance assurance of the effectiveness of the limitations on ABM systems and their components provided by this Treaty, each Party undertakes :

(a) not to give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode; and

(b) not to deploy in the future radars for early warning of strategic ballistic missile attack except at locations along the periphery of its national territory and oriented outward.

ARTICLE VII

Subject to the provisions of this Treaty, modernization and replacement of ABM systems or their components may be carried out.

ARTICLE VIII

ABM systems or their components in excess of the numbers or outside the areas specified in this Treaty, as well as ABM systems or their components prohibited by this Treaty, shall be destroyed or dismantled under agreed procedures within the shortest possible agreed period of time.

ARTICLE IX

To assure the viability and effectiveness of this Treaty, each Party undertakes not to transfer to other States, and not to deploy outside its national territory, ABM systems or their components limited by this Treaty.

ARTICLE X

Each Party undertakes not to assume any international obligations which would conflict with this Treaty.

ARTICLE XI

The Parties undertake to continue active negotiations for limitations on strategic offensive arms.

ARTICLE XII

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article.

3. Each Party undertakes not to use deliberate concealment measures which impede verification by national technical means of compliance with the provisions of this Treaty. This obligation shall not require changes in current construction, assembly, conversion, or overhaul practices.

ARTICLE XIII

1. To promote the objectives and implementation of the provisions of this Treaty, the Parties shall establish promptly a Standing Consultative Commission, within the framework of which they will :

(a) consider questions concerning compliance with the obligations assumed and related situations which may be considered ambiguous;

(b) provide on a voluntary basis such information as either Party considers necessary to assure confidence in compliance with the obligations assumed;

(c) consider questions involving unintended interference with national technical means of verification;

(d) consider possible changes in the strategic situation which have a bearing on the provisions of this Treaty;

(e) agree upon procedures and dates for destruction or dismantling of ABM systems or their components in cases provided for by the provisions of this Treaty;

(f) consider, as appropriate, possible proposals for further increasing the viability of this Treaty, including proposals for amendments in accordance with the provisions of this Treaty;

(g) consider, as appropriate, proposals for further measures aimed at limiting strategic arms.

2. The Parties through consultation shall establish, and may amend as appropriate, Regulations for the Standing Consultative Commission governing procedures, composition and other relevant matters.

ARTICLE XIV

1. Each Party may propose amendments to this Treaty. Agreed amendments shall enter into force in accordance with the procedures governing the entry into force of this Treaty.

2. Five years after entry into force of this Treaty, and at five year intervals thereafter, the Parties shall together conduct a review of this Treaty.

ARTICLE XV

1. This Treaty shall be of unlimited duration.

2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

ARTICLE XVI

1. This Treaty shall be subject to ratification in accordance with the constitutional procedures of each Party. The Treaty shall enter into force on the day of the exchange of instruments of ratification.

2. This Treaty shall be registered pursuant to Article 102 of the Charter of the United Nations.

DONE at Moscow on May 26, 1972, in two copies, each in the English and Russian languages, both texts being equally authentic.

For the United States of America :

RICHARD NIXON

President of the United States of America

For the Union of Soviet Socialist Republics :

LEONID I. BREZHNEV

General Secretary of the Central Committee of the CPSU

APPENDIX 11 B

Interim Agreement Between the United States of America
and the Union of Soviet Socialist Republics
on Certain Measures With Respect to the Limitation
of Strategic Offensive Arms*

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Convinced that the Treaty on the Limitation of Anti-Ballistic Missile Systems and this Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Offensive Arms will contribute to the creation of more favorable conditions for active negotiations on limiting strategic arms as well as to the relaxation of international tension and the strengthening of trust between States,

Taking into account the relationship between strategic offensive and defensive arms,

Mindful of their obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons,

Have agreed as follows :

ARTICLE I

The Parties undertake not to start construction of additional fixed land-based intercontinental ballistic missile (ICBM) launchers after July 1, 1972.

ARTICLE II

The Parties undertake not to convert land-based launchers for light ICBMs, or for ICBMs of older types deployed prior to 1964, into land-based launchers for heavy ICBMs of types deployed after that time.

* DOSE, Vol. LXVI, No. 1722, 26 June 1972, pp. 920-921.

ARTICLE III

The Parties undertake to limit submarine-launched ballistic missile (SLBM) launchers and modern ballistic missile submarines to the numbers operational and under construction on the date of signature of this Interim Agreement, and in addition to launchers and submarines constructed under procedures established by the Parties as replacements for an equal number of ICBM launchers of older types deployed prior to 1964 or for launchers on older submarines.

ARTICLE IV

Subject to the provisions of this Interim Agreement, modernization and replacement of strategic offensive ballistic missiles and launchers covered by this Interim Agreement may be undertaken.

ARTICLE V

1. For the purpose of providing assurance of compliance with the provisions of this Interim Agreement, each Party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article.

3. Each Party undertakes not to use deliberate concealment measures which impede verification by national technical means of compliance with the provisions of this Interim Agreement. This obligation shall not require changes in current construction, assembly, conversion, or overhaul practices.

ARTICLE VI

To promote the objectives and implementation of the provisions of this Interim Agreement, the Parties shall use the Standing Consultative Commission established under Article XIII of the Treaty on the Limitation of Anti-Ballistic Missile Systems in accordance with the provisions of that Article.

ARTICLE VII

The Parties undertake to continue active negotiations for limitations on strategic offensive arms. The obligations provided for in this Interim Agreement shall not prejudice the scope or terms of the limitations on strategic offensive arms which may be worked out in the course of further negotiations.

ARTICLE VIII

1. This Interim Agreement shall enter into force upon exchange of written notices of acceptance by each Party, which exchange shall take place simultaneously with the exchange of instruments of ratification of the Treaty on the Limitation of Anti-Ballistic Missile Systems.

2. This Interim Agreement shall remain in force for a period of five years unless replaced earlier by an agreement on more complete measures limiting strategic offensive arms. It is the objective of the Parties to conduct active follow-on negotiations with the aim of concluding such an agreement as soon as possible.

3. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Interim Agreement if it decides that extraordinary events related to the subject matter of this Interim Agreement have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from this Interim Agreement. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

DONE at Moscow on May 26, 1972, in two copies, each in the English and Russian languages, both texts being equally authentic.

For the United States of America :

RICHARD NIXON

President of the United States of America

For the Union of Soviet Socialist Republics :

LEONID I. BREZHNEV

General Secretary of the Central Committee of the CPSU

Protocol to the Interim Agreement Between
the United States of America and
the Union of Soviet Socialist Republics
on Certain Measures With Respect to The Limitation
of Strategic Offensive Arms*

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Having agreed on certain limitations relating to submarine-launched ballistic missile launchers and modern ballistic missile submarines, and to replacement procedures, in the Interim Agreement,

Have agreed as follows :

The Parties understand that, under Article III of the Interim Agreement, for the period during which that Agreement remains in force :

The US may have no more than 710 ballistic missile launchers on submarines (SLBMs) and no more than 44 modern ballistic missile submarines. The Soviet Union may have no more than 950 ballistic missile launchers on submarines and no more than 62 modern ballistic missile submarines.

Additional ballistic missile launchers on submarines up to the above-mentioned levels, in the U.S. - over 656 ballistic missile launchers on nuclear-powered submarines, and in the U.S.S.R. - over 740 ballistic missile launchers on nuclear-powered submarines, operational and under construction, may become operational as replacements for equal numbers of ballistic missile launchers of older types deployed prior to 1964 or of ballistic missile launchers on older submarines.

* DOSB, Vol. LXVI, No. 1722, 26 June 1972, p. 921.

The deployment of modern SLBMs on any submarine, regardless of type, will be counted against the total level of SLBMs permitted for the U.S. and the U.S.S.R.

This Protocol shall be considered an integral part of the Interim Agreement.

DONE at Moscow this 26th day of May, 1972.

For the United States of America :

RICHARD NIXON

President of the United States of America

For the Union of Soviet Socialist Republics :

LEONID I. BREZHNEV

General Secretary of the Central Committee of the CPSU

Agreed Interpretations and Unilateral Statements *

AGREED INTERPRETATIONS

(a) INITIALED STATEMENTS.

The texts of the statements set out below were agreed upon and initialed by the Heads of the Delegations on May 26, 1972.

ABM Treaty

[A]

The Parties understand that, in addition to the ABM radars which may be deployed in accordance with subparagraph (a) of Article III of the Treaty, those non-phased-array ABM radars operational on the date of signature of the Treaty within the ABM system deployment area for defense of the national capital may be retained.

[B]

The Parties understand that the potential (the product of mean emitted power in watts and antenna area in square meters) of the smaller of the two large phased-array ABM radars referred to in subparagraph (b) of Article III of the Treaty is considered for purposes of the Treaty to be three million.

[C]

The Parties understand that the center of the ABM system deployment area centered on the national capital and the center of the ABM system deployment area containing icbm silo launchers for each Party shall be separated by no less than thirteen hundred kilometers.

[D]

The Parties agree not to deploy phased-array radars having a potential (the product of mean emitted power in watts and antenna area in square meters) exceeding three million, except as provided for in Articles III, IV and VI of the Treaty, or except for the purposes of tracking objects in outer space or for use as national technical means of verification.

[E]

In order to insure fulfillment of the obligation not to deploy ABM systems and their components except as provided in Article III of the

* DOSB, Vol. LXVII, No. 1723, 3 July 1972, pp. 11-14

Treaty, the Parties agree that in the event ABM systems based on other physical principles and including components capable of substituting for the ABM interceptor missiles, ABM launchers, or ABM radars are created in the future, specific limitations on such systems and their components would be subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV of the Treaty.

[F]

The Parties understand that Article V of the Treaty includes obligations not to develop, test or deploy ABM interceptor missiles for the delivery by each ABM interceptor missile of more than one independently guided warhead.

[G]

The Parties understand that Article IX of the Treaty includes the obligation of the US and the USSR not to provide to other States technical descriptions or blueprints specially worked out for the construction of ABM systems and their components limited by the Treaty.

Interim Agreement

[H]

The Parties understand that land-based ICBM launchers referred to in the Interim Agreement are understood to be launchers for strategic ballistic missiles capable of ranges in excess of the shortest distance between the northeastern border of the continental U.S. and the northwestern border of the continental USSR.

[I]

The Parties understand that fixed land-based ICBM launchers under active construction as of the date of signature of the Interim Agreement may be completed.

[J]

The Parties understand that in the process of modernization and replacement the dimensions of land-based ICBM silo launchers will not be significantly increased.

[K]

The Parties understand that dismantling or destruction of ICBM launchers of older types deployed prior to 1964 and ballistic missile launchers on older submarines being replaced by new SLBM launchers on modern submarines will be initiated at the time of the beginning of sea trials of a replacement submarine, and will be completed in the shortest possible agreed period of time. Such dismantling or destruction, and timely notification thereof, will be accomplished under procedures to be agreed in the Standing Consultative Commission.

[L]

The Parties understand that during the period of the Interim Agreement there shall be no significant increase in the number of ICBM or SLBM test and training launchers, or in the number of such launchers for modern land-based heavy ICBMs. The Parties further understand that construction or conversion of ICBM launchers at test ranges shall be undertaken only for purposes of testing and training.

(b) COMMON UNDERSTANDINGS.

Common understanding of the Parties on the following matters was reached during the negotiations:

A. Increase in ICBM Silo Dimensions

Ambassador Smith made the following statement on May 26, 1972: "The Parties agree that the term 'significantly increased' means that an increase will not be greater than 10-15 percent of the present dimensions of land-based ICBM silo launchers."

Minister Semenov replied that this statement corresponded to the Soviet understanding.

B. Location of ICBM Defenses

The U.S. Delegation made the following statement on May 26, 1972: "Article III of the ABM Treaty provides for each side one ABM system deployment area centered on its national capital and one ABM system deployment area containing ICBM silo launchers. The two sides have registered agreement on the following statement: 'The Parties understand that the center of the ABM system deployment area centered on the national capital and the center of the ABM system deployment area containing ICBM silo launchers for each Party shall be separated by no less than thirteen hundred kilometers.' In this connection, the U.S. side notes that its ABM system deployment area for defense of ICBM silo launchers, located west of the Mississippi River, will be centered in the Grand Forks ICBM silo launcher deployment area." (See Initialed Statement [C].)

C. ABM Test Ranges

The U.S. Delegation made the following statement on April 26, 1972: "Article IV of the ABM Treaty provides that 'the limitations provided for in Article III shall not apply to ABM systems or their components used for development or testing, and located within current or additionally agreed test ranges.' We believe it would be useful to assure that there is no misunderstanding as to current ABM test ranges. It is our understanding that ABM test ranges encompass the area within which ABM components are located for test purposes. The current U.S. ABM test ranges are at White Sands, New Mexico, and at Kwajalein

Atoll, and the current Soviet ABM test range is near Sary Shagan in Kazakhstan. We consider that non-phased array radars of types used for range safety or instrumentation purposes may be located outside of ABM test ranges. We interpret the reference in Article IV to 'additionally agreed test ranges' to mean that ABM components will not be located at any other test ranges without prior agreement between our Governments that there will be such additional ABM test ranges."

On May 5, 1972, the Soviet Delegation stated that there was a common understanding on what ABM test ranges were, that the use of the types of non-ABM radars for range safety or instrumentation was not limited under the Treaty, that the reference in Article IV to "additionally agreed" test ranges was sufficiently clear, and that national means permitted identifying current test ranges.

D. Mobile ABM Systems

On January 28, 1972, the U.S. Delegation made the following statement: "Article V(1) of the Joint Draft Text of the ABM Treaty includes an undertaking not to develop, test, or deploy mobile land-based ABM systems and their components. On May 5, 1971, the U.S. side indicated that, in its view, a prohibition on deployment of mobile ABM systems and components would rule out the deployment of ABM launchers and radars which were not permanent fixed types. At that time, we asked for the Soviet view of this interpretation. Does the Soviet side agree with the U.S. side's interpretation put forward on May 5, 1971?"

On April 13, 1972, the Soviet Delegation said there is a general common understanding on this matter.

E. Standing Consultative Commission

Ambassador Smith made the following statement on May 24, 1972: "The United States proposes that the sides agree that, with regard to initial implementation of the ABM Treaty's Article XIII on the Standing Consultative Commission (scc) and of the consultation Articles to the Interim Agreement on offensive arms and the Accidents Agreement,¹ agreement establishing the scc will be worked out early in the follow-on SALT negotiations; until that is completed, the following arrangements will prevail: when SALT is in session, any consultation desired by either side under these Articles can be carried out by the two SALT Delegations; when SALT is not in session, *ad hoc* arrangements for any desired consultations under these Articles may be made through diplomatic channels."

Minister Semenov replied that, on an *ad referendum* basis, he could agree that the U.S. statement corresponded to the Soviet understanding.

¹ See Article 7 of Agreement to Reduce the Risk of Outbreak of Nuclear War Between the United States of America and the Union of Soviet Socialist Republics, signed September 30, 1971.

F. Standstill

On May 6, 1972, Minister Semenov made the following statement: "In an effort to accommodate the wishes of the U.S. side, the Soviet Delegation is prepared to proceed on the basis that the two sides will in fact observe the obligations of both the Interim Agreement and the ABM Treaty beginning from the date of signatures of these two documents."

In reply, the U.S. Delegation made the following statement on May 20, 1972: "The U.S. agrees in principle with the Soviet statement made on May 6 concerning observance of obligations beginning from date of signature but we would like to make clear our understanding that this means that, pending ratification and acceptance, neither side would take any action prohibited by the agreements after they had entered into force. This understanding would continue to apply in the absence of notification by either signatory of its intention not to proceed with ratification or approval."

The Soviet Delegation indicated agreement with the U.S. statement.

UNILATERAL STATEMENTS

(a) The following noteworthy unilateral statements were made during the negotiations by the United States Delegation:

A. *Withdrawal from the ABM Treaty*

On May 9, 1972, Ambassador Smith made the following statement: "The U.S. Delegation has stressed the importance the U.S. Government attaches to achieving agreement on more complete limitations on strategic offensive arms, following agreement on an ABM Treaty and on an Interim Agreement on certain measures with respect to the limitation of strategic offensive arms. The U.S. Delegation believes that an objective of the follow-on negotiations should be to constrain and reduce on a long-term basis threats to the survivability of our respective strategic retaliatory forces. The USSR Delegation has also indicated that the objectives of SALT would remain unfulfilled without the achievement of an agreement providing for more complete limitations on strategic offensive arms. Both sides recognize that the initial agreements would be steps toward the achievement of more complete limitations on strategic arms. If an agreement providing for more complete strategic offensive arms limitations were not achieved within five years, U.S. supreme interests could be jeopardized. Should that occur, it would constitute a basis for withdrawal from the ABM Treaty. The U.S. does not wish to see such a situation occur, nor do we believe that the USSR does. It is because we wish to prevent such a situation that we emphasize the importance the U.S. Government attaches to achievement of more complete limitations on strategic offensive arms. The

U.S. Executive will inform the Congress, in connection with Congressional consideration of the ABM Treaty and the Interim Agreement of this statement of the U.S. position."

B. Land-Mobile ICBM Launchers

The U.S. Delegation made the following statement on May 20, 1972: "In connection with the important subject of land-mobile ICBM launchers, in the interest of concluding the Interim Agreement the U.S. Delegation now withdraws its proposal that Article I or an agreed statement explicitly prohibit the deployment of mobile land-based ICBM launchers. I have been instructed to inform you that, while agreeing to defer the question of limitation of operational land-mobile ICBM launchers to the subsequent negotiations on more complete limitations on strategic offensive arms, the U.S. would consider the deployment of operational land-mobile ICBM launchers during the period of the Interim Agreement as inconsistent with the objectives of that Agreement."

C. Covered Facilities

The U.S. Delegation made the following statement on May 20, 1972: "I wish to emphasize the importance that the United States attaches to the provisions of Article V, including in particular their application to fitting out or berthing submarines."

D. "Heavy" ICBMs

The U.S. Delegation made the following statement on May 26, 1972: "The U.S. Delegation regrets that the Soviet Delegation has not been willing to agree on a common definition of a heavy missile. Under these circumstances, the U.S. Delegation believes it necessary to state the following: The United States would consider any ICBM having a volume significantly greater than that of the largest light ICBM now operational on either side to be a heavy ICBM. The U.S. proceeds on the premise that the Soviet side will give due account to this consideration."

E. Tested in ABM Mode

On April 7, 1972, the U.S. Delegation made the following statement: "Article II of the Joint Draft Text uses the term 'tested in an ABM mode,' in defining ABM components, and Article VI includes certain obligations concerning such testing. We believe that the sides should have a common understanding of this phrase. First, we would note that the testing provisions of the ABM Treaty are intended to apply to testing which occurs after the date of signature of the Treaty, and not to any testing which may have occurred in the past. Next, we would amplify the remarks we have made on this subject during the previous Helsinki phase by setting forth the objectives which govern the U.S. view on the subject, namely, while prohibiting testing of non-ABM components for

ABM purposes: not to prevent testing of ABM components, and not to prevent testing of non-ABM components for non-ABM purposes. To clarify our interpretation of 'tested in an ABM mode,' we note that we would consider a launcher, missile or radar to be 'tested in an ABM mode' if, for example, any of the following events occur: (1) a launcher is used to launch an ABM interceptor missile, (2) an interceptor missile is flight tested against a target vehicle which has a flight trajectory with characteristics of a strategic ballistic missile flight trajectory, or is flight tested in conjunction with the test of an ABM interceptor missile or an ABM radar at the same test range, or is flight tested to an altitude inconsistent with interception of targets against which air defenses are deployed, (3) a radar makes measurements on a cooperative target vehicle of the kind referred to in item (2) above during the reentry portion of its trajectory or makes measurements in conjunction with the test of an ABM interceptor missile or an ABM radar at the same test range. Radars used for purposes such as range safety or instrumentation would be exempt from application of these criteria."

F. No-Transfer Article of ABM Treaty

On April 18, 1972, the U.S. Delegation made the following statement: "In regard to this Article [IX], I have a brief and I believe self-explanatory statement to make. The U.S. side wishes to make clear that the provisions of this Article do not set a precedent for whatever provision may be considered for a Treaty on Limiting Strategic Offensive Arms. The question of transfer of strategic offensive arms is a far more complex issue, which may require a different solution."

G. No Increase in Defense of Early Warning Radars

On July 28, 1970, the U.S. Delegation made the following statement: "Since Hen House radars [Soviet ballistic missile early warning radars] can detect and track ballistic missile warheads at great distances, they have a significant ABM potential. Accordingly, the U.S. would regard any increase in the defenses of such radars by surface-to-air missiles as inconsistent with an agreement."

* * * * *

(b) The following noteworthy unilateral statement was made by the Delegation of the U.S.S.R. and is shown here with the U.S. reply:

On May 17, 1972, Minister Semenov made the following unilateral "Statement of the Soviet Side:" "Taking into account that modern ballistic missile submarines are presently in the possession of not only the U.S., but also of its NATO allies, the Soviet Union agrees that for the period of effectiveness of the Interim 'Freeze' Agreement the U.S. and its NATO allies have up to 50 such submarines with a total of up to 800

ballistic missile launchers thereon (including 41 U.S. submarines with 656 ballistic missile launchers). However, if during the period of effectiveness of the Agreement U.S. allies in NATO should increase the number of their modern submarines to exceed the numbers of submarines they would have operational or under construction on the date of signature of the Agreement, the Soviet Union will have the right to a corresponding increase in the number of its submarines. In the opinion of the Soviet side, the solution of the question of modern ballistic missile submarines provided for in the Interim Agreement only partially compensates for the strategic imbalance in the deployment of the nuclear-powered missile submarines of the USSR and the U.S. Therefore, the Soviet side believes that this whole question, and above all the question of liquidating the American missile submarine bases outside the U.S., will be appropriately resolved in the course of follow-on negotiations."

On May 24, Ambassador Smith made the following reply to Minister Semenov: "The United States side has studied the 'statement made by the Soviet side' of May 17 concerning compensation for submarine basing and SLBM submarines belonging to third countries. The United States does not accept the validity of the considerations in that statement."

On May 26 Minister Semenov repeated the unilateral statement made on May 17. Ambassador Smith also repeated the U.S. rejection on May 26.

BASIC PRINCIPLES OF NEGOTIATIONS
ON THE FURTHER LIMITATION
OF STRATEGIC OFFENSIVE ARMS
21 JUNE 1973*

The President of the United States of America, Richard Nixon, and the General Secretary of the Central Committee of the CPSU, L. I. Brezhnev,

Having thoroughly considered the question of the further limitation of strategic arms, and the progress already achieved in the current negotiations,

Reaffirming their conviction that the earliest adoption of further limitations of strategic arms would be a major contribution in reducing the danger of an outbreak of nuclear war and in strengthening international peace and security,

Have agreed as follows:

First. The two Sides will continue active negotiations in order to work out a permanent agreement on more complete measures on the limitation of strategic offensive arms, as well as their subsequent reduc-

* DOSB, Vol. LXIX, No. 1778, 23 July 1973, p. 158.

tion, proceeding from the Basic Principles of Relations between the United States of America and the Union of Soviet Socialist Republics signed in Moscow on May 29, 1972, and from the Interim Agreement between the United States of America and the Union of Soviet Socialist Republics of May 26, 1972 on Certain Measures with Respect to the Limitation of Strategic Offensive Arms.

Over the course of the next year the two Sides will make serious efforts to work out the provisions of the permanent agreement on more complete measures on the limitation of strategic offensive arms with the objective of signing it in 1974.

Second. New agreements on the limitation of strategic offensive armaments will be based on the principles of the American-Soviet documents adopted in Moscow in May 1972 and the agreements reached in Washington in June 1973; and in particular, both Sides will be guided by the recognition of each other's equal security interests and by the recognition that efforts to obtain unilateral advantage, directly or indirectly, would be inconsistent with the strengthening of peaceful relations between the United States of America and the Union of Soviet Socialist Republics.

Third. The limitations placed on strategic offensive weapons can apply both to their quantitative aspects as well as to their qualitative improvement.

Fourth. Limitations on strategic offensive arms must be subject to adequate verification by national technical means.

Fifth. The modernization and replacement of strategic offensive arms would be permitted under conditions which will be formulated in the agreements to be concluded.

Sixth. Pending the completion of a permanent agreement on more complete measures of strategic offensive arms limitation, both Sides are prepared to reach agreements on separate measures to supplement the existing Interim Agreement of May 26, 1972.

Seventh. Each Side will continue to take necessary organizational and technical measures for preventing accidental or unauthorized use of nuclear weapons under its control in accordance with the Agreement of September 30, 1971 between the United States of America and the Union of Soviet Socialist Republics.

Washington, June 21, 1973

For the United States
of America:

RICHARD NIXON

*President of the United
States of America*

For the Union of Soviet
Socialist Republics:

L. I. BREZHNEV

*General Secretary of the
Central Committee, CPSU*

AGREEMENT BETWEEN THE UNITED STATES
OF AMERICA AND THE UNION OF
THE SOVIET SOCIALIST REPUBLICS
ON THE PREVENTION OF NUCLEAR WAR
22 JUNE 1973*

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Guided by the objectives of strengthening world peace and international security,

Conscious that nuclear war would have devastating consequences for mankind,

Proceeding from the desire to bring about conditions in which the danger of an outbreak of nuclear war anywhere in the world would be reduced and ultimately eliminated,

Proceeding from their obligation under the Charter of the United Nations regarding the maintenance of peace, refraining from the threat or use of force, and the avoidance of war, and in conformity with the agreements to which either Party has subscribed,

Proceeding from the Basic Principles of Relations between the United States of America and the Union of Soviet Socialist Republics signed in Moscow on May 29, 1972,

Reaffirming that the development of relations between the United States of America and the Union of Soviet Socialist Republics is not directed against other countries and their interests,

Have agreed as follows:

ARTICLE I

The United States and the Soviet Union agree that an objective of their policies is to remove the danger of nuclear war and of the use of nuclear weapons.

Accordingly, the Parties agree that they will act in such a manner as to prevent the development of situations capable of causing a dangerous exacerbation of their relations, as to avoid military confrontations, and as to exclude the outbreak of nuclear war between them and between either of the Parties and other countries.

ARTICLE II

The Parties agree, in accordance with Article I and to realize the objective stated in that Article, to proceed from the premise that each

* DOSB, Vol. LXIX, No. 1778, 23 July 1973, pp. 160-161.

Party will refrain from the threat or use of force against the other Party, against the allies of the other Party and against other countries, in circumstances which may endanger international peace and security. The Parties agree that they will be guided by these considerations in the formulation of their foreign policies and in their actions in the field of international relations.

ARTICLE III

The Parties undertake to develop their relations with each other and with other countries in a way consistent with the purposes of this Agreement.

ARTICLE IV

If at any time relations between the Parties or between either Party and other countries appear to involve the risk of a nuclear conflict, or if relations between countries not parties to this Agreement appear to involve the risk of nuclear war between the United States of America and the Union of Soviet Socialist Republics or between either Party and other countries, the United States and the Soviet Union, acting in accordance with the provisions of this Agreement, shall immediately enter into urgent consultations with each other and make every effort to avert this risk.

ARTICLE V

Each Party shall be free to inform the Security Council of the United Nations, the Secretary General of the United Nations and the Governments of allied or other countries of the progress and outcome of consultations initiated in accordance with Article IV of this Agreement.

ARTICLE VI

Nothing in this Agreement shall affect or impair:

(a) the inherent right of individual or collective self-defense as envisaged by Article 51 of the Charter of the United Nations.

(b) the provisions of the Charter of the United Nations, including those relating to the maintenance or restoration of international peace and security, and

(c) the obligations undertaken by either Party towards its allies or other countries in treaties, agreements, and other appropriate documents.

ARTICLE VII

This Agreement shall be of unlimited duration.

The Threshold Test Ban
and Protocol
1974

Treaty between the United States of America and
the Union of Soviet Socialist Republics on the
Limitation of Underground Nuclear Weapon Tests*

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to take effective measures towards reductions in strategic arms, nuclear disarmament, and general and complete disarmament under strict and effective international control,

Recalling the determination expressed by the Parties to the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water in its preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time, and to continue negotiations to this end,

Noting that the adoption of measures for the further limitation of underground nuclear weapon tests would contribute to the achievement of these objectives and would meet the interests of strengthening peace and the further relaxation of international tension,

Reaffirming their adherence to the objectives and principles of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water and of the Treaty on the Non-Proliferation of Nuclear Weapons,

Have agreed as follows:

ARTICLE I

1. Each Party undertakes to prohibit, to prevent, and not to carry out any underground nuclear weapon test having a yield exceeding 150 kilotons at any place under its jurisdiction or control, beginning 31 March 1976.

2. Each Party shall limit the number of its underground nuclear weapon tests to a minimum.

3. The Parties shall continue their negotiations with a view towards achieving a solution to the problem of the cessation of all underground nuclear weapon tests.

* UN Doc. A/9698, 9 Aug. 1974, Ann. I.

ARTICLE II

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with the generally recognized principles of international law.

2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this article.

3. To promote the objectives and implementation of the provisions of this Treaty the Parties shall, as necessary, consult with each other, make inquiries and furnish information in response to such inquiries.

ARTICLE III

The provisions of this Treaty do not extend to underground nuclear explosions carried out by the Parties for peaceful purposes. Underground nuclear explosions for peaceful purposes shall be governed by an agreement which is to be negotiated and concluded by the Parties at the earliest possible time.

ARTICLE IV

This Treaty shall be subject to ratification in accordance with the constitutional procedures of each Party. This Treaty shall enter into force on the day of the exchange of instruments of ratification.

ARTICLE V

1. This Treaty shall remain in force for a period of five years. Unless replaced earlier by an agreement in implementation of the objectives specified in paragraph 3 of article I of this Treaty, it shall be extended for successive five-year periods unless either Party notifies the other of its termination no later than six months prior to the expiration of the Treaty. Before the expiration of this period the Parties may, as necessary, hold consultations to consider the situation relevant to the substance of this Treaty and to introduce possible amendments to the text of the Treaty.

2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject-matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from this Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

3. This Treaty shall be registered pursuant to Article 102 of the Charter of the United Nations.

Done at Moscow on 3 July 1974, in duplicate, in the English and Russian languages, both texts being equally authentic.

For the United States
of America:

(Signed) Richard NIXON
President of the
United States of America

For the Union of Soviet
Socialist Republics:

(Signed) I. I. BREZHNEV
General Secretary of the
Central Committee of the CPSU

APPENDIX 14B

Protocol to the Treaty between the United States of America
and the Union of Soviet Socialist Republics on the Limitation
of Underground Nuclear Weapon Tests *

The United States of America and the Union of Soviet Socialist Republics,
hereinafter referred to as the Parties,

Having agreed to limit underground nuclear weapon tests,

Have agreed as follows:

1. For the purpose of ensuring verification of compliance with the obligations of the Parties under the Treaty by national technical means, the Parties shall, on the basis of reciprocity, exchange the following data:

* UN Doc. A/9698, 9 Aug. 1974, Ann. II.

(a) The geographic co-ordinates of the boundaries of each test site and of the boundaries of the geophysically distinct testing areas therein.

(b) Information on the geology of the testing areas of the sites (the rock characteristics of geological formations and the basic physical properties of the rock, i.e., density, seismic velocity, water saturation, porosity and depth of water table).

(c) The geographic co-ordinates of underground nuclear weapon tests, after they have been conducted.

(d) Yield, date, time, depth and co-ordinates for two nuclear weapon tests for calibration purposes from each geophysically distinct testing area where underground nuclear weapon tests have been and are to be conducted. In this connexion the yield of such explosions for calibration purposes should be as near as possible to the limit defined in article I of the Treaty and not less than one tenth of that limit. In the case of testing areas where data are not available on two tests for calibration purposes, the data pertaining to one such test shall be exchanged, if available, and the data pertaining to the second test shall be exchanged as soon as possible after a second test having a yield in the above-mentioned range. The provisions of this Protocol shall not require the Parties to conduct tests solely for calibration purposes.

2. The Parties agree that the exchange of data pursuant to subparagraphs (a), (b) and (d) of paragraph 1 shall be carried out simultaneously with the exchange of instruments of ratification of the Treaty, as provided in article IV of the Treaty, having in mind that the Parties shall, on the basis of reciprocity, afford each other the opportunity to familiarize themselves with these data before the exchange of instruments of ratification.

3. Should a Party specify a new test site or testing area after the entry into force of the Treaty, the data called for by subparagraphs (a) and (b) of paragraph 1 shall be transmitted to the other Party in advance of use of that site or area. The data called for by subparagraph (d) of paragraph 1 shall also be transmitted in advance of use of that site or area if they are available; if they are not available, they shall be transmitted as soon as possible after they have been obtained by the transmitting Party.

4. The Parties agree that the test sites of each Party shall be located at places under its jurisdiction or control and that all nuclear weapon tests shall be conducted solely within the testing areas specified in accordance with paragraph 1.

5. For the purposes of the Treaty, all underground nuclear explosions at the specified test sites shall be considered nuclear weapon tests and shall be subject to all the provisions of the Treaty relating to nuclear weapon tests. The provisions of article III of the Treaty apply to all underground nuclear explosions conducted outside of the specified test sites, and only to such explosions.

This Protocol shall be considered an integral part of the Treaty.

Done at Moscow on 3 July 1974.

For the United States
of America:

(Signed) Richard NIXON
President of the
United States of America

For the Union of Soviet
Socialist Republics:

(Signed) L. I. BREZHNEV
General Secretary of the
Central Committee of the CPSU

APPENDIX 15

Protocol to the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems*

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Proceeding from the basic principles of relations between the United States of America and the Union of Soviet Socialist Republics signed on 29 May 1972,

Desiring to further the objectives of the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems signed on 26 May 1972, hereinafter referred to as the Treaty,

Reaffirming their conviction that the adoption of further measures for the limitation of strategic arms would contribute to strengthening international peace and security,

Proceeding from the premise that further limitation of anti-ballistic missile systems will create more favourable conditions for the completion of work on a permanent agreement on more complete measures for the limitation of strategic offensive arms,

Have agreed as follows:

ARTICLE I

1. Each Party shall be limited at any one time to a single area out of the two provided in article III of the Treaty for deployment of anti-ballistic missile (ABM) systems or their components and accordingly shall not exercise its right to deploy an ABM system or its components in the second of the two ABM system deployment areas permitted by article III of the Treaty, except as an exchange of one permitted area for the other in accordance with article II of this Protocol.

* UN Doc. A/9698, 9 Aug. 1974, Ann. III.

2. Accordingly, except as permitted by article II of this Protocol: The United States of America shall not deploy an AMB system or its components in the area centred on its capital, as permitted by article III (a) of the Treaty, and the Soviet Union shall not deploy an APM system or its components in the deployment area of intercontinental ballistic missile (ICBM) silo launchers as permitted by article III (b) of the Treaty.

ARTICLE II

1. Each Party shall have the right to dismantle or destroy its ABM system and the components thereof in the area where they are presently deployed and to deploy an ABM system or its components in the alternative area permitted by article III of the Treaty, provided that prior to initiation of construction, notification is given in accord with the procedure agreed to in the Standing Consultative Commission during the year beginning 3 October 1977 and ending 2 October 1978, or during any year which commences at five-year intervals thereafter, those being the years for periodic review of the Treaty, as provided in article XIV of the Treaty. This right may be exercised only once.

2. Accordingly, in the event of such notice, the United States would have the right to dismantle or destroy the ABM system and its components in the deployment area of ICBM silo launchers and to deploy an ABM system or its components in an area centred on its capital, as permitted by article III (a) of the Treaty, and the Soviet Union would have the right to dismantle or destroy the ABM system and its components in the area centred on its capital and to deploy an ABM system or its components in an area containing ICBM silo launchers, as permitted by article III (b) of the Treaty.

3. Dismantling or destruction and deployment of ABM systems or their components and the notification thereof shall be carried out in accordance with article VIII of the ABM Treaty and procedures agreed to in the Standing Consultative Commission.

ARTICLE III

The rights and obligations established by the Treaty remain in force and shall be complied with by the Parties except to the extent modified by this Protocol. In particular, the deployment of an ABM system or its components within the area selected shall remain limited by the levels and other requirements established by the Treaty.

ARTICLE IV

This Protocol shall be subject to ratification in accordance with the constitutional procedures of each Party. It shall enter into force on the day of the exchange of instruments of ratification and shall thereafter be considered an integral part of the Treaty.

Done at Moscow on 3 July 1974, in duplicate, in the English and Russian languages, both texts being equally authentic.

For the United States
of America:

(Signed) Richard NIXON
President of the
United States of America

For the Union of Soviet
Socialist Republics:

(Signed) L. I. BREZHNEV
General Secretary of the
Central Committee of the CPSU

JOINT U.S.-SOVIET STATEMENT ON STRATEGIC
OFFENSIVE ARMS

VLADIVOSTOK, 24 NOVEMBER 1974*

During their working meeting in the area of Vladivostok on November 23-24, 1974, the President of the USA Gerald R. Ford and General Secretary of the Central Committee of the CPSU L. I. Brezhnev discussed in detail the question of further limitations of strategic offensive arms.

They reaffirmed the great significance that both the United States and the USSR attach to the limitation of strategic offensive arms. They are convinced that a long-term agreement on this question would be a significant contribution to improving relations between the US and the USSR, to reducing the danger of war and to enhancing world peace. Having noted the value of previous agreements on this question, including the Interim Agreement of May 26, 1972, they reaffirm the intention to conclude a new agreement on the limitation of strategic offensive arms, to last through 1985.

As a result of the exchange of views on the substance of such a new agreement, the President of the United States of America and the General Secretary of the Central Committee of the CPSU concluded that favorable prospects exist for completing the work on this agreement in 1975.

Agreement was reached that further negotiations will be based on the following provisions.

1. The new agreement will incorporate the relevant provisions of the Interim Agreement of May 26, 1972, which will remain in force until October 1977.

2. The new agreement will cover the period from October 1977 through December 31, 1985.

3. Based on the principle of equality and equal security, the new agreement will include the following limitations:

a. Both sides will be entitled to have a certain agreed aggregate number of strategic delivery vehicles;

b. Both sides will be entitled to have a certain agreed aggregate number of ICBMs and SLBMs [intercontinental ballistic missiles; submarine-launched ballistic missiles] equipped with multiple independently targetable warheads (MIRVs).

4. The new agreement will include a provision for further negotiations beginning no later than 1980-1981 on the question of further

* DOSB, Vol. LXXI, No. 1852, 23 Dec. 1974, p. 879.

limitations and possible reductions of strategic arms in the period after 1985.

5. Negotiations between the delegations of the US and USSR to work out the new agreement incorporating the foregoing points will resume in Geneva in January 1975.

November 24, 1974.

APPENDIX 17

FINAL DECLARATION OF THE REVIEW CONFERENCE OF THE PARTIES TO THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS*

PREAMBLE

The States Party to the Treaty on the Non-Proliferation of Nuclear Weapons which met in Geneva in May 1975, in accordance with the Treaty, to review the operation of the Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized.

Recognizing the continuing importance of the objectives of the Treaty,

Affirming the belief that universal adherence to the Treaty would greatly strengthen international peace and enhance the security of all States,

Firmly convinced that, in order to achieve this aim, it is essential to maintain, in the implementation of the Treaty, an acceptable balance of mutual responsibilities and obligations of all States Party to the Treaty, nuclear-weapon and non-nuclear-weapon States,

Recognizing that the danger of nuclear warfare remains a grave threat to the survival of mankind.

Convinced that the prevention of any further proliferation of nuclear weapons or other nuclear explosive devices remains a vital element in efforts to avert nuclear warfare, and that the promotion of this objective will be furthered by more rapid progress towards the cessation of the nuclear arms race and the limitation and reduction of existing nuclear weapons, with a view to the eventual elimination from national arsenals of nuclear weapons, pursuant to a Treaty on general and complete disarmament under strict and effective international control,

Recalling the determination expressed by the Parties to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time,

Considering that the trend towards détente in relations between States provides a favourable climate within which more significant progress should be possible towards the cessation of the nuclear arms race,

Noting the important role which nuclear energy can, particularly in changing economic circumstances, play in power production and in contributing to the progressive elimination of the economic and technological gap between developing and developed States,

* Final Document: Part I (Geneva: 1975) (NPT/CONF/35/I, Ann.I).

Recognizing that the accelerated spread and development of peaceful application of nuclear energy will, in the absence of effective safeguards, contribute to further proliferation of nuclear explosive capability.

Recognizing the continuing necessity of full co-operation in the application and improvement of International Atomic Energy Agency (IAEA) safeguards on peaceful nuclear activities,

Recalling that all Parties to the Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in co-operation with other States to, the further development of the applications of atomic energy for peaceful purposes,

Reaffirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, and

Recognizing that all States Parties have a duty to strive for the adoption of tangible and effective measures to attain the objectives of the Treaty,

Declares as follows:

PURPOSES

The States Party to the Treaty reaffirm their strong common interest in averting the further proliferation of nuclear weapons. They reaffirm their strong support for the Treaty, their continued dedication to its principles and objectives, and their commitment to implement fully and more effectively its provisions.

They reaffirm the vital role of the Treaty in international efforts

- to avert further proliferation of nuclear weapons
- to achieve the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament, and
- to promote co-operation in the peaceful uses of nuclear energy under adequate safeguards.

REVIEW OF ARTICLES I AND II

The review undertaken by the Conference confirms that the obligation undertaken under Articles I and II of the Treaty have been faithfully observed by all Parties. The Conference is convinced that the continued strict observance of these Articles remains central to the shared objective of averting the further proliferation of nuclear weapons.

REVIEW OF ARTICLE III

The Conference notes that the verification activities of the IAEA under Article III, of the Treaty respect the sovereign rights of States and do not hamper the economic, scientific or technological development of the Parties to the Treaty or international co-operation in peaceful nuclear activities. It urges that this situation be maintained. The Conference attaches considerable importance to the continued application of safeguards under Article III, 1, on a non-discriminatory basis, for the equal benefit of all States Party to the Treaty.

The Conference notes the importance of systems of accounting for and control of nuclear material, from the standpoints both of the responsibilities of States Party to the Treaty and of co-operation with the IAEA in order to facilitate the implementation

of the safeguards provided for in Article III, 1. The Conference expresses the hope that all States having peaceful nuclear activities will establish and maintain effective accounting and control systems and welcomes the readiness of the IAEA to assist States in so doing.

The Conference expresses its strong support for effective IAEA safeguards. In this context it recommends that intensified efforts be made towards the standardization and the universality of application of IAEA safeguards, while ensuring that safeguards agreements with non-nuclear-weapon States not Party to the Treaty are of adequate duration, preclude diversion to any nuclear explosive devices and contain appropriate provisions for the continuance of the application of safeguards upon re-export.

The Conference recommends that more attention and fuller support be given to the improvement of safeguards techniques, instrumentation, data-handling and implementation in order, among other things, to ensure optimum cost-effectiveness. It notes with satisfaction the establishment by the Director General of the IAEA of a standing advisory group on safeguards implementation.

The Conference emphasises the necessity for the States Party to the Treaty that have not yet done so to conclude as soon as possible safeguards agreements with the IAEA.

With regard to the implementation of Article III, 2 of the Treaty, the Conference notes that a number of States suppliers of nuclear material or equipment have adopted certain minimum, standard requirements for IAEA safeguards in connexion with their exports of certain such items to non-nuclear-weapon States not Party to the Treaty (IAEA document INF/CIRC/209 and Addenda). The Conference attaches particular importance to the condition, established by those States, of an undertaking of non-diversion to nuclear weapons or other nuclear explosive devices, as included in the said requirements.

The Conference urges that:

- (a) in all achievable ways, common export requirements relating to safeguards be strengthened, in particular by extending the application of safeguards to all peaceful nuclear activities in importing States not Party to the Treaty;
- (b) such common requirements be accorded the widest possible measure of acceptance among all suppliers and recipients;
- (c) all Parties to the Treaty should actively pursue their efforts to those ends.

The Conference takes note of:

- (a) the considered view of many Parties to the Treaty that the safeguards required under Article III, 2 should extend to all peaceful nuclear activities in importing States;
- (b) (i) the suggestion that it is desirable to arrange for common safeguards requirements in respect of nuclear material processed, used or produced by the use of scientific and technological information transferred in tangible form to non-nuclear-weapon States not Party to the Treaty;
- (ii) the hope that this aspect of safeguards could be further examined.

The Conference recommends that, during the review of the arrangements relating to the financing of safeguards in the IAEA which is to be undertaken by its Board of Governors at an appropriate time after 1975, the less favourable financial situation of the developing countries be fully taken into account. It recommends further that, on that occasion, the Parties to the Treaty concerned seek measures that would restrict within appropriate limits the respective shares of developing countries in safeguards costs.

The Conference attaches considerable importance, so far as safeguards inspectors are concerned, to adherence by the IAEA to Article VIII.D of its Statute, prescribing, among other things, that "due regard shall be paid ... to the importance of recruiting the staff on as wide a geographical basis as possible"; it also recommends that safeguards training be made available to personnel from all geographic regions.

The Conference, convinced that nuclear material should be effectively protected at all times, urges that action be pursued to elaborate further, within the IAEA, concrete recommendations for the physical protection of nuclear material in use, storage and transit, including principles relating to the responsibility of States, with a view to ensuring a uniform, minimum level of effective protection for such material.

It calls upon all States engaging in peaceful nuclear activities (i) to enter into such international agreements and arrangements as may be necessary to ensure such protection; and (ii) in the framework of their respective physical protection systems, to give the earliest possible effective application to the IAEA's recommendations.

REVIEW OF ARTICLE IV

The Conference reaffirms, in the framework of Article IV, 1, that nothing in the Treaty shall be interpreted as affecting, and notes with satisfaction that nothing in the Treaty has been identified as affecting, the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of the Treaty.

The Conference reaffirms, in the framework of Article IV, 2, the undertaking by all Parties to the Treaty to facilitate the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy and the right of all Parties to the Treaty to participate in such exchange and welcomes the efforts made towards that end. Noting that the Treaty constitutes a favourable framework for broadening international co-operation in the peaceful uses of nuclear energy, the Conference is convinced that on this basis, and in conformity with the Treaty, further efforts should be made to ensure that the benefits of peaceful applications of nuclear technology should be available to all Parties to the Treaty.

The Conference recognizes that there continues to be a need for the fullest possible exchange of nuclear materials, equipment and technology, including up-to-date developments, consistent with the objectives and safeguards requirements of the Treaty. The Conference reaffirms the undertaking of the Parties to the Treaty in a position to do so to co-operate in contributing, alone or together with other States or international organizations, to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty with due consideration for the needs of the developing areas of the world. Recognizing, in the context of Article IV, 2, those growing needs of developing States the Conference considers it necessary to continue and increase assistance to them in this field bilaterally and through such multilateral channels as the IAEA and the United Nations Development Programme.

The Conference is of the view that, in order to implement as fully as possible Article IV of the Treaty, developed States Party to the Treaty should consider taking measures, making contributions and establishing programmes, as soon as possible, for the provision of special assistance in the peaceful uses of nuclear energy for developing States Party to the Treaty.

The Conference recommends that, in reaching decisions on the provision of equipment, materials, services and scientific and technological information for the peaceful uses of nuclear energy, on concessional and other appropriate financial arrangements and on the furnishing of technical assistance in the nuclear field, including co-operation related to the continuous operation of peaceful nuclear facilities, States Party to the Treaty should give weight to adherence to the Treaty

by recipient States. The Conference recommends, in this connexion, that any special measures of co-operation to meet the growing needs of developing States Party to the Treaty might include increased and supplemental voluntary aid provided bilaterally or through multilateral channels such as the IAEA's facilities for administering funds-in-trust and gifts-in kind.

The Conference further recommends that States Party to the Treaty in a position to do so, meet, to the fullest extent possible, "technically sound" requests for technical assistance, submitted to the IAEA by developing States Party to the Treaty, which the IAEA is unable to finance from its own resources, as well as such "technically sound" requests as may be made by developing States Party to the Treaty which are not Members of the IAEA.

The Conference recognizes that regional or multinational nuclear fuel cycle centres may be an advantageous way to satisfy, safely and economically, the needs of many States in the course of initiating or expanding nuclear power programmes, while at the same time facilitating physical protection and the application of IAEA safeguards, and contributing to the goals of the Treaty.

The Conference welcomes the IAEA's studies in this area, and recommends that they be continued as expeditiously as possible. It considers that such studies should include, among other aspects, identification of the complex practical and organizational difficulties which will need to be dealt with in connexion with such projects.

The Conference urges all Parties to the Treaty in a position to do so to co-operate in these studies, particularly by providing to the IAEA where possible economic data concerning construction and operation of facilities such as chemical reprocessing plants, plutonium fuel fabrication plants, waste management installations, and longer-term spent fuel storage, and by assistance to the IAEA to enable it to undertake feasibility studies concerning the establishment of regional nuclear fuel cycle centres in specific geographic regions.

The Conference hopes that, if these studies lead to positive findings, and if the establishment of regional or multinational nuclear fuel cycle centres is undertaken, Parties to the Treaty in a position to do so, will co-operate in, and provide assistance for, the elaboration and realization of such projects.

REVIEW OF ARTICLE V

The Conference reaffirms the obligation of Parties to the Treaty to take appropriate measures to ensure that potential benefits from any peaceful applications of nuclear explosions are made available to non-nuclear-weapon States Party to the Treaty in full accordance with the provisions of Article V and other applicable international obligations. In this connexion, the Conference also reaffirms that such service should be provided to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used should be as low as possible and exclude any charge for research and development.

The Conference notes that any potential benefits could be made available to non-nuclear-weapon States not Party to the Treaty by way of nuclear explosion services provided by nuclear-weapon States, as defined by the Treaty, and conducted under the appropriate international observation and international procedures called for in Article V and in accordance with other applicable international obligations. The Conference considers it imperative that access to potential benefits of nuclear explosions for peaceful purposes not lead to any proliferation of nuclear explosive capability.

The Conference considers the IAEA to be the appropriate international body, referred to in Article V of the Treaty, through which potential benefits from peaceful applications of nuclear explosions could be made available to any non-nuclear-weapon

State. Accordingly, the Conference urges the IAEA to expedite work on identifying and examining the important legal issues involved in, and to commence consideration of, the structure and content of the special international agreement or agreements contemplated in Article V of the Treaty, taking into account the views of the Conference of the Committee on Disarmament (CCD) and the United Nations General Assembly and enabling States Party to the Treaty but not Members of the IAEA which would wish to do so to participate in such work.

The Conference notes that the technology of nuclear explosions for peaceful purposes is still at the stage of development and study and that there are a number of interrelated international legal and other aspects of such explosions which still need to be investigated.

The Conference commends the work in this field that has been carried out within the IAEA and looks forward to the continuance of such work pursuant to United Nations General Assembly resolution 3261 D (XXIX). It emphasizes that the IAEA should play the central role in matters relating to the provision of services for the application of nuclear explosions for peaceful purposes. It believes that the IAEA should broaden its consideration of this subject to encompass, within its area of competence, all aspects and implications of the practical applications of nuclear explosions for peaceful purposes. To this end it urges the IAEA to set up appropriate machinery within which intergovernmental discussion can take place and through which advice can be given on the Agency's work in this field.

The Conference attaches considerable importance to the consideration by the CCD, pursuant to United Nations General Assembly resolution 3261 D (XXIX) and taking due account of the views of the IAEA, of the arms control implications of nuclear explosions for peaceful purposes.

The Conference notes that the thirtieth session of the United Nations General Assembly will receive reports pursuant to United Nations General Assembly resolution 3261 D (XXIX) and will provide an opportunity for States to discuss questions related to the application of nuclear explosions for peaceful purposes. The Conference further notes that the results of discussion in the United Nations General Assembly at its thirtieth session will be available to be taken into account by the IAEA and the CCD for their further consideration.

REVIEW OF ARTICLE VI

The Conference recalls the provisions of Article VI of the Treaty under which all Parties undertook to pursue negotiations in good faith on effective measures relating

- to the cessation of the nuclear arms race at an early date and
- to nuclear disarmament and
- to a treaty on general and complete disarmament under strict and effective international control.

While welcoming the various agreements on arms limitation and disarmament elaborated and concluded over the last few years as steps contributing to the implementation of Article VI of the Treaty, the Conference expresses its serious concern that the arms race, in particular the nuclear arms race, is continuing unabated.

The Conference therefore urges constant and resolute efforts by each of the Parties to the Treaty, in particular by the nuclear-weapon States, to achieve an early and effective implementation of Article VI of the Treaty.

The Conference affirms the determination expressed in the preamble to the 1963 Partial Test Ban Treaty and reiterated in the preamble to the Non-Proliferation Treaty to achieve the discontinuance of all test explosions of nuclear weapons for all time.

The Conference expresses the view that the conclusion of a treaty banning all nuclear weapons tests is one of the most important measures to halt the nuclear arms race. It expresses the hope that the nuclear-weapon States Party to the Treaty will take the lead in reaching an early solution of the technical and political difficulties on this issue. It appeals to these States to make every effort to reach agreement on the conclusion of an effective comprehensive test ban. To this end, the desire was expressed by a considerable number of delegations at the Conference that the nuclear-weapon States Party to the Treaty should as soon as possible enter into an agreement, open to all States and containing appropriate provisions to ensure its effectiveness, to halt all nuclear weapons tests of adhering States for a specified time, whereupon the terms of such an agreement would be reviewed in the light of the opportunity, at that time, to achieve a universal and permanent cessation of all nuclear weapons tests. The Conference calls upon the nuclear-weapon States signatories of the Treaty on the Limitation of Underground Nuclear Weapons tests, meanwhile, to limit the number of their underground nuclear weapons tests to a minimum. The Conference believes that such steps would constitute an incentive of particular value to negotiations for the conclusion of a treaty banning all nuclear weapons test explosions for all time.

The Conference appeals to the nuclear-weapon States Parties to the negotiations on the limitation of strategic arms to endeavour to conclude at the earliest possible date the new agreement that was outlined by their leaders in November 1974. The Conference looks forward to the commencement of follow-on negotiations on further limitations of, and significant reductions in, their nuclear weapons systems as soon as possible following the conclusion of such an agreement.

The Conference notes that, notwithstanding earlier progress, the CCD has recently been unable to reach agreement on new substantive measures to advance the objectives of Article VI of the Treaty. It urges, therefore, all members of the CCD Party to the Treaty, in particular the nuclear-weapon States Party, to increase their efforts to achieve effective disarmament agreements on all subjects on the agenda of the CCD.

The Conference expresses the hope that all States Party to the Treaty, through the United Nations and the CCD and other negotiations in which they participate, will work with determination towards the conclusion of arms limitation and disarmament agreements which will contribute to the goal of general and complete disarmament under strict and effective international control.

The Conference expresses the view that, disarmament being a matter of general concern, the provision of information to all governments and peoples on the situation in the field of the arms race and disarmament is of great importance for the attainment of the aims of Article VI. The Conference therefore invites the United Nations to consider ways and means of improving its existing facilities for collection, compilation and dissemination of information on disarmament issues, in order to keep all governments as well as world public opinion properly informed on progress achieved in the realization of the provisions of Article VI of the Treaty.

REVIEW OF ARTICLE VII AND THE SECURITY OF NON-NUCLEAR WEAPON STATES

Recognizing that all States have need to ensure their independence, territorial integrity and sovereignty, the Conference emphasizes the particular importance of assuring and strengthening the security of non-nuclear-weapon States Parties which have renounced the acquisition of nuclear weapons. It acknowledges that States Parties find themselves in different security situations and therefore that various appropriate means are necessary to meet the security concerns of States Parties.

The Conference underlines the importance of adherence to the Treaty by non-nuclear-weapon States as the best means of reassuring one another of their renunciation of nuclear weapons and as one of the effective means of strengthening their mutual security.

The Conference takes note of the continued determination of the Depositary States to honour their statements, which were welcome by the United Nations Security

Council in resolution 255 (1968), that, to ensure the security of the non-nuclear-weapon States Party to the Treaty, they will provide or support immediate assistance, in accordance with the Charter, to any non-nuclear-weapon State Party to the Treaty which is a victim of an act or an object of a threat of aggression in which nuclear weapons are used.

The Conference, bearing in mind Article VII of the Treaty, considers that the establishment of internationally recognized nuclear-weapon-free zones on the initiative and with the agreement of the directly concerned States of the zone, represents an effective means of curbing the spread of nuclear weapons, and could contribute significantly to the security of those States. It welcomes the steps which have been taken toward the establishment of such zones.

The Conference, recognizes that for the maximum effectiveness of any Treaty arrangements for establishing a nuclear-weapon-free zone the co-operation of the nuclear-weapon States is necessary. At the Conference it was urged by a considerable number of delegations that nuclear-weapon States should provide, in an appropriate manner, binding security assurances to those States which become fully bound by the provisions of such regional arrangements.

At the Conference it was also urged that determined efforts must be made especially by the nuclear weapon States Party to the Treaty, to ensure the security of all non-nuclear-weapon States Parties. To this end the Conference urges all States, both nuclear-weapon States and non-nuclear-weapon States to refrain, in accordance with the Charter of the United Nations, from the threat or the use of force in relations between States, involving either nuclear or non-nuclear-weapons. Additionally, it stresses the responsibility of all Parties to the Treaty and especially the nuclear-weapon States, to take effective steps to strengthen the security of non-nuclear-weapon States and to promote in all appropriate fora the consideration of all practical means to this end, taking into account the views expressed at this Conference.

REVIEW OF ARTICLE VIII

• The Conference invites States Party to the Treaty which are Members of the United Nations to request the Secretary-General of the United Nations to include the following item in the provisional agenda of the thirty-first session of the General Assembly: "Implementation of the conclusions of the first Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons".

The States Party to the Treaty participating in the Conference propose to the Depositary Governments that a second Conference to review the operation of the Treaty be convened in 1980.

The Conference accordingly invites States Party to the Treaty which are Members of the United Nations to request the Secretary-General of the United Nations to include the following item in the provisional agenda of the thirty-third session of the General Assembly: "Implementation of the conclusions of the first Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons and establishment of a preparatory committee for the second Conference."

REVIEW OF ARTICLE IX

The five years that have passed since the entry into force of the Treaty have demonstrated its wide international acceptance. The Conference welcomes the recent progress towards achieving wider adherence. At the same time, the Conference notes with concern that the Treaty has not as yet achieved universal adherence. Therefore, the Conference expresses the hope that States that have not already joined the Treaty should do so at the earliest possible date.

Interpretative Statements
in connexion with Final Declaration

Original: SPANISH

MEXICO

The delegations of the States members of the Group of 77 Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, taking part in the first Review Conference of the Parties to the Treaty, wish to place on record in the final document of the Conference that they have agreed not to oppose the consensus required in accordance with the rules of procedure for the adoption of the final declaration of the Conference, as a token of their great appreciation for the praiseworthy and unceasing endeavours of the President of the Conference, to whom we owe the preparation of the draft declaration (NPT/CONF/30/Rev.1), and on the condition sine qua non that the text of the present interpretative statement and the texts of the three draft resolutions NPT/CONF/L.2/Rev.1, NPT/CONF/L.3/Rev.1 and NPT/CONF/L.4/Rev.1, together with their annexed Working Papers NPT/CONF/17*, NPT/CONF/18* and NPT/CONF/22 respectively, as well as documents NPT/CONF/C.I/L.1, NPT/CONF/C.I/L.2, NPT/CONF/C.I/L.3, NPT/CONF/C.II/L.1 and NPT/CONF/C.II/L.2, are reproduced in full in the final document, immediately following the text of the final declaration. The delegations I referred to earlier likewise wish to place on record that the relevant provisions of the declaration, particularly those relating to the implementation of the tenth preambular paragraph and to Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons and to the need to safeguard the security on non-nuclear-weapon States Parties to the Treaty must, as regards the position of those delegations with respect to such provisions, be interpreted in the light of the content of the three Working Papers, NPT/CONF/17*, NPT/CONF/18* and NPT/CONF/22 and of the other documents enumerated above.

BOLIVIA, ECUADOR, GHANA, HONDURAS, JAMAICA, LEBANON, LIBERIA, MEXICO,
MOROCCO, NEPAL, NICARAGUA, NIGERIA, PERU, PHILIPPINES, ROMANIA,
SENEGAL, SUDAN, SYRIAN ARAB REPUBLIC, YUGOSLAVIA AND ZAIRE

Draft Resolution

(Document NPT/CONF/L.2/Rev.1)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Noting the reiteration in the preamble of the Treaty on the Non-Proliferation of Nuclear Weapons of the determination proclaimed since 1963 in the Partial Test Ban Treaty to "achieve the discontinuance of all test explosions of nuclear weapons for all time",

Convinced that one of the most effective measures for strengthening the Treaty on the Non-Proliferation of Nuclear Weapons and promoting universal adherence to it would be to put into practice that determination,

Taking into account that the delegations of Bolivia, Ecuador, Ghana, Honduras, Jamaica, Lebanon, Liberia, Mexico, Morocco, Nepal, Nicaragua, Nigeria, Peru, Philippines, Romania, Sudan, Syria, Yugoslavia and Zaire have submitted to the Conference working paper NPT/CONF/17*, annexed to the present resolution, containing a draft additional protocol to the Treaty on the Non-Proliferation of Nuclear Weapons concerning nuclear weapon tests, with a view to establishing procedures which, in the opinion of its co-sponsors, would facilitate the attainment of the permanent cessation of all test explosions of nuclear weapons,

Noting that it would be desirable that all States Party to the Treaty may examine this proposal and that over one third of them have been unable to send representatives to the Conference,

1. Endorses the aim of contributing to the attainment of the permanent cessation of all test explosions of nuclear weapons pursued by the draft additional protocol to the Treaty on the Non-Proliferation of Nuclear Weapons contained in working paper NPT/CONF/17* annexed to this resolution;

2. Requests the President of the Conference to transmit, through its Secretary-General, the present resolution with its annex to all States Party to the Treaty on the Non-Proliferation of Nuclear Weapons, in order that they may give it due consideration;

3. Recommends to those States to bear in mind the conclusions they may reach as a result of such consideration when they examine, at the thirty-first session of the General Assembly, the item: "Implementation of the decisions adopted by the first Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons".

ANNEX

WORKING PAPER CONTAINING A DRAFT ADDITIONAL PROTOCOL TO THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS REGARDING NUCLEAR WEAPON TESTS

Introductory note

In its resolution 2373 (XXII) of 12 June 1968, the General Assembly of the United Nations expressed *inter alia* "the hope for the widest possible adherence to the Treaty" on the Non-Proliferation of Nuclear Weapons.

That hope was undoubtedly based on the conviction stated in unequivocal terms in the penultimate preambular paragraph of the same resolution in which the Assembly declared itself "convinced" that "an agreement to prevent the further proliferation of nuclear weapons must be followed as soon as possible by effective measures on the cessation of the nuclear arms race and on nuclear disarmament, and that the non-proliferation treaty will contribute to this aim".

To the foregoing one must add a whole series of facts which are equally pertinent in this regard, some of the most outstanding of which are recalled here:

That the Non-Proliferation Treaty itself has reiterated in its preamble the determination, proclaimed since 1963 in the Moscow Treaty, "to achieve the discontinuance of all test explosions of nuclear weapons for all time";

That in four of its very numerous resolutions on this question, the Assembly has "condemned" with the utmost vigour all nuclear weapon tests, in whatever environment they may be conducted;

That the Assembly itself has repeatedly expressed the conviction that, "whatever may be the differences on the question of verification, there is no valid reason for delaying the conclusion of a comprehensive test ban";

That it is also the Assembly, the most representative body of the international community, which has affirmed, in its most recent resolution - 3257 (XXIX) of 9 December 1974 - on this subject, that "the continuance of nuclear weapon testing will intensify the arms race, thus increasing the danger of nuclear war";

That, as the Secretary-General of the United Nations emphatically stated more than three years ago, in his first address to the Conference of the Committee on Disarmament, on 20 February 1972: "All the technical and scientific aspects of the

problem have been so fully explored that only a political decision is now necessary in order to achieve final agreement".

The inevitable conclusion which, in the opinion of the delegations co-sponsoring this working paper, is to be drawn from facts such as those just recalled is that one of the most effective measures for strengthening the Non-Proliferation Treaty and for promoting universal adherence to it would be that the three nuclear-weapon States, which are not only Parties to the Treaty but act as its depositaries as well, demonstrate their readiness to support with tangible deeds the provisions of the Treaty's preamble regarding the cessation of nuclear weapon tests.

For this reason the sponsoring delegations believe that they are making a positive contribution to the work of the Conference in submitting to it a draft "Additional Protocol I" on this subject. They are also convinced that the entry into force of the proposed instrument would in no way undermine the security of the depositary States, since the extent of the lead in nuclear war technology and the enormity of the nuclear arsenals of the USSR and the United States of America are such that, even if they were to suspend all nuclear weapon tests for half a century, it is absolutely certain that they would continue to maintain an indisputable superiority. As if this were not sufficient, the Treaty's provisions regarding withdrawal, which would apply as well to the Protocol, would give each of the Parties the right to withdraw from the Protocol, "in exercising its national sovereignty", should any of them reach the conclusion that, at a given moment, the supreme interests of its country require it. On the other hand, it is equally certain that a Protocol such as the one proposed would constitute an incentive of particular value in order to prompt the other nuclear-weapon States to commit themselves to put an end to all of their tests with such weapons.

The text of the draft Protocol which, basing themselves on the foregoing considerations, the sponsoring delegations submit to the Conference is the following:

ADDITIONAL PROTOCOL I TO THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS

The Depositary Governments of the Treaty on the Non-Proliferation of Nuclear Weapons, referred to in this Protocol as "the Treaty",

Conscious that universal, or at least the widest possible, adherence to the Treaty will contribute to avoid an increase in the danger of nuclear war,

Convinced that one of the most effective procedures for attaining such adherence would be the implementation of the provisions of the Preamble of the Treaty reiterating the determination, proclaimed since 1963 in the Moscow Treaty, to achieve "the discontinuance of all test explosions of nuclear weapons for all time",

Have agreed as follows:

Article 1. They undertake to decree the suspension of all their underground nuclear weapon tests for a period of ten years, as soon as the number of Parties to the Treaty reaches one hundred.

Article 2. They undertake also to extend by three years the moratorium contemplated in the preceding article, each time that five additional States become Parties to the Treaty.

Article 3. They undertake to transform the moratorium into a permanent cessation of all nuclear weapon tests, through the conclusion of a multilateral treaty for that purpose, as soon as the other nuclear weapon States indicate their willingness to become parties to said treaty.

Article 4. This Protocol will be of the same duration as the Treaty. Nevertheless the provisions of the latter's Article X regarding withdrawal shall apply to it.

Article 5. This protocol shall be subject to ratification by the three Depositary States of the Treaty to which it is open for signature and shall enter into force on the date that the instruments of ratification of two of them are received by the Secretary-General of the United Nations who shall be the depositary of the Protocol.

BOLIVIA, ECUADOR, GHANA, HONDURAS, JAMAICA, LEBANON, LIBERIA,
MEXICO, MOROCCO, NEPAL, NICARAGUA, NIGERIA, PERU, ROMANIA
SENEGAL, SUDAN, SYRIAN ARAB REPUBLIC, YUGOSLAVIA AND ZAIRE

Draft Resolution
(Document NPT/CONF/L.3/Rev.1)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Recalling the provisions of article VI of the Treaty on the Non-Proliferation of Nuclear Weapons whereby each of the Parties to the Treaty has undertaken inter alia "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament",

Convinced that one of the most effective measures for strengthening the Treaty and promoting universal adherence to it would be the achievement of tangible results in the field of nuclear disarmament,

Taking into account that the delegations of Bolivia, Ecuador, Ghana, Honduras, Jamaica, Lebanon, Liberia, Mexico, Morocco, Nepal, Nicaragua, Nigeria, Peru, Romania, Sudan, Syria Arab Republic, Yugoslavia and Zaire have submitted to the Conference working paper NPT/CONF/18*, annexed to the present resolution, containing a draft additional protocol to the Treaty concerning nuclear disarmament, with a view to establishing procedures which, in the opinion of its co-sponsors, would facilitate the achievement at an early date of some important measures of nuclear disarmament,

Noting that it would be desirable that all States Party to the Treaty may examine this proposal and that over one third of them have been unable to send representatives to the Conference,

1. Endorses the aim of contributing to the attainment of effective measures towards the cessation of the nuclear arms race at an early date and to nuclear disarmament pursued by the draft additional protocol to the Treaty on the Non-Proliferation of Nuclear Weapons contained in working paper NPT/CONF/18* annexed to this resolution;

2. Requests the President of the Conference to transmit, through its Secretary-General, the present resolution with its annex to all States Party to the Treaty on the Non-Proliferation of Nuclear Weapons, in order that they may give it due consideration;

3. Recommends to those States to bear in mind the conclusions they may reach as a result of such consideration when they examine, at the thirty-first session of the General Assembly, the item: "Implementation of the decisions adopted by the first Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons".

ANNEX

WORKING PAPER CONTAINING A DRAFT ADDITIONAL PROTOCOL TO THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS REGARDING THE IMPLEMENTATION OF ITS ARTICLE VI

Introductory note

In its resolution 2373 (XXII) of 12 June 1968, the General Assembly of the United Nations expressed *inter alia* "the hope for the widest possible adherence to the Treaty" on the Non-Proliferation of Nuclear Weapons.

That hope was undoubtedly based on the conviction stated in unequivocal terms in the penultimate preambular paragraph of the same resolution in which the Assembly declared itself "convinced" that "an agreement to prevent the further proliferation of nuclear weapons must be followed as soon as possible by effective measures on the cessation of the nuclear arms race and on nuclear disarmament, and that the non-proliferation treaty will contribute to this aim".

It was no doubt for this same reason that the Treaty itself contains an article - article VI - aimed at reaffirming the Assembly's conviction referred to by providing that:

"Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."

If, as set forth in the Treaty's article VIII, the basic objective of this Conference is to review how "the purposes of the Preamble and the provisions of the Treaty" have been, and are being, realized, the inevitable conclusions to be drawn from any objective analysis of reality are, with regard to the above-mentioned article, not only extremely disappointing but truly alarming. The nuclear arms race, far from ceasing as contemplated in the Treaty's article VI, has been stepped up in such a manner that it has given rise to the situation known as overkill. Implicit in such a situation is the constant threat of a nuclear holocaust, as shown by the two grave crises which in 1962 and 1973 gave rise to a general alert.

The imminence of this danger appears to have begun to find its way even in the highest political levels. Thus during the last session of the General Assembly, the Minister for Foreign Affairs of one of the two most powerful nuclear-weapon States stated emphatically:

"Stable and lasting peace is incompatible with the arms race. They are antipodes. One cannot seriously think of eliminating the threat of war, while at the same time increasing military budgets and endlessly building up armaments ... The supreme interests not only of the peoples of the Soviet Union and the United States, but also of the peoples of the whole world require that the Soviet Union and the United States, possessing the colossal might of nuclear weapons, should make every effort to achieve appropriate understandings and agreements".

To date the only results which the Treaty's depositary States can point to regarding their commitment under article VI are the meagre ones obtained in the bilateral negotiations on the limitation of strategic nuclear-weapon systems (SALT) which have been going on for some years. If in the international sphere those negotiations have had some beneficial consequences of a political and psychological nature, their very modest scope as disarmament measures has in practice appeared to be of no account. This has prompted the Assembly to urge the Union of Soviet Socialist Republics and the United States repeatedly, as it did in its latest resolution in this regard - resolution 3261 C (XXIX) of 9 December 1974 - to broaden

the scope and accelerate the pace of their negotiations, stressing anew "the necessity and urgency of reaching agreement on important qualitative limitations and substantial reductions of their strategic nuclear-weapon systems as a positive step towards nuclear disarmament".

In the light of the foregoing, it is axiomatic that one of the most effective measures for strengthening the Non-Proliferation Treaty and for promoting universal adherence to it would be that the two States possessing by far the largest nuclear arsenals in existence demonstrate their readiness to support with tangible deeds the provisions of the Treaty's article VI relating to the cessation of the nuclear arms race and to nuclear disarmament.

For this reason the sponsoring delegations believe that they are making a positive contribution to the work of the Conference in submitting to it a draft "Additional Protocol II" on this subject. They are also convinced that the entry into force of the proposed instrument could not undermine the security of those two depositary States. On the one hand, the reductions suggested would in no way affect the system on which are based the proportions that they freely accepted in the Vladivostok accords. On the other hand, the extent of their lead in nuclear war technology and the enormity of their nuclear arsenals are such that, even after they had carried out the parity reductions called for in the Additional Protocol, the number of nuclear weapons and of delivery vehicles which each one would maintain would still be much superior to that which might be at the disposal of all of the other nuclear-weapon States taken together. As if this were not sufficient, the Treaty's provisions regarding withdrawal, which would apply as well to the Protocol, would give each of the Parties the right to withdraw from the Protocol, "in exercise of its national sovereignty", should either of them reach the conclusion that, at a given moment, the supreme interests of its country require it. Moreover, it should be borne in mind that a Protocol such as the one proposed would constitute an incentive of particular value in order to prompt the other nuclear-weapon States to adopt measures for reductions similar to those set forth in it.

The text of the draft Protocol which, basing themselves on the foregoing considerations, the sponsoring delegations submit to the Conference is the following:

ADDITIONAL PROTOCOL II TO THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS

The Depositary Governments of the Treaty on the Non-Proliferation of Nuclear Weapons - referred to in this Protocol as "the Treaty" - which participate in the bilateral negotiations on the limitation of strategic nuclear-weapon systems (SALT),

Conscious that universal, or at least the widest possible, adherence to the Treaty will contribute to avoid an increase in the danger of nuclear war,

Convinced that one of the most effective procedures for attaining such adherence would be the parallel achievement of tangible results relating to nuclear disarmament,

Bearing in mind that in the accords reached at Vladivostok in November of 1974 both Governments agreed that each side would be entitled to have an aggregate maximum of 2,400 intercontinental ballistic missiles, submarine-launched ballistic missiles and heavy bombers, and that only 1,320 of the ballistic missiles may be equipped with multiple independently targetable warheads (MIRV's),

Have agreed as follows:

Article 1. They solemnly reaffirm the obligations undertaken in article VI of the Treaty to pursue "negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament".

Article 2. They undertake, as soon as the number of Parties to the Treaty has reached one hundred:

(a) To reduce by fifty per cent the ceiling of 2,400 nuclear strategic delivery vehicles contemplated for each side under the Vladivostok accords;

(b) To reduce likewise by fifty per cent the ceiling of 1,320 strategic ballistic missiles which, under those accords, each side may equip with multiple independently targetable warheads (MIRV's).

Article 3. They also undertake, once such reductions have been carried out, to reduce by ten per cent the ceilings of 1,200 strategic nuclear delivery vehicles and of 660 strategic ballistic missiles that may be equipped with multiple independently targetable warheads (MIRV's), each time that ten additional States become Parties to the Treaty.

Article 4. This Protocol will be of the same duration as the Treaty. Nevertheless the provisions of the latter's article X regarding withdrawal shall apply to it.

Article 5. This Protocol shall be subject to ratification by the two States to which it is open for signature and shall enter into force on the date both instruments of ratification have been received by the Secretary-General of the United Nations who shall be the depositary of the Protocol.

BOLIVIA, ECUADOR, GHANA, MEXICO, NIGERIA, PERU, ROMANIA, SENEGAL, SUDAN, YUGOSLAVIA
AND ZAIRE

Draft resolution

(Document NPT/CONF/L.4/Rev.1)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Reiterating the provisions of the first preambular paragraph of the Treaty on the non-proliferation of nuclear weapons to the effect that every effort should be made in order to take measures to safeguard the security of peoples,

Taking into account the resolution 3261 G (XXIX) adopted unanimously by the United Nations General Assembly which considered that it is imperative for the international community to devise effective measures in order to ensure the security of non-nuclear-weapon States and recommend inter alia to Member States to consider in all appropriate forums, without loss of time, the question of strengthening the security of non-nuclear-weapon States,

Convinced that one of the most effective measures for strengthening the Treaty on Non-Proliferation of Nuclear Weapons and promoting universal adherence to it would be to establish a system of security assurances within the framework of the Treaty,

Taking into account that the delegations of Bolivia, Ecuador, Ghana, Mexico, Nigeria, Peru, Romania, Sudan, Yugoslavia and Zaire have submitted to the Conference Working Paper NPT/CONF/22, annexed to the present resolution, containing a draft additional protocol to the Treaty on the Non-Proliferation of Nuclear Weapons which in the opinion of its co-sponsors, would facilitate the establishment of a system of security assurances within the framework of the Treaty,

Noting that it would be desirable that all States Party to the Treaty may examine this proposal and that over a third of them have been unable to send representatives to the Conference,

1. Endorses the aim of contributing to the ensuring and strengthening of the security of non-nuclear-weapon States Parties to the Treaty in the Non-Proliferation of Nuclear

Weapons which have renounced the acquisition of nuclear weapons pursued by the draft additional protocol to the treaty on the Non-Proliferation of Nuclear Weapons contained in Working Paper NPT/CONF/22* annexed to this resolution;

2. Requests the President of the Conference to transmit, through its Secretary-General, the present resolution with its annex to all States Party to the Treaty on the Non-Proliferation of Nuclear Weapons, in order that they may give it due consideration;

3. Recommends to those States to bear in mind the conclusions they may reach as a result of such consideration when they examine, at the thirty-first session of the General Assembly, the item: "Implementation of the decisions adopted by the first Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons".

ANNEX

WORKING PAPER CONTAINING A DRAFT ADDITIONAL PROTOCOL TO THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS REGARDING THE ESTABLISHMENT OF A SYSTEM OF SECURITY ASSURANCES WITHIN THE FRAMEWORK OF THE TREATY

Introductory Note

It is generally accepted that the non-nuclear-weapon States, by renouncing to acquire such weapons in accordance with Article II and III of the Treaty, have the right to have their independence, territorial integrity and sovereignty guaranteed against the use or threat of use of nuclear weapons.

On the other hand, the acceleration of the arms race and the accumulation of a great amount of arms during the period since the entry into force of the Treaty have led to the increase of the degree of insecurity in the world.

Resolution 255 (1968) of the Security Council relates to the possible action to be taken by the Security Council only when a nuclear attack has occurred. It does not offer, therefore, appropriate assurance for the prevention of the use or of the threat of use of nuclear weapons.

Finally, it should be borne in mind, in connexion with this matter, that the United Nations General Assembly in its Declaration of 24 November 1961 solemnly proclaimed that the use of nuclear and thermo-nuclear weapons is contrary to the rules of international law and to the laws of humanity.

For the above reasons the sponsoring delegations believe that they are making a positive contribution to the work of the Conference in submitting to it the following draft:

ADDITIONAL PROTOCOL III TO THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS

The Depositary Governments of the Treaty on the Non-Proliferation of Nuclear Weapons, referred to in this Protocol as "The Treaty",

Recalling that, according to the Charter of the United Nations, the States have the obligation to refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the purposes of the United Nations,

Taking into account resolution 3261 G (XXIX) which considered inter alia that it is imperative for the international community to devise effective measures in order to ensure the security of non-nuclear-weapon States,

Recognizing that the effectiveness of the Treaty, its viability and universality depend, to a great extent, on its balanced character and on the existence of

appropriate assurances for the States which have consented, by virtue of the Treaty, to renounce acquiring or manufacturing nuclear weapons,

Have agreed as follows:

Article 1. They solemnly undertake

(a) never and under no circumstances to use or threaten to use nuclear weapons against non-nuclear-weapon States Parties to the Treaty whose territories are completely free from nuclear weapons, and,

(b) to refrain from first use of nuclear weapons against any other non-nuclear-weapon States Parties to the Treaty.

Article 2. They undertake to encourage negotiations initiated by any group of States Parties to the Treaty or others to establish nuclear weapon free zones in their respective territories or regions, and to respect the statute of nuclear weapon free zones established.

Article 3. In the event a non-nuclear-weapon State Party to the Treaty becomes a victim of an attack with nuclear weapons or of a threat with the use of such weapons, the States Parties to this Protocol, at the request of the victim of such threat or attack, undertake to provide to it immediate assistance without prejudice to their obligations under the United Nations Charter.

Article 4. This Protocol will be of the same duration as the Treaty. Nevertheless, the provisions of the latter's Article X regarding withdrawal shall apply to it.

Article 5. This Protocol shall be subject to ratification by the three Depositary States of the Treaty to which it is open for signature and shall enter into force on the date that the instruments of ratification of two of them are received by the Secretary-General of the United Nations who shall be the depositary of the Protocol.

GHANA, NEPAL, NIGERIA, ROMANIA, YUGOSLAVIA

Draft Resolution

(Document NPT/CONF/C.I/L.1)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Recalling General Assembly resolution 2661 A (XXV) of 1970 by which it urged the Governments of nuclear-weapon Powers to bring about an immediate halt in the nuclear arms race and to cease all testing as well as deployment of offensive and defensive nuclear-weapon systems,

Taking into account that peace and security in the world cannot be maintained unless an immediate stop is put to the nuclear arms race followed by nuclear disarmament.

Convinced that only the nuclear-weapon States can stop vertical proliferation of nuclear weapons which would substantially contribute towards preventing their horizontal proliferation as well,

Noting with satisfaction that the non-nuclear-weapon States Party to the Treaty have been faithfully abiding by the spirit and letter of Articles II and III of the Treaty on the Non-Proliferation of Nuclear Weapons,

Deeply convinced that the halting of nuclear arms race and the undertaking of further measures of nuclear disarmament would significantly enhance the creation of essential conditions for the establishment of nuclear-weapon-free zones,

1. Invites the nuclear-weapon States Party to the Treaty to initiate, as soon as possible but not later than the end of 1976, negotiations on the conclusion of a treaty on the withdrawal from the territories of the non-nuclear-weapon States Party to the Treaty of all nuclear-weapon delivery systems, especially tactical nuclear weapons;
2. Requests the nuclear-weapon States Party to the Treaty to immediately discontinue further deployment of all types of tactical and other nuclear-weapon-delivery systems within the territories of the non-nuclear-weapon States party to the Treaty and to simultaneously commence with their gradual withdrawal pending the entry into force of the aforementioned treaty;
3. Invites also the non-nuclear-weapon States Party to the Treaty on whose territories, waterways or air space the nuclear-weapon delivery systems are deployed not to allow the use or threat of use of nuclear weapons against other non-nuclear-weapon States Party to the Treaty.

IRAN

Draft resolution on Article VII of the Treaty on the Non-Proliferation of Nuclear Weapons

(Document NPT/CONF/C.I/L.2)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Considering that article VII of the Treaty on the Non-Proliferation of Nuclear Weapons stresses the right of any group of States to conclude regional treaties to assure the total absence of nuclear weapons in their respective territories;

Recognizing that the establishment of internationally recognized nuclear weapon-free zones in appropriate regions of the world on the initiative of States directly concerned represent a most effective means to curb the spread of nuclear weapons;

Recognizing in this connexion the particular value of the Treaty on the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco) and its Additional Protocols;

Recalling the Declaration on Denuclearization of Africa by the Assembly of Heads of State and Government of the Organization of African Unity in July 1964 and resolutions 1652 (XVI) of 24 November 1961, 2033 (XX) of 3 December 1965 and 3261 E (XXIX) of 9 December 1974 of the United Nations General Assembly on the same subject;

Recalling resolution 3263 (XXIX) of 9 December 1974 of the United Nations General Assembly on the Establishment of a Nuclear Weapon-Free Zone in the region of the Middle East;

Recalling resolution 3265 (XXIX) of 9 December 1974 of the United Nations General Assembly on the Declaration and Establishment of a Nuclear-Free Zone in South Asia;

Recalling further the United Nations General Assembly resolution 3261 F (XXIX) of 9 December 1974 in which the Assembly decided to undertake a comprehensive study of the question of nuclear weapon-free zones in all its aspects;

Noting that in implementation of this decision a group of governmental experts has been set up to carry out this study under the auspices of the Conference of the Committee on Disarmament,

1. Invites the Parties to the Treaty and in particular the nuclear weapon States to co-operate with the States in appropriate regions of the world which decide to establish nuclear weapon-free zones, under effective conditions and an adequate system of safeguards, in order to assure the total absence of such weapons in their respective territories,

2. Urges the nuclear weapon States to undertake a solemn obligation never to use or threaten to use nuclear weapons against countries which have become Parties to and are fully bound by the provisions of such regional arrangements.

ROMANIA

Draft Resolution on Article VI

(Document NPT/CONF/C.I/L.3)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Recalling the obligations assumed by each of the Parties to the Treaty under its Article VI, to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms at an early date and to nuclear disarmament and on a Treaty on general and complete disarmament under strict and effective international control,

Recalling further General Assembly resolution 2373 (XXII) of 12 June 1968 by which it expressed, inter alia, the conviction "that an agreement to prevent the further proliferation of nuclear weapons must be followed as soon as possible by effective measures on the cessation of the nuclear arms race and on nuclear disarmament" and it requested the then existing Conference of the Eighteen-Nation Committee on Disarmament and the Nuclear-Weapon States urgently to pursue negotiations to that end,

Deeply concerned that during the period since the entry into force of the Treaty the nuclear arms race has, nevertheless, continued at an accelerated pace, resulting in accumulation of a great amount of nuclear weapons in the world,

Reaffirming the role of the Conference of the Committee on Disarmament in the negotiation of those effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament and of a Treaty on general and complete disarmament under strict and effective international control, which have been referred to in Article VI of the Treaty,

Mindful of the importance of the co-operation of governments and all media in the attainment of the objectives of the Treaty,

1. Requests all Governments Party to the Treaty on the Non-Proliferation of Nuclear Weapons which are members of the Conference of the Committee on Disarmament, particularly the Depositary Governments, to bring their decisive contribution, in conformity with the obligations assumed by them under Article VI of the Treaty, to developing within the Conference the necessary conditions which would enable it to effectively deal with the measures provided in Article VI of the Treaty as follows:

(a) to offer the disarmament negotiations the required perspective in achieving the aims of Article VI of the Treaty most urgently, by a comprehensive approach to the matters relating to cessation of the nuclear arms race and nuclear disarmament and to a Treaty on general and complete disarmament under strict and effective international control,

(b) to continuously review the operation and the methods of work of the Conference to assure that the negotiations are conducted in the most efficient manner, fully compatible with the principles of equality and the security and the interests of all States;

2. Considers it necessary that a system of retrieval and distribution as well as of assessment and analysis of information on armaments and disarmament issues be established, within the United Nations in order to keep properly informed all governments as well as the international public opinion of the progress achieved in the realization of the provisions of Article VI of the Treaty.

GHANA, MEXICO, NIGERIA, PERU, PHILIPPINES, ROMANIA
SYRIAN ARAB REPUBLIC AND YUGOSLAVIA

Draft Resolution

(Document NPT/CONF/C.II/L.1)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Reaffirming the provisions of article V of the Treaty on the Non-Proliferation of Nuclear Weapons, according to which non-nuclear-weapon States Party to the Treaty shall be able to obtain the "potential benefits from any peaceful applications of nuclear explosions" under the favourable conditions described therein,

Recalling that the same article provides for the obtainment of such benefits "pursuant to a special international agreement or agreements" and that "negotiations on this subject shall commence as soon as possible after the Treaty enters into force",

Taking into account the authoritative interpretation which, at the 1577th meeting of the First Committee of the United Nations General Assembly, held on 31 May 1968, the representatives of the Union of Soviet Socialist Republics and the United States of America gave to the above-mentioned provisions, as evidenced in Conference document NPT/CONF/14 of 24 February 1975.

Noting that, although five years have elapsed since the Treaty entered into force, the pertinent negotiations have yet to begin,

Urges the Depositary Governments of the Treaty on the Non-Proliferation of Nuclear Weapons to initiate immediate consultations with all of the other States Party to the Treaty in order to reach agreement on the most appropriate place and date for holding a meeting of the Parties in order to conclude the basic special international agreement contemplated in article V of that Treaty.

MEXICO, NIGERIA, REPUBLIC OF KOREA AND THE PHILIPPINES

Draft Resolution

(Document NPT/CONF/C.II/L.2)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,

Convinced of the common responsibilities of Parties to the Treaty for the effective implementation of the principle that the benefits of peaceful applications of nuclear energy, including any technological by-products which may be derived from the development of nuclear explosive devices, shall be made available for peaceful purposes to all Parties to the Treaty,

Convinced further that, in furtherance of the effective implementation of this principle, all Parties to the Treaty should participate in the fullest possible

exchange of materials, equipment and scientific and technological information, and to contribute, through international co-operation to the further development of the application of atomic energy for peaceful purposes,

Conscious of the need in particular of developing countries to obtain technology of all types, including nuclear technology, at low costs and on fair terms of transfer, in order to promote their economic and social development, thus strengthening international peace and security,

Taking note of the activity so far undertaken by the International Atomic Energy Agency with a view to facilitating the international co-operation in the field of the peaceful uses of nuclear energy, provided in Article IV of the Treaty,

Hoping that the nuclear-weapon State Parties to the Treaty would make available, through the International Atomic Energy Agency, part of the fissionable material resulting from the measures of nuclear disarmament to the non-nuclear-weapon States Parties to the Treaty;

1. Decides,

(a) that preferential treatment and concessional terms shall be provided by the Parties to the Treaty to developing non-nuclear-weapon States Parties to the Treaty in the supply of equipment, material and scientific and technological information for the peaceful uses of nuclear energy which would include, inter alia, fissionable material and the related services in the nuclear fuel cycle;

(b) that a Special Fund be established for the provision of technical assistance in the peaceful uses of nuclear energy to developing non-nuclear-weapon States Parties to the Treaty. This Fund, which shall also be utilized for the provision of nuclear research facilities including research reactors and fuel needed for the continuing operation of research reactors in developing non-nuclear-weapon States Parties to the Treaty, shall be maintained at an adequate level to meet the required needs. The Depositary States shall contribute 60 per cent of the Fund and the developed non-nuclear-weapon States Parties to the Treaty shall provide the balance. The schedule for the division of costs for the present Review Conference, appropriately pro-rated, shall serve as the basis for determining the contribution to this Fund of each respective State Party to the Treaty. The International Atomic Energy Agency shall be entrusted with the administration and management of the Fund which shall not form part of the regular or operational budgets of the Agency;

(c) that a Special Nuclear Fund be established to provide financing under concessional terms for the nuclear projects in the territories of developing non-nuclear-weapon States Parties to the Treaty. The Fund shall be kept at a reasonable minimum annual level and contributions to this Fund shall be assessed in the same manner as the Special Fund referred to under paragraph 1(b) above. Those amounts shall be administered on an ad hoc basis by an international organization or an existing regional financing institution located in Africa, Asia or Latin America, to be designated by the donor country with the agreement of the recipient country;

2. Decides further that preferential treatment shall be provided by the Parties to the Treaty to developed non-nuclear weapon States Parties to the Treaty in the supply of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy, which would include, inter alia, the supply of uranium and enrichment and re-processing services.

GERMAN DEMOCRATIC REPUBLIC

Original: ENGLISH

On behalf of the delegations of the Peoples Republic of Bulgaria, the Hungarian Peoples Republic, the Mongolian Peoples Republic, the Peoples Republic of Poland, the Czechoslovakian Socialist Republic and on behalf of my own delegation I would like to declare that these delegations fully support the statement made by the Delegation of the Union of Soviet Socialist Republics, in particular as to the contents of the Final Declaration.

We came to this Conference with the determination to strengthen the non-proliferation regime and thus to contribute to the cause of disarmament and arms limitation.

The aim of the Conference was to strengthen the Treaty and to make it still more effective. In this constructive spirit we participated in this Conference and worked together with other delegations. We believe that the Declaration which was adopted by the Conference will promote this aim. In the course of the Conference, evident proof of the fact has been furnished that the Treaty has become an irreversible and extraordinary positive reality of international life. The Treaty has not only proved to be advantageous for the Parties to it, but also corresponds to the interests of all peoples and States.

The fact that immediately before as well as during the Conference, some ten other States have acceded to the Treaty, thus demonstrating their agreement with the Treaty, is also evidence of its continued attractiveness. We express the hope that countries still outside the Treaty will join us in order to strengthen peace and international security.

I ask you, Madame President, to include this statement in the Final Document.

FEDERAL REPUBLIC OF GERMANY

Original: ENGLISH

The Delegation of the Federal Republic of Germany welcomes that consensus could be reached on the general declaration. At the conclusion of the Conference, we want to put the following statement on the record of this Conference to be included in the appropriate Annex of the final document:

- We support the recommendations of the final declaration and will, within the framework of our possibilities, work for their implementation;
- The Federal Republic of Germany considers the Treaty to be a necessary and important instrument for the maintenance of peace;
- It is, therefore, the strong belief of my Government that security and world peace would best be served if all States became members to the NPT;
- We repeat the hope expressed in our opening statement that all States members to the NPT submit their peaceful nuclear activities to IAEA safeguards;
- The text of the final declaration can be regarded as encouraging in this respect;
- My delegation is satisfied that the Conference has endorsed the standard export requirements introduced by the vast majority of the supplier countries of nuclear material or equipment, and wishes to reiterate its firm resolve to strengthen and to broaden common export safeguards requirements in the future, by a gradual process and with the objective of non-proliferation firmly in mind;
- The paragraphs in the declaration relating to Article IV also meet with our approval, although some delegations, including mine, had to make certain concessions in negotiating these texts. I want to take this opportunity to emphasize that, in our view, Article IV is too often misconstrued as merely a device for establishing new development assistance funds. In reality it is the charter of the universal exchange of knowledge in the nuclear realm.

IRAN

Original: ENGLISH

Our aim in this Conference has been to reach consensus. We had sought to achieve two objectives:

- (i) To review the NPT after five years: come to an agreement on its implementation, discuss its strengths and weaknesses in the light of technological and political transformations and
- (ii) reaffirm our commitment to the NPT as an extremely important means of controlling proliferation.

Now, in affirming our support of the NPT we have sought to show its success and demonstrate our solidarity to those states which, for their own reasons, have chosen not to adhere to the Treaty as yet. Now the type of consensus, that is the content of the consensus that we have sought to achieve here in the past four weeks, has been extremely important.

In seeking to achieve a realistic consensus by emphasizing the content of the consensus as much as the achievement of any consensus - we have sought to demonstrate the vitality of the NPT regime to those States presently outside it. As we are all aware, several of the States outside the NPT have an overdeveloped sense of realism. It has been our belief that nothing could be calculated to appeal to these States less than the achievement of a false, weak, evasive, or generally equivocal text emanating from this Review Conference.

To our mind, the heart of the NPT is a balance of obligations and rights between those States possessing nuclear weapons and those renouncing the option so to do.

We therefore place a particular emphasis on Articles VI, VII of the Treaty and the question of Security Assurances. And here I will deal with two specific points I mentioned before:

1. We cannot accept the view that at this Conference the conventional arms race is as important as the nuclear arms race, that non-nuclear-weapon States have the same responsibilities as nuclear-weapon States in implementing Article VI, or that the major focus of Article VI is an equivalent emphasis on general and complete disarmament as well as on the cessation of the nuclear arms race. Both are referred to in Article VI but clearly the cessation of the nuclear arms race is the major focus of that Article.

Unfortunately in the formulation of the final Declaration regarding Article VI on pages 7-8 of the English text, we find a quite different interpretation of that article. The wording here appears to reflect a quite different focus. It is a subtle shifting of the primary emphasis on Article VI from the nuclear arms race and the consequent responsibilities of the nuclear-weapon States in its implementation. This interpretation of Article VI, in our opinion, seriously imbalances the Treaty, and my delegation would like to register its reservation with respect to this particular part of the Declaration.

2. On Article VII, it is our conviction that the creation of nuclear-weapon-free zones undertaken on the initiative of the states of the region, recognized internationally, and under adequate safeguards would enhance the prospects of containing nuclear proliferation. We sought to have the Conference acknowledge the responsibility of nuclear-weapon States to these zones. A corollary of this, we believe is an undertaking by the nuclear states to respect the provisions of such zones and to pledge not to use or threaten to use nuclear weapons against them.

Although the final Declaration deals with this, in paragraph 5 of page 9, the formulation of this passage is not satisfactory to my delegation.

Madame President,

ITALY

Original: ENGLISH

I feel it is my duty to join other speakers and put on record the position of my Government on some of the items of the draft declaration you have submitted to us.

On paragraph 5 of the Preamble, I want to underline that that paragraph is interpreted by us as falling within the scope of Articles I and II of the Treaty. I recall, in this connexion, the statement made by the Italian Government with the approval of the Italian Parliament at the time of ratification, as well as at the time of signature of the NPT, concerning nuclear devices for peaceful purposes.

This reading of the Treaty also covers the last sentence of the second paragraph of the Section "Review of Article V". We agree of course on the need to avert any risk of further proliferation of nuclear weapons. However, in our view the language adopted can in no way alter and does not alter the scope of Article V.

As to the part of the Document concerning the "Purposes", an agreement had been reached, in the working group in which I had the honour to participate, on a compromise formula. This agreement concerned the last item in the list of purposes as contained in document NPT/CONF/C.1/3. The formula read as follows: "To bring about an expanded and more effective co-operation in the peaceful uses of nuclear energy under adequate safeguards".

I am therefore surprised that in a subsequent meeting of another group, at which I was not present, the addition which had then been suggested by another delegation: - "under adequate safeguards" - has been inserted in the text, while the other component of the compromise formula, on which a clear consensus had been achieved, was ignored.

As to the Section "Review of Article III", it is important for me to stress that any initiative in the field of safeguards must be taken with due regard to the provisions of article III, 3 of the Treaty.

Furthermore on "Review of Article III", I should like to spend one word on physical protection of nuclear materials. I have no reservation on this text, which we approve. However, we think that it should have been placed elsewhere as it is not related to the obligations envisaged in Article III, which strictly concerns safeguards. I mention this in order to stress that physical protection should involve - as indicated by the language used in the document - the whole international community; all the members of which should share an interest in physical protection.

With regard to the Section "Review of Article IV", I must express the opinion that the text falls short of our expectations. Naturally, we are confronted with a compromise to which we have ourselves contributed. Yet we want to emphasize again the importance that the Italian Government attach to the fulfilment of the provision of Article IV. Speaking two days ago in Paris at the meeting of the International Energy Agency, the Italian Foreign Minister, Mr. Rumor, in indicating the limiting factors to the success of the vast nuclear power programme which we are undertaking, recalled again the vital importance of the problems connected with access to nuclear technology and to the nuclear fuel market, under equal and stable conditions.

The implementation of the Treaty obligations concerning such matters - and I refer in particular to equity and stability of prices and continuity of fuel supply - is not clearly reviewed in the document before us. Moreover, preferential treatment for the Parties to the Treaty - in the very interest of universal adherence - could have been more clearly spelled out. We trust that the discussions which have taken place in this hall, and the views expressed by a number of Delegations on these same matters, will have a real impact on the future policies of all concerned.

On the review regarding the same Article IV, we have taken note that the problem of regional fuel cycle centres will be the object of study. We trust that this exercise will not weaken the impact of Article IV. We reserve however our position with regard to the assessment of this part of the text until we will be able to evaluate the results of the projected study.

Concerning the Section "Review of Article VII" and in particular the security of non-nuclear States, we have repeatedly stressed the different objective situations in which States find themselves in this respect. Consequently, in our view, a specific

reference would be necessary to arrangements which many States - in the exercise of the right of individual and collective self-defence - have freely entered.

Similarly, while recognizing the importance of the establishment of nuclear-free zones in appropriate regions of the world as a means of curbing nuclear proliferation as well as the importance of guaranteeing the security of the States concerned, we interpret the relevant provisions of the Document in the sense that the creation of such nuclear-free zones must not detract from existing security arrangements.

In conclusion, I should like to say that my remarks should be understood as in no way diminishing our interest in, and appreciation for this first NPT review. We are happy to see that a second Review Conference will follow: an objective that, as you know, was much in the mind of the Italian Delegation.

In our view full compliance with the Treaty is the best way through which we can hope to achieve wider participation. This is an essential element for the attainment of the vital purposes of the Treaty. It is in this spirit that our remarks were made.

PERU

Original: SPANISH

The delegation of Peru states for the record that the review of the operation of the Treaty has made clear the responsibility of the Depositary States for the failure to implement Articles VI and VII of the Treaty attributed to them by the non-nuclear States Parties; that said responsibility is clearly set forth in the draft resolutions submitted by the non-nuclear States and reproduced in this final document; and that, therefore, the consensus on which the adoption of the draft Final Declaration of the Conference prepared by the President is based is subject to the interpretation contained in those draft resolutions

ROMANIA

Original: ENGLISH

In his statement of 7 May, before this Assembly, the head of the Romanian delegation stressed the importance that my country attaches to this Conference as a collective means of verification, with the participation of all States, of the way in which the provisions of the Treaty on the Non-Proliferation of Nuclear Weapons are being realized.

After the Treaty's first five years of operation, our basic conclusion was, and it remains the same today, that while the non-nuclear-weapon States had scrupulously fulfilled their undertakings not to acquire or manufacture nuclear weapons, the vertical proliferation of nuclear weapons and the nuclear arms race have continued and even accelerated. As a result of the increasing destructive capacity of the new generation of nuclear weapons and of the massive stockpiling of armaments, nuclear weapons in particular, the whole world is in a grave state of insecurity. At the same time, despite the IAEA's efforts, the non-nuclear-weapon States and especially the developing countries are far from having received the assistance they have counted on, so that nuclear energy should become the instrument expected to help their economic development.

My delegation came therefore to this Conference with the expectation that, in view of the above, practical measures would be considered and adopted, aimed: (1) at giving a new impetus to nuclear disarmament negotiations; (2) at contributing to the ensuring and strengthening of the security of non-nuclear-weapon States Party to the Treaty, which under the Treaty have renounced the acquisition of nuclear weapons; (3) at promoting a true international co-operation and assistance in the field of the use of nuclear energy for peaceful purposes.

During the last four weeks, intensive work, following that performed by the Preparatory Committee, has been carried out. In this process each delegation had had the occasion to present, in a responsible manner, the views and the positions of its respective Government.

Regretfully, this valuable process of negotiations has not reached the expected practical results. It has only underlined the unsatisfactory state of affairs within the membership of the Treaty, the shortcomings of this important international document and, in fact, even a certain degree of lack of communication between the nuclear and the non-nuclear-weapon States.

Nevertheless, the Conference has offered a good occasion for all Parties to express their views and has pointed to the main fields of vital interests for each of them, towards the solution of which we all have to continue to work, collectively, in the future.

Today we have before us, due to your most appreciative efforts, Madame President, a text which constituted an attempt at achieving a compromise in the difficult situation in which the Conference found itself, but which falls short of our expectations.

The tacit acceptance of all of us, including my own delegation, of the proposed General Declaration should be interpreted only as an expression of the attachment of the States Parties to the noble goals and aspirations pursued by the Treaty. At the same time we want to state that as a whole the present text is exceedingly unbalanced. The vital issues on which the viability of the Treaty and its universality depend are not reflected in an appropriate manner. The Declaration does not contain any concrete measures directed to giving the necessary impetus to disarmament negotiations, to ensuring the security of the non-nuclear-weapon States, to broadening international co-operation for peaceful uses of nuclear energy as expected by all of mankind. We are expressing our deep regret and dissatisfaction that there was no possibility to agree on generally acceptable measures on such outstanding issues of global concern.

The document confines itself to evaluating the past in an over-optimistic manner, while the measures designed to assure the realization of the purposes of the Preamble and of the provisions of the Treaty, which was the basic objective of the Conference, are practically non-existent.

In addition, attempts have been made to extend the interpretation of the purposes of the Treaty in some respects, to deepen even more the imbalance existing in the field of peaceful utilization of nuclear energy.

As regards the review of Article III, paragraphs 7 and 8 of the Declaration, the Romanian delegation wishes to reserve its position by interpreting them solely in accordance with the letter of Article III, point 2 of the Treaty.

At the same time we want to state that in our interpretation all the measures of safeguards included in the Declaration should strictly respect the sovereign rights of all States.

They should be implemented in such a manner as to avoid any obstacle to the economic or technological development of the Parties or of international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes, as provided by the Treaty itself.

We are firmly convinced that it is only on this basis that all the Parties of the Treaty will equally benefit from peaceful applications of nuclear technology.

The Romanian delegation asks, therefore, that these reservations be duly recorded.

As I have already pointed out, from the very moment of becoming a Party to this Treaty, which was an act of full responsibility on the part of my Government, in considering the general interests of all the international community, Romania has resolutely acted for the achievement of the main objectives of the Non-Proliferation Treaty, including the strengthening of the security of non-nuclear-weapon States, an issue which had been left pending at the conclusion of the Treaty.

It is in this spirit that we have also given particular attention at this Conference to the question of security guarantees for the non-nuclear-weapon States Party to the Treaty.

The solution of this issue consists in the legal obligation by the nuclear-weapon States Party to the Treaty never and under no circumstances to use or threaten to use nuclear weapons against non-nuclear-weapon States Party to the Treaty. This is the interpretation which the Romanian delegation gives to the chapter of the Declaration on this issue, and we ask that it be recorded.

The draft Additional Protocol (document NPT/CONF/22) initiated by Romania was intended to respond to this shortcoming of the Treaty.

Fully aware of the vital interest of all countries in their security, but first of all of the non-nuclear-weapon States, which in their majority are small and medium-sized countries, the draft Additional Protocol represented a concrete measure to be taken by the Conference, aimed at ensuring and strengthening the security of the States which undertook to renounce the nuclear option.

We realize the complexity of the problem and our draft sought only to advance an idea to be negotiated with good will.

Unfortunately, a dialogue could not be started on this issue either. Naturally an international conference cannot progress when it does not treat on an equal basis all the views and opinions put forward by all sovereign and independent States participating in it. Nevertheless the discussion proved that the issue of security guarantees is of vital interest to most of the States. It has been consolidated as a basic issue of general interest for our future work in strengthening the Treaty.

We hope that the transmission of the draft Protocol for study by States Parties to the Treaty, and subsequently its consideration by the United Nations General Assembly, may stimulate concrete negotiations.

The stand of my delegation at this Conference reflected the general line of the policy of Romania, firmly committed to the strengthening of international peace and security.

On the basis of the mandate received from its Government, the Romanian delegation has done its best to contribute to the attainment of the common goals of humanity: peace, disarmament and co-operation with all States. We have constructively co-operated with all those who shared the same objective.

We leave this Conference with the sentiment that such endeavours should be stronger in the future, if we want to succeed in our common goals.

SWEDEN

Original: ENGLISH

The Swedish Delegation supports the part of the general declaration which deals with article VII and the security of NNWS. With respect to the paragraph dealing with Security Council Resolution 255 (1968) my Delegation wishes to put on record its view that should assistance to a country be contemplated under these provisions, that country shall have the right to decide if and under what conditions assistance might be granted.

SYRIAN ARAB REPUBLIC

Original: ENGLISH

Madame President,

In your statement of 6 May 1975, you emphatically stated that the Conference was embarking on a momentous task, the result of which might well extend far into the future. You also reminded us of the repercussions of a possible failure to reach agreement on basic problems facing the Review Conference; this was when you said

"over the world people of goodwill and common sense and knowledge are looking to the Conference for positive results".

These remarks have remained vivid in our mind throughout the long hours spent in discussions, negotiations and debates.

At the darkest hours, when it became clear that the future of non-proliferation was at stake, you launched what you rightly called "a new initiative" contained now in the declaration before us. We welcomed it because, like you, we believe that the Review Conference must produce "something" or the entire structure of non-proliferation would probably collapse. A collapse would surely have played into the hands of the aggressor, the black mailer, the racist and the expansionist. It would have shaken the foundation of universal adherence - a goal that we all are firmly committed to.

The document just adopted has got that "something", which we had to produce willingly or unwillingly, but its content, and I am sure you agree with us, does not solve the basic problems that were identified in your 12 May statement.

But we have chosen to accept a quarter of a loaf instead of half a loaf because we wanted to preserve the achievements already realized under the NPT regime and hope for a better future.

Nonetheless, we must put on record some reservations or interpretations relating to the following parts:

1. Review of Article VII and problems of security guarantees

This part as it is formulated now constitutes a set-back to a strong momentum which has been gathering strength since 1968, onward, to obtain security guarantees that would protect non-nuclear NPT Parties against nuclear aggression and nuclear blackmail. This part of the Declaration does not, and regrettably so, contain any formulation, not even an indication, relating to obligations of Depositary States to extend both positive and negative security guarantees to NPT Parties. Instead, there is an attempt to shift the urgency of extending guarantees from Parties directly concerned to non-nuclear-weapon Parties through the creation of nuclear-free zones, an effort that we would have lauded if it had been accompanied by an equal attempt at supporting security guarantees. This lacuna has, in our opinion, weakened to a certain extent the credibility of the assurances under Security Council resolution 255 and the tripartite declaration.

2. On the Review of Article III

It is our firm belief that irrespective of the field of competence of the IAEA, the Declaration should have extended safeguards measures to all nuclear activities of non-NPT countries receiving any nuclear material or equipment. Therefore, whenever the following or a similar sentence reading "application of safeguards to all peaceful nuclear activities" appears in the text, we should read the word "activities" as meaning activities of all kinds, peaceful or non-peaceful, declared to be such or not declared as such.

3. Review of Article IV

We reserve our position on those parts relating to Article IV which do not fulfill the following conditions:

- Preferential treatment to developing NPT Parties without harming the interests of any developing non-party;

- concessional and preferential arrangements to developing nations, whether Parties or non-parties to the NPT;

- the establishment of a "Special Fund" as well as a "Special Nuclear Fund", as provided for in operative paragraph 2 of the draft resolution proposed by Mexico, Nigeria and the Philippines, (NPT/CONF/C.II/L.2) in order to institutionalize and stabilize the flow of assistance to developing nations in accordance with Article IV of the NPT.

Now, allow me to raise two issues closely related to our work, namely, the issue of participation and that of attendance. We cannot hush-hush the fact that only 55 out of 94 Parties to the NPT participated in our work. Absenteeism is a phenomenon that should be carefully studied. It betrays, in our opinion, either a lack of interest in improving the NPT regime or a loss of faith in the utility of a dialogue between nuclear and non-weapon Parties to the NPT. Whatever may be the case, the results of the Conference have immensely suffered from the absence of so many NPT Parties. This was mostly felt in the ranks of developing nations.

Our second remark relates to the admission of Israel and South Africa to attend as observers. The Conference did show a positive attitude towards their request. But these two countries did not show any positive interest in the work of the Conference. We are at the end, yet we have seen no contribution on their part. Their presence was only felt when it came to sabotaging certain constructive proposals or exerting pressures directly or indirectly. We did not object to their presence because we knew beforehand that they had come for diversionary and for propaganda purposes. But the Conference was not deceived, because it must have realized that their contribution to the cause of the NPT was nil. The Conference must have regretted its decision.

We can be critical of the progress achieved at this Conference, but our criticism should be construed as a constructive one. We wish to the NPT all success; and despite the limited objectives we achieved, we shall increase our efforts to strengthen the NPT regime in all its aspects. We hope that the nuclear-weapon Powers Parties to the NPT will take our legitimate demands and concern into serious consideration.

I should like to signify the wish of my delegation to see this statement annexed to the final document of the Conference.

UNION OF SOVIET SOCIALIST REPUBLICS

Original: RUSSIAN

For almost a month - the duration of this Conference - its participants have carefully and thoroughly reviewed the operation of the Treaty on the Non-Proliferation of Nuclear Weapons, expressed opinions on the practical application of the Treaty and made numerous proposals concerning the implementation of its provisions.

Taken as a whole, the results of the Conference permit the conclusion that it has convincingly demonstrated the obvious fact that the five years of the Treaty's existence have confirmed its vitality, its effectiveness and its continued importance in today's world.

As regards the significance of the Conference, one is justified in laying special emphasis on the constructive role it has played in increasing the universality of the Treaty and in making the non-proliferation regime even more effective. It is already clear that the Conference has promoted the adherence of a whole series of States to the Treaty. Just before and during the Conference, the number of Parties was expanded by the addition of an important group of States, including some with a highly developed atomic industry, and this has been a significant step towards the future strengthening of the Treaty. We hope that the outcome of the Conference will encourage accession by additional States as well as completion of the process of ratification by the countries which have signed the Treaty.

A significant fact recognized in the statements of all delegations is that the key Articles and essential part of the Treaty - Articles I and II - are being strictly observed by all Parties.

We regard the unanimous confirmation of the effective implementation of those Articles and of the Article on international control as the most important result of the Conference, and we note with satisfaction that this result has been reflected in the final declaration.

In that connexion, it is worth noting that the Conference has also discussed a series of proposals aimed at achieving maximum effectiveness for the Treaty. There has been unanimous support for proposals relating to Article III, paragraph 2 of the Treaty, the physical protection of nuclear material, the establishment of regional nuclear fuel-cycle centres, and other matters.

As to the situation with regard to the implementation of Article IV, we are pleased to note that the Non-Proliferation Treaty has made a very significant contribution to the development of international co-operation in the utilization of nuclear energy.

Great significance must also be attached to the recommendations adopted by the Conference concerning the implementation of Article V of the Treaty which provide that any non-nuclear-weapon State deciding to use, on the basis of the Treaty's provisions, the energy of a nuclear explosion for purposes of its economic development, would be able to obtain effective assistance both from the Depositary States and from the International Atomic Energy Agency.

All of these constructive recommendations for the further strengthening of the non-proliferation regime have been duly reflected in the final declaration of the Conference.

It cannot be overlooked that proposals were also made at the Conference which were not in harmony with the objective of strengthening the Non-Proliferation Treaty and which really sought to revise it. And that is how we assessed them in our statements during the Conference. Naturally it was not such proposals, which were not approved by the Conference, that determined the direction of the Conference's work or its results. They only represented the opinions of particular delegations.

The Soviet delegation is gratified that the Conference has succeeded in arriving at a draft final document whose provisions, on the whole, are of a constructive nature.

Nevertheless, the Soviet delegation would like to state that it has certain reservations with regard to some of the declaration's provisions relating to the implementation of Articles VI and VII of the Treaty.

It is the position of the Soviet Union, which is an advocate of nuclear disarmament, that measures in that field must not be prejudicial to the security of the parties concerned. The Soviet Union also considers that the basic problems of disarmament - and especially of nuclear disarmament - can only be solved with the participation of all the nuclear Powers.

As regards the cessation of nuclear weapon tests, we deem it necessary to emphasize that the Soviet Union is in favour of the cessation of all testing, including underground testing, by all States. That is the position of principle of the Soviet Union.

As to the provisions of the draft declaration dealing with the Soviet-American Strategic Arms Limitation Talks, the delegation of the USSR wishes to state that the Soviet Union attaches great significance to the talks and considers agreements and understandings reached in those talks to be of exceptional importance for the cause of peace and international security. The position of the Soviet Union on that question is set forth in the Soviet-American declaration adopted at the Vladivostok meeting in November 1974.

On the question of security guarantees for non-nuclear States Parties to the Treaty, the Soviet delegation would like to observe that Security Council

resolution 255 (1968) and the declarations made by the Soviet Union, the United States of America and the United Kingdom in relation thereto constitute an effective instrument for guaranteeing the security of Parties to the Treaty not possessing nuclear weapons.

The strengthening of the security of States is the object of the resolution of the twenty-seventh session of the United Nations General Assembly on the non-use of force in international relations and simultaneous permanent prohibition of the use of nuclear weapons. Adoption by the Security Council of a decision approving that resolution would give it binding force and constitute an important step for strengthening the security of the non-nuclear States.

That purpose would also be served by the creation of nuclear-free zones. We favour the creation of such zones in various regions of the world on condition that measures are carried out which genuinely transform the territories of the States concerned into zones completely free of nuclear weapons and which exclude any loopholes for violating the non-nuclear status of the zones. As regards the Treaty on the nuclear-free zone in Latin America, our position is well known and there is no need to re-define it.

The USSR delegation does not support the proposal mentioned in the final declaration of the Conference concerning United Nations facilities for the collection, compilation and dissemination of information on disarmament issues because the existing organs of the United Nations suffice to ensure that all States and world opinion are informed on such issues.

With reference to the recommendation in the draft declaration on the convening of the next Conference to review the operation of the Non-Proliferation Treaty, the USSR delegation wishes to state that the procedure for reviewing the operation of the Treaty is clearly laid down in the text of the Treaty itself - in Article VIII, paragraph 3.

In conclusion, the Soviet delegation would like to express its conviction that the Conference, now about to conclude its work, will endow the Treaty on the Non-Proliferation of Nuclear Weapons with even greater effectiveness and thereby contribute to intensifying and expanding the process of international detente.

The Soviet delegation requests that its statement be included in the final document of the Conference.

UNITED STATES OF AMERICA

Original: ENGLISH

My delegation is pleased to have joined in the adoption of the Final Declaration of this, the first NPT Review Conference. We believe that, by reaching agreement on the Conference Declaration - which is the culmination of our efforts over the last four weeks - we have taken an important step forward.

The Declaration is a realistic document, containing recommendations for improving the effectiveness of the Treaty's operation and most important of the non-proliferation regime generally. Some ideas, including those relating to international co-operation on physical security, to improvements of safeguards on exports, and to regional solutions to fuel cycle needs, are innovative, and are receiving broad international endorsement for the first time. In addition, the Conference Declaration strongly underlines the need for determined and timely efforts to achieve widely shared objectives. Taken as a whole, the Final Declaration establishes a practical and comprehensive course of action for strengthening the non-proliferation regime. It shows clearly that we all have a shared and overriding interest in the success of efforts to curb nuclear proliferation, which is a continuing and complicated process.

We recognize that no delegation can give unqualified support to each of the conclusions and recommendations contained in the Declaration. Some may have reservations about particular ideas expressed in the document; others may regret that some of their

suggestions were not included, or were given less emphasis than they would have preferred. This is as true of our delegation as it is of others.

I would like to take this opportunity to briefly state for the record our views on some of the issues covered in the Final Declaration. First, I would like to reiterate that we look forward, as soon as possible after the conclusion of the agreement outlined at Vladivostok, to the commencement of follow-on negotiations on further limitations and reductions in the level of strategic arms.

Second, with respect to the question of restraints on nuclear testing, my government joins in affirming the determination of participants of this Conference to achieve the discontinuance of all explosions of nuclear weapons for all time. The Final Declaration notes that a number of Delegations at the Conference expressed the desire that the nuclear-weapon States Parties enter as soon as possible into an agreement to halt all nuclear-weapon tests for a specified period of time. Our view is that any treaty or agreement on nuclear-weapons testing must contain provisions for adequate verification and must solve the problem of peaceful nuclear explosions. It would not be realistic to assume that an agreement banning all nuclear-weapons testing, whether by nuclear-weapon States Party to the NPT or by all testing Powers, could be concluded before solutions to these problems are found.

With reference to nuclear-free zones, we believe that the creation of such zones could effectively complement the NPT as a means of preventing the spread of nuclear explosive capabilities. We have emphasized that, to be effective, regional arrangements should meet the following criteria:

The initiative should be taken by the States in the region concerned. The zone should preferably include all States in the area whose participation is deemed important. The creation of the zone should not disturb necessary security arrangements; and provision must be made for adequate verifications. Finally, we do not believe that the objective of non-proliferation would be served if a nuclear-free zone arrangement permitted the indigenous development of nuclear explosives for any purpose. No effort to achieve non-proliferation could succeed if it permitted such indigenous development of nuclear explosives by non-nuclear-weapon States, or failed to safeguard against diversion of nuclear materials to such use.

A number of Delegations at the Conference urged that nuclear-weapon States provide, in an appropriate manner, binding security assurances to those States which became fully bound by the provisions of a regional arrangement. My government adhered to Protocol II of the Latin American Nuclear Free Zone Treaty, which contains such a binding security assurance, after determining that that treaty, which contains such a above. However, we believe that each nuclear-free zone proposal must be judged on its own merits to determine whether the provision of specific security assurances would be likely to have a favourable effect. Moreover, we do not believe it would be realistic to expect nuclear-weapon States to make implied commitments to provide such assurances before the scope and content of any nuclear-free zone arrangement are worked out.

I ask that this written statement be incorporated in Annex II of the final document.

YUGOSLAVIA

Original: ENGLISH

Madame President,

You have in your opening address quite correctly posed a number of questions to which this Conference should provide answers. Let us now see what has actually been accomplished.

The Yugoslav delegation to the Review Conference of the Parties to the Treaty considers that:

- the nuclear-weapons States have not fulfilled their basic obligation assumed under the Treaty:

1. They have not discontinued the nuclear arms race
2. They have not stopped the nuclear weapon tests
3. Vertical proliferation of nuclear weapons has continued

4. No substantial assistance has been given to the non-nuclear weapon States, that is, the developing countries, in the application of nuclear energy for peaceful purposes,

- the non-nuclear-weapon States have fulfilled, in every respect, their obligations ensuing from the Treaty.

The Conference has revealed contradictions both in the comprehension of the substance and the meaning of the Treaty, as well as regarding the fundamental issues on the agenda of the Conference:

1. The nuclear-weapon States and the States sharing their views have made an effort to preserve the NPT as an instrument by which they will retain all the advantages which the Treaty offers them;

2. The non-nuclear-weapon States, and in particular the developing countries, demand a programme of measures strengthening and consolidating the Treaty, measures that would enhance the equality in the rights and duties between the nuclear and non nuclear States.

The Conference has failed to reach a consensus both in the informal working groups and in the Committees on any substantive issue. This reflects profound divergencies on fundamental issues.

The responsibility for such a situation at the Conference, in our opinion, rests primarily with the nuclear-weapon States - the Depositaries.

The submitted draft final declaration, contained in document NPT/CONF/30, does not faithfully reflect the deliberations and positions stated at the Conference, nor does it contain all pertinent elements of the proposed documents.

The Yugoslav delegations would like to state that, had the vote been taken on the Declaration, my delegation would not have taken part in the voting. However, since voting did not take place, it will not stand in the way of consensus, provided that this statement is fully recorded.

In conclusion, I would like to state that my Government, bearing in mind the above-mentioned points, finds itself in a position to re-examine its attitude towards the Treaty and to draw corresponding conclusions.

APPENDIX 18

THE TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON UNDERGROUND NUCLEAR EXPLOSIONS FOR PEACEFUL PURPOSES AND RELATED INSTRUMENTS

1. On 1 June 1976 the Director General received a letter dated the same day from the Resident Representative of the United States of America to the Agency in which he communicated the text of the Treaty between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes which was signed by President Ford and General Secretary Brezhnev on 28 May 1976. The Resident Representative asked that the texts of the Treaty, the Protocol and the Agreed Statement be brought to the attention of all Members of the Agency in view of the relationship of this Treaty to the work of the Agency.
2. On the same day the Director General received a letter in similar terms from the Resident Representative of the Union of Soviet Socialist Republics.
3. Taking into account the common request made by the Resident Representatives of the United States of America and the Union of Soviet Socialist Republics the texts of the Treaty, the Protocol and the Agreed Statement are reproduced in this document.
4. The preamble of the Treaty indicates that it proceeds from a desire to implement Article III of the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests [1].

Treaty Between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Proceeding from a desire to implement Article III of the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests, which calls for the earliest possible conclusion of an agreement on underground nuclear explosions for peaceful purposes,

Reaffirming their adherence to the objectives and principles of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, the Treaty on Non-Proliferation of Nuclear Weapons, and the Treaty on the Limitation of Underground Nuclear Weapon Tests, and their determination to observe strictly the provisions of these international agreements,

Desiring to assure that underground nuclear explosions for peaceful purposes shall not be used for purposes related to nuclear weapons,

Desiring that utilization of nuclear energy be directed only toward peaceful purposes,

Desiring to develop appropriately cooperation in the field of underground nuclear explosions for peaceful purposes,

Have agreed as follows:

Article I

1. The Parties enter into this Treaty to satisfy the obligations in Article III of the Treaty on the Limitation of Underground Nuclear Weapon Tests, and assume additional obligations in accordance with the provisions of this Treaty.

2. This Treaty shall govern all underground nuclear explosions for peaceful purposes conducted by the Parties after March 31, 1976.

[1] See document INFCIRC/208.

Article II

For the purposes of this Treaty:

- (a) "explosion" means any individual or group underground nuclear explosion for peaceful purposes;
- (b) "explosive" means any device, mechanism or system for producing an individual explosion;
- (c) "group explosion" means two or more individual explosions for which the time interval between successive individual explosions does not exceed five seconds and for which the emplacement points of all explosives can be interconnected by straight line segments, each of which joins two emplacement points and each of which does not exceed 40 kilometers.

Article III

1. Each Party, subject to the obligations assumed under this Treaty and other international agreements, reserves the right to:

- (a) carry out explosions at any place under its jurisdiction or control outside the geographical boundaries of test sites specified under the provisions of the Treaty on the Limitation of Underground Nuclear Weapon Tests; and
- (b) carry out, participate or assist in carrying out explosions in the territory of another State at the request of such other State.

2. Each Party undertakes to prohibit, to prevent and not to carry out at any place under its jurisdiction or control, and further undertakes not to carry out, participate or assist in carrying out anywhere:

- (a) any individual explosion having a yield exceeding 150 kilotons;
- (b) any group explosion:
 - (1) having an aggregate yield exceeding 150 kilotons except in ways that will permit identification of each individual explosion and determination of the yield of each individual explosion in the group in accordance with the provisions of Article IV of and the Protocol to this Treaty;
 - (2) having an aggregate yield exceeding one and one-half megatons;
- (c) any explosion which does not carry out a peaceful application;
- (d) any explosion except in compliance with the provisions of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, the Treaty on the Non-Proliferation of Nuclear Weapons, and other international agreements entered into by that Party.

3. The question of carrying out any individual explosion having a yield exceeding the yield specified in paragraph 2(a) of this article will be considered by the Parties at an appropriate time to be agreed.

Article IV

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party shall:

- (a) use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law; and
- (b) provide to the other Party information and access to sites of explosions and furnish assistance in accordance with the provisions set forth in the Protocol to this Treaty

2. Each Party undertakes not to interfere with the

national technical means of verification of the other Party operating in accordance with paragraph 1(a) of this article, or with the implementation of the provisions of paragraph 1(b) of this article.

Article V

1. To promote the objectives and implementation of the provisions of this Treaty, the Parties shall establish promptly a Joint Consultative Commission within the framework of which they will:

- (a) consult with each other, make inquiries and furnish information in response to such inquiries, to assure confidence in compliance with the obligations assumed;
- (b) consider questions concerning compliance with the obligations assumed and related situations which may be considered ambiguous;
- (c) consider questions involving unintended interference with the means for assuring compliance with the provisions of this Treaty;
- (d) consider changes in technology or other new circumstances which have a bearing on the provisions of this Treaty; and
- (e) consider possible amendments to provisions governing underground nuclear explosions for peaceful purposes.

2. The Parties through consultation shall establish, and may amend as appropriate, Regulations for the Joint Consultative Commission governing procedures, composition and other relevant matters.

Article VI

1. The Parties will develop cooperation on the basis of mutual benefit, equality, and reciprocity in various areas related to carrying out underground nuclear explosions for peaceful purposes.

2. The Joint Consultative Commission will facilitate this cooperation by considering specific areas and forms of cooperation which shall be determined by agreement between the Parties in accordance with their constitutional procedures.

3. The Parties will appropriately inform the International Atomic Energy Agency of results of their cooperation in the field of underground nuclear explosions for peaceful purposes.

Article VII

1. Each Party shall continue to promote the development of the international agreement or agreements and procedures provided for in Article V of the Treaty on the Non-Proliferation of Nuclear Weapons, and shall provide appropriate assistance to the International Atomic Energy Agency in this regard.

2. Each Party undertakes not to carry out, participate or assist in the carrying out of any explosion in the territory of another State unless that State agrees to the implementation in its territory of the international observation and procedures contemplated by Article V of the Treaty on the Non-Proliferation of Nuclear Weapons and the provisions of Article IV of and the Protocol to this Treaty, including the provision by that State of the assistance necessary for such implementation and of the privileges and immunities specified in the Protocol.

Article VIII

1. This Treaty shall remain in force for a period of five years, and it shall be extended for successive five-year

periods unless either Party notifies the other of its termination no later than six months prior to its expiration. Before the expiration of this period the Parties may, as necessary, hold consultations to consider the situation relevant to the substance of this Treaty. However, under no circumstances shall either Party be entitled to terminate this Treaty while the Treaty on the Limitation of Underground Nuclear Weapon Tests remains in force.

2. Termination of the Treaty on the Limitation of Underground Nuclear Weapon Tests shall entitle either Party to withdraw from this Treaty at any time.

3. Each Party may propose amendments to this Treaty. Amendments shall enter into force on the day of the exchange of instruments of ratification of such amendments.

Article IX

1. This Treaty including the Protocol which forms an integral part hereof, shall be subject to ratification in accordance with the constitutional procedures of each Party. This Treaty shall enter into force on the day of the exchange of instruments of ratification which exchange shall take place simultaneously with the exchange of instruments of ratification of the Treaty on the Limitation of Underground Nuclear Weapon Tests.

2. This Treaty shall be registered pursuant to Article 102 of the Charter of the United Nations.

Done at Washington and Moscow, on May 28, 1976, in duplicate, in the English and Russian languages, both texts being equally authentic.

For the United States of America:

GERALD R. FORD

The President of the United States of America

For the Union of Soviet Socialist Republics:

✓ L. I. BREZHNEV

General Secretary of the Central Committee of the CPSU

Protocol to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Having agreed to the provisions in the Treaty on Underground Nuclear Explosions for Peaceful Purposes, hereinafter referred to as the Treaty,

Have agreed as follows:

Article I

1. No individual explosion shall take place at a distance, in meters, from the ground surface which is less than 30 times the 3.4 root of its planned yield in kilotons.

2. Any group explosion with a planned aggregate yield exceeding 500 kilotons shall not include more than five individual explosions, each of which has a planned yield not exceeding 50 kilotons.

Article II

1. For each explosion, the Party carrying out the explosion shall provide the other Party:

(a) not later than 90 days before the beginning of emplacement of the explosives when the planned aggregate yield of the explosion does not exceed 100 kilotons, or not later than 180 days before the beginning of emplacement of the explosives when the planned aggregate yield of the explosion exceeds 100 kilotons, with the following information to the extent and degree of precision available when it is conveyed:

(1) the purpose of the planned explosion;

(2) the location of the explosion expressed in geographical coordinates with a precision of four or less kilometers, planned date and aggregate yield of the explosion;

(3) the type or types of rock in which the explosion will be carried out, including the degree of liquid saturation of the rock at the point of emplacement of each explosive; and

(4) a description of specific technological features of the project, of which the explosion is a part, that could influence the determination of its yield and confirmation of purpose; and

(b) not later than 60 days before the beginning of emplacement of the explosives the information specified in subparagraph 1(a) of this article to the full extent and with the precision indicated in that subparagraph.

2. For each explosion with a planned aggregate yield exceeding 50 kilotons, the Party carrying out the explosion shall provide the other Party, not later than 60 days before the beginning of emplacement of the explosives, with the following information:

(a) the number of explosives, the planned yield of each explosive, the location of each explosive to be used in a group explosion relative to all other explosives in the group with a precision of 100 or less meters, the depth of emplacement of each explosive with a precision of one meter and the time intervals between individual explosions in any group explosion with a precision of one-tenth second; and

(b) a description of specific features of geological structure or other local conditions that could influence the determination of the yield.

3. For each explosion with a planned aggregate yield exceeding 75 kilotons, the Party carrying out the explosion shall provide the other Party, not later than 60 days before the beginning of emplacement of the explosives, with a description of the geological and geophysical characteristics of the site of each explosion which could influence determination of the yield, which shall include: the depth of the water table; a stratigraphic column above each emplacement point; the position of each emplacement point relative to nearby geological and other features which influenced the design of the project of which the explosion is a part; and the physical parameters of the rock, including density, seismic velocity, porosity, degree of liquid saturation, and rock strength, within the sphere centered on each emplacement point and having a radius, in meters, equal to 30 times the cube root of the planned yield in kilotons of the explosive emplaced at that point.

4. For each explosion with a planned aggregate yield exceeding 100 kilotons, the Party carrying out the explosion shall provide the other Party, not later than 60 days before the beginning of emplacement of the explosives, with:

(a) information on locations and purposes of facilities and installations which are associated with the conduct of the explosion;

(b) information regarding the planned date of the beginning of emplacement of each explosive; and

(c) a topographic plan in local coordinates of the areas specified in paragraph 7 of Article IV, at a scale of 1:24,000 or 1:25,000 with a contour interval of 10 meters or less.

5. For application of an explosion to alleviate the consequences of an emergency situation involving an unforeseen combination of circumstances which calls for immediate action for which it would not be practicable to observe the timing requirements of paragraphs 1, 2 and 3 of this article, the following conditions shall be met:

(a) the Party carrying out an explosion for such purposes shall inform the other Party of that decision immediately after it has been made and describe such circumstances;

(b) the planned aggregate yield of an explosion for such purpose shall not exceed 100 kilotons; and

(c) the Party carrying out an explosion for such purpose shall provide to the other Party the information specified in paragraph 1 of this article, and the information specified in paragraphs 2 and 3 of this article if applicable, after the decision to conduct the explosion is taken, but not later than 30 days before the beginning of emplacement of the explosives.

6. For each explosion, the Party carrying out the explosion shall inform the other Party, not later than two days before the explosion, of the planned time of detonation of each explosive with a precision of one second.

7. Prior to the explosion, the Party carrying out the explosion shall provide the other Party with timely notification of changes in the information provided in accordance with this article.

8. The explosion shall not be carried out earlier than 90 days after notification of any change in the information provided in accordance with this article which requires more extensive verification procedures than those required on the basis of the original information, unless an earlier time for carrying out the explosion is agreed between the Parties.

9. Not later than 90 days after each explosion the Party carrying out the explosion shall provide the other Party with the following information:

(a) the actual time of the explosion with a precision of one-tenth second and its aggregate yield;

(b) when the planned aggregate yield of a group explosion exceeds 50 kilotons, the actual time of the first individual explosion with a precision of one-tenth second, the time interval between individual explosions with a precision of one millisecond and the yield of each individual explosion; and

(c) confirmation of other information provided in accordance with paragraphs 1, 2, 3 and 4 of this article and explanation of any changes or corrections based on the results of the explosion.

10. At any time, but not later than one year after the explosion, the other Party may request the Party carrying out the explosion to clarify any item of the information provided in accordance with this article. Such clarification shall be provided as soon as practicable, but not later than 30 days after the request is made.

Article III

1. For the purposes of this Protocol:

(a) "designated personnel" means those nationals of the other Party identified to the Party carrying out an

explosion as the persons who will exercise the rights and functions provided for in the Treaty and this Protocol; and

(b) "emplacement hole" means the entire interior of any drill-hole, shaft, adit or tunnel in which an explosive and associated cables and other equipment are to be installed.

2. For any explosion with a planned aggregate yield exceeding 100 kilotons but not exceeding 150 kilotons if the Parties, in consultation based on information provided in accordance with Article II and other information that may be introduced by either Party, deem it appropriate for the confirmation of the yield of the explosion, and for any explosion with a planned aggregate yield exceeding 150 kilotons, the Party carrying out the explosion shall allow designated personnel within the areas and at the locations described in Article V to exercise the following rights and functions:

(a) confirmation that the local circumstances, including facilities and installations associated with the project, are consistent with the stated peaceful purposes;

(b) confirmation of the validity of the geological and geophysical information provided in accordance with Article II through the following procedures:

(1) examination by designated personnel of research and measurement data of the Party carrying out the explosion and of rock core or rock fragments removed from each emplacement hole, and of any logs and drill core from existing exploratory holes which shall be provided to designated personnel upon their arrival at the site of the explosion;

(2) examination by designated personnel of rock core or rock fragments as they become available in accordance with the procedures specified in subparagraph 2(b)(3) of this article; and

(3) observation by designated personnel of implementation by the Party carrying out the explosion of one of the following four procedures, unless this right is waived by the other Party:

(i) construction of that portion of each emplacement hole starting from a point nearest the entrance of the emplacement hole which is at a distance, in meters, from the nearest emplacement point equal to 30 times the cube root of the planned yield in kilotons of the explosive to be emplaced at that point and continuing to the completion of the emplacement hole; or

(ii) construction of that portion of each emplacement hole starting from a point nearest the entrance of the emplacement hole which is at a distance, in meters, from the nearest emplacement point equal to six times the cube root of the planned yield in kilotons of the explosive to be emplaced at that point and continuing to the completion of the emplacement hole as well as the removal of rock core or rock fragments from the wall of an existing exploratory hole, which is substantially parallel with and at no point more than 100 meters from the emplacement hole, at locations specified by designated personnel which lie within a distance, in meters, from the same horizon as each emplacement point of 30 times the cube root of the planned yield in kilotons of the explosive to be emplaced at that point; or

(iii) removal of rock core or rock fragments from the wall of each emplacement hole at locations specified by designated personnel which lie within a distance, in meters, from each emplacement point of 30 times the cube root of the planned yield in kilotons of the explosive to be emplaced at each such point; or

(iv) construction of one or more new exploratory holes so that for each emplacement hole there will be a new exploratory hole to the same depth as that of the emplacement of the explosive, substantially parallel with and at no point more than 100 meters from each emplacement hole, from which rock cores would be removed at locations specified by designated personnel which lie within a distance, in meters, from the same horizon as each emplacement point of 30 times the cube root of the planned yield in kilotons of the explosive to be emplaced at each such point;

(c) observation of the emplacement of each explosive, confirmation of the depth of its emplacement and observation of the stemming of each emplacement hole;

(d) unobstructed visual observation of the area of the entrance to each emplacement hole at any time from the time of emplacement of each explosive until all personnel have been withdrawn from the site for the detonation of the explosion; and

(e) observation of each explosion.

3. Designated personnel, using equipment provided in accordance with paragraph 1 of Article IV, shall have the right, for any explosion with a planned aggregate yield exceeding 150 kilotons, to determine the yield of each individual explosion in a group explosion in accordance with the provisions of Article VI

4. Designated personnel, when using their equipment in accordance with paragraph 1 of Article IV, shall have the right, for any explosion with a planned aggregate yield exceeding 500 kilotons, to emplace, install and operate under the observation and with the assistance of personnel of the Party carrying out the explosion, if such assistance is requested by designated personnel, a local seismic network in accordance with the provisions of paragraph 7 of Article IV. Radio links may be used for the transmission of data and control signals between the seismic stations and the control center. Frequencies, maximum power output of radio transmitters, directivity of antennas and times of operation of the local seismic network radio transmitters before the explosion shall be agreed between the Parties in accordance with Article X and time of operation after the explosion shall conform to the time specified in paragraph 7 of Article IV.

5. Designated personnel shall have the right to:

(a) acquire photographs under the following conditions:

(1) the Party carrying out the explosion shall identify to the other Party those personnel of the Party carrying out the explosion who shall take photographs as requested by designated personnel;

(2) photographs shall be taken by personnel of the Party carrying out the explosion in the presence of designated personnel and at the time requested by designated personnel for taking such photographs. Designated personnel shall determine whether these photographs are in conformity with their requests and, if not, additional photographs shall be taken immediately;

(3) photographs shall be taken with cameras provided by the other Party having built-in, rapid developing capability and a copy of each photograph shall be provided at the completion of the development process to both Parties;

(4) cameras provided by designated personnel shall be kept in agreed secure storage when not in use; and

(5) the request for photographs can be made, at any time, of the following:

(i) exterior views of facilities and installations associated with the conduct of the explosion as described in subparagraph 4(a) of Article II;

(ii) geological samples used for confirmation of geological and geophysical information, as provided for in subparagraph 2(b) of this article and the equipment utilized in the acquisition of such samples;

(iii) emplacement and installation of equipment and associated cables used by designated personnel for yield determination;

(iv) emplacement and installation of the local seismic network used by designated personnel;

(v) emplacement of the explosives and the stemming of the emplacement hole; and

(vi) containers, facilities and installations for storage and operation of equipment used by designated personnel;

(b) photographs of visual displays and records produced by the equipment used by designated personnel and photographs within the control centers taken by cameras which are component parts of such equipment; and

(c) receive at the request of designated personnel and with the agreement of the Party carrying out the explosion supplementary photographs taken by the Party carrying out the explosion.

Article IV

1 Designated personnel in exercising their rights and functions may choose to use the following equipment of either Party, of which choice the Party carrying out the explosion shall be informed not later than 150 days before the beginning of emplacement of the explosives:

(a) electrical equipment for yield determination and equipment for a local seismic network as described in paragraphs 3, 4 and 7 of this article; and

(b) geologist's field tools and kits and equipment for recording of field notes.

2. Designated personnel shall have the right in exercising their rights and functions to utilize the following additional equipment which shall be provided by the Party carrying out the explosion, under procedures to be established in accordance with Article X to ensure that the equipment meets the specifications of the other Party: portable short-range communication equipment, field glasses, optical equipment for surveying and other items which may be specified by the other Party. A description of such equipment and operating instructions shall be provided to the other Party not later than 90 days before the beginning of emplacement of the explosives in connection with which such equipment is to be used.

3. A complete set of electrical equipment for yield determination shall consist of:

(a) sensing elements and associated cables for transmission of electrical power, control signals and data;

(b) equipment of the control center, electrical power supplies and cables for transmission of electrical power, control signals and data; and

(c) measuring and calibration instruments, maintenance equipment and spare parts necessary for ensuring the functioning of sensing elements, cables and equipment of the control center.

4. A complete set of equipment for the local seismic network shall consist of:

(a) seismic stations each of which contains a seismic instrument, electrical power supply and associated cables and radio equipment for receiving and transmission of control signals and data or equipment for recording control signals and data;

(b) equipment of the control center and electrical power supplies; and

(c) measuring and calibration instruments, maintenance equipment and spare parts necessary for ensuring the functioning of the complete network.

5. In case designated personnel, in accordance with paragraph 1 of this article, choose to use equipment of the Party carrying out the explosion for yield determination or for a local seismic network, a description of such equipment and installation and operating instructions shall be provided to the other Party not later than 90 days before the beginning of emplacement of the explosives in connection with which such equipment is to be used. Personnel of the Party carrying out the explosion shall emplace, install and operate the equipment in the presence of designated personnel. After the explosion, designated personnel shall receive duplicate copies of the recorded data. Equipment for yield determination shall be emplaced in accordance with Article VI. Equipment for a local seismic network shall be emplaced in accordance with paragraph 7 of this article.

6. In case designated personnel, in accordance with paragraph 1 of this article, choose to use their own equipment for yield determination and their own equipment for a local seismic network, the following procedures shall apply:

(a) the Party carrying out the explosion shall be provided by the other Party with the equipment and information specified in subparagraphs (a)(1) and (a)(2) of this paragraph not later than 150 days prior to the beginning of emplacement of the explosives in connection with which such equipment is to be used in order to permit the Party carrying out the explosion to familiarize itself with such equipment, if such equipment and information has not been previously provided, which equipment shall be returned to the other Party not later than 90 days before the beginning of emplacement of the explosives. The equipment and information to be provided are:

(1) one complete set of electrical equipment for yield determination as described in paragraph 3 of this article, electrical and mechanical design information, specifications and installation and operating instructions concerning this equipment; and

(2) one complete set of equipment for the local seismic network described in paragraph 4 of this article, including one seismic station, electrical and mechanical design information, specifications and installation and operating instructions concerning this equipment;

(b) not later than 35 days prior to the beginning of emplacement of the explosives in connection with which the following equipment is to be used, two complete sets of electrical equipment for yield determination as described in paragraph 3 of this article and specific installation instructions for the emplacement of the sensing elements based on information provided in accordance with subparagraph 2(a) of Article VI and two complete sets of equipment for the local seismic network as described in paragraph 4 of this article, which sets of equipment shall have the same components and technical characteristics as the corresponding equipment specified in subparagraph 6(a) of this article, shall be delivered in sealed containers to the port of entry;

(c) the Party carrying out the explosion shall choose one of each of the two sets of equipment described above which shall be used by designated personnel in connection with the explosion;

(d) the set or sets of equipment not chosen for use in connection with the explosion shall be at the disposal of the Party carrying out the explosion for a period that may be as long as 30 days after the explosion at which time such equipment shall be returned to the other Party;

(e) the set or sets of equipment chosen for use shall be transported by the Party carrying out the explosion in the sealed containers in which this equipment arrived, after seals of the Party carrying out the explosion have been affixed to them, to the site of the explosion, so that this equipment is delivered to designated personnel for emplacement, installation and operation not later than 20 days before the beginning of emplacement of the explosives. This equipment shall remain in the custody of designated personnel in accordance with paragraph 7 of Article V or in agreed secure storage. Personnel of the Party carrying out the explosion shall have the right to observe the use of this equipment by designated personnel during the time the equipment is at the site of the explosion. Before the beginning of emplacement of the explosives, designated personnel shall demonstrate to personnel of the Party carrying out the explosion that this equipment is in working order;

(f) each set of equipment shall include two sets of components for recording data and associated calibration equipment. Both of these sets of components in the equipment chosen for use shall simultaneously record data. After the explosion, and after duplicate copies of all data have been obtained by designated personnel and the Party carrying out the explosion, one of each of the two sets of components for recording data and associated calibration equipment shall be selected, by an agreed process of chance, to be retained by designated personnel. Designated personnel shall pack and seal such components for recording data and associated calibration equipment which shall accompany them from the site of the explosion to the port of exit; and

(g) all remaining equipment may be retained by the Party carrying out the explosion for a period that may be as long as 30 days, after which time this equipment shall be returned to the other Party.

7. For any explosion with a planned aggregate yield exceeding 500 kilotons, a local seismic network, the number of stations of which shall be determined by designated personnel but shall not exceed the number of explosives in the group plus five, shall be emplaced, installed and operated at agreed sites of emplacement within an area circumscribed by circles of 15 kilometers in radius centered on points on the surface of the earth above the points of emplacement of the explosives during a period beginning not later than 20 days before the beginning of emplacement of the explosives and continuing after the explosion not later than three days unless otherwise agreed between the Parties.

8. The Party carrying out the explosion shall have the right to examine in the presence of designated personnel all equipment, instruments and tools of designated personnel specified in subparagraph 1(b) of this article.

9. The Joint Consultative Commission will consider proposals that either Party may put forward for the joint development of standardized equipment for verification purposes.

Article V

1. Except as limited by the provisions of paragraph 5 of this article, designated personnel in the exercise of their rights and functions shall have access along agreed routes:

(a) for an explosion with a planned aggregate yield exceeding 100 kilotons in accordance with paragraph 2 of Article III:

(1) to the locations of facilities and installations associated with the conduct of the explosion provided in accordance with subparagraph 4(a) of Article II; and

(2) to the locations of activities described in paragraph 2 of Article III; and

(b) for any explosion with a planned aggregate yield exceeding 150 kilotons, in addition to the access described in subparagraph 1(a) of this article:

(1) to other locations within the area circumscribed by circles of 10 kilometers in radius centered on points on the surface of the earth above the points of emplacement of the explosives in order to confirm that the local circumstances are consistent with the stated peaceful purposes;

(2) to the locations of the components of the electrical equipment for yield determination to be used for recording data when, by agreement between the Parties, such equipment is located outside the area described in subparagraph 1(b)(1) of this article; and

(3) to the sites of emplacement of the equipment of the local seismic network provided for in paragraph 7 of Article IV.

2. The Party carrying out the explosion shall notify the other Party of the procedure it has chosen from among those specified in subparagraph 2(b)(3) of Article III not later than 30 days before beginning the implementation of such procedure. Designated personnel shall have the right to be present at the site of the explosion to exercise their rights and functions in the areas and at the locations described in paragraph 1 of this article for a period of time beginning two days before the beginning of the implementation of the procedure and continuing for a period of three days after the completion of this procedure.

3. Except as specified in paragraph 4 of this article, designated personnel shall have the right to be present in the areas and at the locations described in paragraph 1 of this article:

(a) for an explosion with a planned aggregate yield exceeding 100 kilotons but not exceeding 150 kilotons, in accordance with paragraph 2 of Article III, at any time beginning five days before the beginning of emplacement of the explosives and continuing after the explosion and after safe access to evacuated areas has been established according to standards determined by the Party carrying out the explosion for a period of two days; and

(b) for any explosion with a planned aggregate yield exceeding 150 kilotons, at any time beginning 20 days before the beginning of emplacement of the explosives and continuing after the explosion and after safe access to evacuated areas has been established according to standards determined by the Party carrying out the explosion for a period of:

(1) five days in the case of an explosion with a planned aggregate yield exceeding 150 kilotons but not exceeding 500 kilotons; or

(2) eight days in the case of an explosion with a planned aggregate yield exceeding 500 kilotons.

4. Designated personnel shall not have the right to be present in those areas from which all personnel have been evacuated in connection with carrying out an explosion, but shall have the right to re-enter those areas at the same time as personnel of the Party carrying out the explosion.

5. Designated personnel shall not have or seek access by physical, visual or technical means to the interior of the canister containing an explosive, to documentary or other information descriptive of the design of an explosive nor to equipment for control and firing of explosives. The Party carrying out the explosion shall not locate documentary or other information descriptive of the design of an explosive in such ways as to impede the designated personnel in the exercise of their rights and functions.

6. The number of designated personnel present at the site of an explosion shall not exceed:

(a) for the exercise of their rights and functions in connection with the confirmation of the geological and geophysical information in accordance with the provisions of subparagraph 2(b) and applicable provisions of paragraph 5 of Article III—the number of emplacement holes plus three;

(b) for the exercise of their rights and functions in connection with confirming that the local circumstances are consistent with the information provided and with the stated peaceful purposes in accordance with the provisions in subparagraphs 2(a), 2(c), 2(d) and 2(e) and applicable provisions of paragraph 5 of Article III—the number of explosives plus two;

(c) for the exercise of their rights and functions in connection with confirming that the local circumstances are consistent with the information provided and with the stated peaceful purposes in accordance with the provisions in subparagraphs 2(a), 2(c), 2(d) and 2(e) and applicable provisions of paragraph 5 of Article III and in connection with the use of electrical equipment for determination of the yield in accordance with paragraph 3 of Article III—the number of explosives plus seven; and

(d) for the exercise of their rights and functions in connection with confirming that the local circumstances are consistent with the information provided and with the stated peaceful purposes in accordance with the provisions in subparagraph 2(a), 2(c), 2(d) and 2(e) and applicable provisions of paragraph 5 of Article III and in connection with the use of electrical equipment for determination of the yield in accordance with paragraph 3 of Article III and with the use of the local seismic network in accordance with paragraph 4 of Article III—the number of explosives plus 10.

7. The Party carrying out the explosion shall have the right to assign its personnel to accompany designated personnel while the latter exercise their rights and functions.

8. The Party carrying out an explosion shall assure for designated personnel telecommunications with their authorities, transportation and other services appropriate to their presence and to the exercise of their rights and functions at the site of the explosion.

9. The expenses incurred for the transportation of designated personnel and their equipment to and from the site of the explosion, telecommunications provided for in paragraph 8 of this article, their living and working quarters, subsistence and all other personal expenses shall be the responsibility of the Party other than the Party carrying out the explosion.

10. Designated personnel shall consult with the Party carrying out the explosion in order to coordinate the planned program and schedule of activities of designated

personnel with the program of the Party carrying out the explosion for the conduct of the project so as to ensure that designated personnel are able to conduct their activities in an orderly and timely way that is compatible with the implementation of the project. Procedures for such consultations shall be established in accordance with Article X.

Article VI

For any explosion with a planned aggregate yield exceeding 150 kilotons, determination of the yield of each explosive used shall be carried out in accordance with the following provisions:

1. Determination of the yield of each individual explosion in the group shall be based on measurements of the velocity of propagation, as a function of time, of the hydrodynamic shock wave generated by the explosion, taken by means of electrical equipment described in paragraph 3 of Article IV.

2. The Party carrying out the explosion shall provide the other Party with the following information:

(a) not later than 60 days before the beginning of emplacement of the explosives, the length of each canister in which the explosive will be contained in the corresponding emplacement hole, the dimensions of the tube or other device used to emplace the canister and the cross-sectional dimensions of the emplacement hole to a distance, in meters, from the emplacement point of 10 times the cube root of its yield in kilotons;

(b) not later than 60 days before the beginning of emplacement of the explosives, a description of materials, including their densities, to be used to stem each emplacement hole; and

(c) not later than 30 days before the beginning of emplacement of the explosives, for each emplacement hole of a group explosion, the local coordinates of the point of emplacement of the explosive, the entrance of the emplacement hole, the point of the emplacement hole most distant from the entrance, the location of the emplacement hole at each 200 meters distance from the entrance and the configuration of any known voids larger than one cubic meter located within the distance, in meters, of 10 times the cube root of the planned yield in kilotons measured from the bottom of the canister containing the explosive. The error in these coordinates shall not exceed one percent of the distance between the emplacement hole and the nearest other emplacement hole or one percent of the distance between the point of measurement and the entrance of the emplacement hole, whichever is smaller, but in no case shall the error be required to be less than one meter.

3. The Party carrying out the explosion shall emplace for each explosive that portion of the electrical equipment for yield determination described in subparagraph 3(a) of Article IV, supplied in accordance with paragraph 1 of Article IV, in the same emplacement hole as the explosive in accordance with the installation instructions supplied under the provisions of paragraph 5 or 6 of Article IV. Such emplacement shall be carried out under the observation of designated personnel. Other equipment specified in subparagraph 3(b) of Article IV shall be emplaced and installed:

(a) by designated personnel under the observation and with the assistance of personnel of the Party carrying out the explosion, if such assistance is requested by designated personnel; or

(b) in accordance with paragraph 5 of Article IV.

4. That portion of the electrical equipment for yield determination described in subparagraph 3(a) of Article IV that is to be emplaced in each emplacement hole shall be located so that the end of the electrical equipment which is farthest from the entrance to the emplacement hole is at a distance, in meters, from the bottom of the canister containing the explosive equal to 3.5 times the cube root of the planned yield in kilotons of the explosive when the planned yield is less than 20 kilotons and three times the cube root of the planned yield in kilotons of the explosive when the planned yield is 20 kilotons or more. Canisters longer than 10 meters containing the explosive shall only be utilized if there is prior agreement between the Parties establishing provisions for their use. The Party carrying out the explosion shall provide the other Party with data on the distribution of density inside any other canister in the emplacement hole with a transverse cross-sectional area exceeding 10 square centimeters located within a distance, in meters, of 10 times the cube root of the planned yield in kilotons of the explosion from the bottom of the canister containing the explosive. The Party carrying out the explosion shall provide the other Party with access to confirm such data on density distribution within any such canister.

5. The Party carrying out an explosion shall fill each emplacement hole, including all pipes and tubes contained therein which have at any transverse section an aggregate cross-sectional area exceeding 10 square centimeters in the region containing the electrical equipment for yield determination and to a distance, in meters, of six times the cube root of the planned yield in kilotons of the explosive from the explosive emplacement point, with material having a density not less than seven-tenths of the average density of the surrounding rock, and from that point to a distance of not less than 60 meters from the explosive emplacement point with material having a density greater than one gram per cubic centimeter.

6. Designated personnel shall have the right to:

(a) confirm information provided in accordance with subparagraph 2(a) of this article;

(b) confirm information provided in accordance with subparagraph 2(b) of this article and be provided, upon request, with a sample of each batch of stemming material as that material is put into the emplacement hole; and

(c) confirm the information provided in accordance with subparagraph 2(c) of this article by having access to the data acquired and by observing, upon their request, the making of measurements.

7. For those explosives which are emplaced in separate emplacement holes, the emplacement shall be such that the distance D , in meters, between any explosive and any portion of the electrical equipment for determination of the yield of any other explosive in the group shall be not less than 10 times the cube root of the planned yield in kilotons of the larger explosive of such a pair of explosives. Individual explosions shall be separated by time intervals, in milliseconds, not greater than one-sixth the amount by which the distance D , in meters, exceeds 10 times the cube root of the planned yield in kilotons of the larger explosive of such a pair of explosives.

8. For those explosives in a group which are emplaced in a common emplacement hole, the distance, in meters, between each explosive and any other explosive in that emplacement hole shall be not less than 10 times the cube root of the planned yield in kilotons of the larger explosive of such a pair of explosives, and the explosives shall be detonated in sequential order, beginning with the explosive

farthest from the entrance to the emplacement hole, with the individual detonations separated by time intervals, in milliseconds, of not less than one times the cube root of the planned yield in kilotons of the largest explosive in this emplacement hole.

Article VII

1. Designated personnel with their personal baggage and their equipment as provided in Article IV shall be permitted to enter the territory of the Party carrying out the explosion at an entry port to be agreed upon by the Parties, to remain in the territory of the Party carrying out the explosion for the purpose of fulfilling their rights and functions provided for in the Treaty and this Protocol, and to depart from an exit port to be agreed upon by the Parties.

2. At all times while designated personnel are in the territory of the Party carrying out the explosion, their persons, property, personal baggage, archives and documents as well as their temporary official and living quarters shall be accorded the same privileges and immunities as provided in Articles 22, 23, 24, 29, 30, 31, 34 and 36 of the Vienna Convention on Diplomatic Relations of 1961 to the persons, property, personal baggage, archives and documents of diplomatic agents as well as to the premises of diplomatic missions and private residences of diplomatic agents.

3. Without prejudice to their privileges and immunities it shall be the duty of designated personnel to respect the laws and regulations of the State in whose territory the explosion is to be carried out insofar as they do not impede in any way whatsoever the proper exercising of their rights and functions provided for by the Treaty and this Protocol.

Article VIII

The Party carrying out an explosion shall have sole and exclusive control over and full responsibility for the conduct of the explosion.

Article IX

1. Nothing in the Treaty and this Protocol shall affect proprietary rights in information made available under the Treaty and this Protocol and in information which may be disclosed in preparation for and carrying out of explosions; however, claims to such proprietary rights shall not impede implementation of the provisions of the Treaty and this Protocol.

2. Public release of the information provided in accordance with Article II or publication of material using such

information, as well as public release of the results of observation and measurements obtained by designated personnel, may take place only by agreement with the Party carrying out an explosion; however, the other Party shall have the right to issue statements after the explosion that do not divulge information in which the Party carrying out the explosion has rights which are referred to in paragraph 1 of this article.

Article X

The Joint Consultative Commission shall establish procedures through which the Parties will, as appropriate, consult with each other for the purpose of ensuring efficient implementation of this Protocol.

Done at Washington and Moscow, on May 28, 1976

For the United States of America

GERALD R. FORD

The President of the United States of America

For the Union of Soviet Socialist Republics

L. I. BREZHNEV

General Secretary of the Central Committee of the CPSU

Agreed Statement

The Parties to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes, hereinafter referred to as the Treaty, agree that under subparagraph 2(c) of Article III of the Treaty

(a) Development testing of nuclear explosives does not constitute a "peaceful application" and any such development tests shall be carried out only within the boundaries of nuclear weapon test sites specified in accordance with the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests;

(b) Associating test facilities, instrumentation or procedures related only to testing of nuclear weapons or their effects with any explosion carried out in accordance with the Treaty does not constitute a "peaceful application."

May 13, 1976

APPENDIX 19

GUIDELINES FOR NUCLEAR TRANSFERS*

1. The following fundamental principles for safeguards and export controls should apply to nuclear transfers to any non-nuclear-weapon State for peaceful purposes. In this connection, suppliers have defined an export trigger list and agreed on common criteria for technology transfers.

Prohibition on nuclear explosives

2. Suppliers should authorize transfer of items identified in the trigger list only upon formal governmental assurances from recipients explicitly excluding uses which would result in any nuclear explosive device.

Physical protection

3. (a) All nuclear materials and facilities identified by the agreed trigger list should be placed under effective physical protection to prevent unauthorized use and handling. The levels of physical protection to be ensured in relation to the type of materials, equipment and facilities, have been agreed by suppliers, taking account of international recommendations.
- (b) The implementation of measures of physical protection in the recipient country is the responsibility of the Government of that country. However, in order to implement the terms agreed upon amongst suppliers, the levels of physical protection on which these measures have to be based should be the subject of an agreement between supplier and recipient.
- (c) In each case special arrangements should be made for a clear definition of responsibilities for the transport of trigger list items.

Safeguards

4. Suppliers should transfer trigger list items only when covered by IAEA safeguards, with duration and coverage provisions in conformance with the GOV/1621 guidelines. Exceptions should be made only after consultation with the parties to this understanding.

5. Suppliers will jointly reconsider their common safeguards requirements, whenever appropriate.

Safeguards triggered by the transfer of certain technology

6. (a) The requirements of paragraphs 2, 3 and 4 above should also apply to facilities for reprocessing, enrichment, or heavy-water production, utilizing technology directly transferred by the supplier or derived from transferred facilities, or major critical components thereof.
- (b) The transfer of such facilities, or major critical components thereof, or related technology, should require an undertaking (1) that IAEA safeguards apply to any facilities of the same type (i.e. if the design, construction or operating processes are based on the same or similar physical or chemical processes, as defined in the trigger list) constructed during an agreed period in the recipient country and (2) that there should at all times be in effect a safeguards agreement permitting the IAEA to apply Agency safeguards with respect to such facilities identified by the recipient, or by the supplier in consultation with the recipient, as using transferred technology.

Special controls on sensitive exports

7. Suppliers should exercise restraint in the transfer of sensitive facilities, technology and weapons-usable materials. If enrichment or reprocessing facilities, equipment or technology are to be transferred, suppliers should encourage recipients to accept, as an

* IAEA Doc. INFCIRC/254, Feb. 1978.

alternative to national plants, supplier involvement and/or other appropriate multinational participation in resulting facilities. Suppliers should also promote international (including IAEA) activities concerned with multinational regional fuel cycle centres.

Special controls on export of enrichment facilities, equipment and technology

8. For a transfer of an enrichment facility, or technology therefor, the recipient nation should agree that neither the transferred facility, nor any facility based on such technology, will be designed or operated for the production of greater than 20% enriched uranium without the consent of the supplier nation, of which the IAEA should be advised.

Controls on supplied or derived weapons-usable material

9. Suppliers recognize the importance, in order to advance the objectives of these guidelines and to provide opportunities further to reduce the risks of proliferation, of including in agreements on supply of nuclear materials or of facilities which produce weapons-usable material, provisions calling for mutual agreement between the supplier and the recipient on arrangements for reprocessing, storage, alteration, use, transfer or retransfer of any weapons-usable material involved. Suppliers should endeavour to include such provisions whenever appropriate and practicable.

Controls on retransfer

10. (a) Suppliers should transfer trigger list items, including technology defined under paragraph 6, only upon the recipient's assurance that in the case of:

(1) retransfer of such items,

or

(2) transfer of trigger list items derived from facilities originally transferred by the supplier, or with the help of equipment or technology originally transferred by the supplier;

the recipient of the retransfer or transfer will have provided the same assurances as those required by the supplier for the original transfer.

(b) In addition the supplier's consent should be required for: (1) any retransfer of the facilities, major critical components, or technology described in paragraph 6; (2) any transfer of facilities or major critical components derived from those items; (3) any retransfer of heavy water or weapons-usable material.

SUPPORTING ACTIVITIES

Physical security

11. Suppliers should promote international co-operation on the exchange of physical security information, protection of nuclear materials in transit, and recovery of stolen nuclear materials and equipment.

Support for effective IAEA safeguards

12. Suppliers should make special efforts in support of effective implementation of IAEA safeguards. Suppliers should also support the Agency's efforts to assist Member States in the improvement of their national systems of accounting and control of nuclear material and to increase the technical effectiveness of safeguards.

Similarly, they should make every effort to support the IAEA in increasing further the adequacy of safeguards in the light of technical developments and the rapidly growing number of nuclear facilities, and to support appropriate initiatives aimed at improving the effectiveness of IAEA safeguards.

Sensitive plant design features

13. Suppliers should encourage the designers and makers of sensitive equipment to construct it in such a way as to facilitate the application of safeguards.

Consultations

14. (a) Suppliers should maintain contact and consult through regular channels on matters connected with the implementation of these guidelines.
- (b) Suppliers should consult, as each deems appropriate, with other Governments concerned on specific sensitive cases, to ensure that any transfer does not contribute to risks of conflict or instability.
- (c) In the event that one or more suppliers believe that there has been a violation of supplier/recipient understandings resulting from these guidelines, particularly in the case of an explosion of a nuclear device, or illegal termination or violation of IAEA safeguards by a recipient, suppliers should consult promptly through diplomatic channels in order to determine and assess the reality and extent of the alleged violation.

Pending the early outcome of such consultations, suppliers will not act in a manner that could prejudice any measure that may be adopted by other suppliers concerning their current contacts with that recipient.

Upon the findings of such consultations, the suppliers, bearing in mind Article XII of the IAEA Statute, should agree on an appropriate response and possible action which could include the termination of nuclear transfers to that recipient.

15. In considering transfers, each supplier should exercise prudence having regard to all the circumstances of each case, including any risk that technology transfers not covered by paragraph 6, or subsequent retransfers, might result in unsafeguarded nuclear materials.

16. Unanimous consent is required for any changes in these guidelines, including any which might result from the reconsideration mentioned in paragraph 5.

ANNEX A

TRIGGER LIST REFERRED TO IN GUIDELINES

PART A. Material and equipment

1. Source or special fissionable material as defined in Article XX of the Statute of the International Atomic Energy Agency; provided that items specified in subparagraph (a) below, and exports of source or special fissionable material to a given recipient country, within a period of 12 months, below the limits specified in subparagraph (b) below, shall not be included:

- (a) Plutonium with an isotopic concentration of plutonium-238 exceeding 80%.

Special fissionable material when used in gram quantities or less as a sensing component in instruments; and

Source material which the Government is satisfied is to be used only in non-nuclear activities, such as the production of alloys or ceramics;

- | | |
|----------------------------------|---------------------|
| (b) Special fissionable material | 50 effective grams; |
| Natural uranium | 500 kilograms; |
| Depleted uranium | 1000 kilograms; and |
| Thorium | 1000 kilograms. |

2.1. Reactors and equipment therefor:

- 2.1.1. Nuclear reactors capable of operation so as to maintain a controlled self-sustaining fission chain reaction, excluding zero energy reactors, the latter being defined as reactors with a designed maximum rate of production of plutonium not exceeding 100 grams per year.

2.1.2. Reactor pressure vessels:

Metal vessels, as complete units or as major shop-fabricated parts therefor, which are especially designed or prepared to contain the core of a nuclear reactor as defined in paragraph 2.1.1 above and are capable of withstanding the operating pressure of the primary coolant.

2.1.3. Reactor fuel charging and discharging machines:

Manipulative equipment especially designed or prepared for inserting or removing fuel in a nuclear reactor as defined in paragraph 2.1.1 above capable of on-load operation or employing technically sophisticated positioning or alignment features to allow complex off-load fuelling operations such as those in which direct viewing of or access to the fuel is not normally available.

2.1.4. Reactor control rods:

Rods especially designed or prepared for the control of the reaction rate in a nuclear reactor as defined in paragraph 2.1.1 above.

2.1.5. Reactor pressure tubes:

Tubes which are especially designed or prepared to contain fuel elements and the primary coolant in a reactor as defined in paragraph 2.1.1 above at an operating pressure in excess of 50 atmospheres.

2.1.6. Zirconium tubes:

Zirconium metal and alloys in the form of tubes or assemblies of tubes, and in quantities exceeding 500 kg per year, especially designed or prepared for use in a reactor as defined in paragraph 2.1.1 above, and in which the relationship of hafnium to zirconium is less than 1:500 parts by weight.

2.1.7. Primary coolant pumps:

Pumps especially designed or prepared for circulating liquid metal as primary coolant for nuclear reactors as defined in paragraph 2.1.1 above.

2.2. Non-nuclear materials for reactors:

2.2.1. Deuterium and heavy water:

Deuterium and any deuterium compound in which the ratio of deuterium to hydrogen exceeds 1:5000 for use in a nuclear reactor as defined in paragraph 2.1.1 above in quantities exceeding 200 kg of deuterium atoms for any one recipient country in any period of 12 months.

2.2.2. Nuclear grade graphite:

Graphite having a purity level better than 5 parts per million boron equivalent and with a density greater than 1.50 grams per cubic centimetre in quantities exceeding 30 metric tons for any one recipient country in any period of 12 months.

2.3.1. Plants for the reprocessing of irradiated fuel elements, and equipment especially designed or prepared therefor.

2.4.1. Plants for the fabrication of fuel elements.

- 2.5.1. Equipment, other than analytical instruments, especially designed or prepared for the separation of isotopes of uranium
- 2.6.1. Plants for the production of heavy water, deuterium and deuterium compounds and equipment especially designed or prepared therefor

Clarifications of certain of the items on the above list are annexed

PART B. Common criteria for technology transfers under
paragraph 6 of the Guidelines

- (1) "Technology" means technical data in physical form designated by the supplying country as important to the design, construction, operation, or maintenance of equipment, for processing, or heavy water production facilities or major critical components thereof, but excluding data available to the public, for example, in published books and periodicals, or that which has been made available internationally without restrictions upon its further dissemination.
- (2) "Major critical components" are:
 - (a) in the case of an isotope separation plant of the gaseous diffusion type diffusion barrier;
 - (b) in the case of an isotope separation plant of the gas centrifuge type gas centrifuge assemblies, corrosion-resistant to UF₆;
 - (c) in the case of an isotope separation plant of the jet nozzle type jet nozzle units;
 - (d) in the case of an isotope separation plant of the vortex type the vortex units.
- (3) For facilities covered by paragraph 6 of the Guidelines for which no major critical component is described in paragraph 2 above, if a supplier cannot without substantial in the aggregate a significant fraction of the design, construction, operation or maintenance of the facility together with the knowledge for construction and operation of that facility, then transfer should be deemed to be a transfer of "facilities or major critical components thereof".
- (4) The definitions in the preceding paragraphs are solely for the purposes of paragraph 6 of the Guidelines and this Part B which differ from those applicable to Part A of this Transfer List, which should not be interpreted as limited by such definition.
- (5) For the purposes of implementing paragraph 6 of the Guidelines, the following facilities should be deemed to be "of the same type" (i.e. of their design, construction or operating processes are based on the same or similar physical or chemical processes):

Where the technology transferred is such as to make possible the construction in the recipient State of a facility of the following type, or major critical components thereof:

The following will be deemed to be facilities of the same type:

- | | |
|---|---|
| (a) an isotope separation plant of the gaseous diffusion type | any other isotope separation plant using the gaseous diffusion process. |
| (b) an isotope separation plant of the gas centrifuge type | any other isotope separation plant using the gas centrifuge process. |
| (c) an isotope separation plant of the jet nozzle type | any other isotope separation plant using the jet nozzle process. |

- | | |
|---|--|
| (d) an isotope separation plant of the
vortex type | any other isotope separation plant
using the vortex process. |
| (e) a fuel reprocessing plant using
the solvent extraction process . . . | any other fuel reprocessing plant
using the solvent extraction process. |
| (f) a heavy water plant using the
exchange process | any other heavy water plant using the
exchange process. |
| (g) a heavy water plant using the
electrolytic process | any other heavy water plant using the
electrolytic process. |
| (h) a heavy water plant using the
hydrogen distillation process | any other heavy water plant using the
hydrogen distillation process. |

Note: In the case of reprocessing, enrichment, and heavy water facilities whose design, construction, or operation processes are based on physical or chemical processes other than those enumerated above, a similar approach would be applied to define facilities "of the same type", and a need to define major critical components of such facilities might arise.

- (6) The reference in paragraph 6(b) of the Guidelines to "any facilities of the same type constructed during an agreed period in the recipient's country" is understood to refer to such facilities (or major critical components thereof), the first operation of which commences within a period of at least 20 years from the date of the first operation of (1) a facility which has been transferred or incorporates transferred major critical components or of (2) a facility of the same type built after the transfer of technology. It is understood that during that period there would be a conclusive presumption that any facility of the same type utilized transferred technology. But the agreed period is not intended to limit the duration of the safeguards imposed or the duration of the right to identify facilities as being constructed or operated on the basis of or by the use of transferred technology in accordance with paragraph 6(b)(2) of the Guidelines.

Annex

CLARIFICATIONS OF ITEMS ON THE TRIGGER LIST

A. Complete nuclear reactors (Item 2.1.1 of the Trigger List)

1. A "nuclear reactor" basically includes the items within or attached directly to the reactor vessel, the equipment which controls the level of power in the core, and the components which normally contain or come in direct contact with or control the primary coolant of the reactor core.

2. The export of the whole set of major items within this boundary will take place only in accordance with the procedures of the Guidelines. Those individual items within this functionally defined boundary which will be exported only in accordance with the procedures of the Guidelines are listed in paragraphs 2.1.1 to 2.1.5.

The Government reserves to itself the right to apply the procedures of the Guidelines to other items within the functionally defined boundary.

3. It is not intended to exclude reactors which could reasonably be capable of modification to produce significantly more than 100 grams of plutonium per year. Reactors designed for sustained operation at significant power levels, regardless of their capacity for plutonium production, are not considered as "zero energy reactors".

B. Pressure vessels
(Item 2.1.2 of the Trigger List)

4. A top plate for a reactor pressure vessel is covered by item 2.1.1 as a major shop-fabricated part of a pressure vessel.

5. Reactor internals (e. g. support columns and plates for the core and other vessel internals, control rod guide tubes, thermal shields, baffles, core grid plates, diffuser plates, etc.) are normally supplied by the reactor supplier. In some cases, certain internal support components are included in the fabrication of the pressure vessel. These items are sufficiently critical to the safety and reliability of the operation of the reactor (and, therefore, to the guarantees and liability of the reactor supplier), so that their supply, outside the basic supply arrangement for the reactor itself, would not be common practice. Therefore, although the separate supply of these unique, especially designed and prepared, critical, large and expensive items would not necessarily be considered as 'falling outside the area of concern, such a mode of supply is considered unlikely.

C. Reactor control rods
(Item 2.1.4 of the Trigger List)

6. This item includes, in addition to the neutron absorbing part, the support or suspension structures therefor if supplied separately.

D. Fuel reprocessing plants
(Item 2.3.1 of the Trigger List)

7. A "plant for the reprocessing of irradiated fuel elements" includes the equipment and components which normally come in direct contact with and directly control the irradiated fuel and the major nuclear material and fission product processing streams. The export of the whole set of major items within this boundary will take place only in accordance with the procedures of the Guidelines. In the present state of technology, the following items of equipment are considered to fall within the meaning of the phrase "and equipment especially designed or prepared therefor":

(a) Irradiated fuel element chopping machines: remotely operated equipment especially designed or prepared for use in a reprocessing plant as identified above and intended to cut, chop or shear irradiated nuclear fuel assemblies, bundles or rods, and

(b) Critically safe tanks (e. g. small diameter, annular or slab tanks) especially designed or prepared for use in a reprocessing plant as identified above, intended for dissolution of irradiated nuclear fuel and which are capable of withstanding hot, highly corrosive liquid, and which can be remotely loaded and maintained,

8. The Government reserves to itself the right to apply the procedures of the Guidelines to other items within the functionally defined boundary.

E. Fuel fabrication plants
(Item 2.4.1 of the Trigger List)

9. A "plant for the fabrication of fuel elements" includes the equipment:

(a) Which normally comes in direct contact with, or directly processes, or controls, the production flow of nuclear material, or

(b) Which seals the nuclear material within the cladding.

10. The export of the whole set of items for the foregoing operations will take place only in accordance with the procedures of the Guidelines. The Government will also give con-

sideration to application of the procedures of the guidelines to individual items intended for any of the foregoing operations, as well as for other fuel fabrication operations such as checking the integrity of the cladding or the seal, and the finish treatment to the sealed fuel.

F. Isotope separation plant equipment
(Item 2.5.1 of the Trigger List)

11. "Equipment, other than analytical instruments, especially designed or prepared for the separation of isotopes of uranium" includes each of the major items of equipment especially designed or prepared for the separation process. Such items include:

- gaseous diffusion barriers,
- gaseous diffuser housings,
- gas centrifuge assemblies; corrosion-resistant to UF_6 ,
- jet nozzle separation units,
- vortex separation units,
- large UF_6 corrosion-resistant axial or centrifugal compressors,
- special compressor seals for such compressors.

ANNEX B

CRITERIA FOR LEVELS OF PHYSICAL PROTECTION

1. The purpose of physical protection of nuclear materials is to prevent unauthorized use and handling of these materials. Paragraph 3(a) of the Guidelines document calls for agreement among suppliers on the levels of protection to be ensured in relation to the type of materials, and equipment and facilities containing these materials, taking account of international recommendations.

2. Paragraph 3(b) of the Guidelines document states that implementation of measures of physical protection in the recipient country is the responsibility of the Government of that country. However, the levels of physical protection on which these measures have to be based should be the subject of an agreement between supplier and recipient. In this context these requirements should apply to all States.

3. The document INFCIRC/225 of the International Atomic Energy Agency entitled "The Physical Protection of Nuclear Material" and similar documents which from time to time are prepared by international groups of experts and updated as appropriate to account for changes in the state of the art and state of knowledge with regard to physical protection of nuclear material are a useful basis for guiding recipient States in designing a system of physical protection measures and procedures.

4. The categorization of nuclear material presented in the attached table or as it may be updated from time to time by mutual agreement of suppliers shall serve as the agreed basis for designating specific levels of physical protection in relation to the type of materials, and equipment and facilities containing these materials, pursuant to paragraph 3(a) and 3(b) of the Guidelines document.

5. 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 follows:

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

Materials 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 Category II and III materials and, in addition, under constant surveillance by escorts and under conditions which assure close communication with appropriate response forces.

6. Suppliers should request identification by recipients of those agencies or authorities having responsibility for ensuring that levels of protection are adequately met and having responsibility for internally co-ordinating response/recovery operations in the event of unauthorized use or handling of protected materials. Suppliers and recipients should also designate points of contact within their national authorities to co-operate on matters of out-of-country transportation and other matters of mutual concern.

TABLE: CATEGORIZATION OF NUCLEAR MATERIAL

Material	Form	Category		
		I	II	III
1. Plutonium ^{a/}	Unirradiated ^{b/}	2 kg or more	Less than 2 kg but more than 500 g	500 g or less ^{c/}
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 ^{c/}
	- uranium enriched to 10% ^{235}U but less than 20%		10 kg or more	Less than 10 kg ^{c/}
	- uranium enriched above natural, but less than 10% ^{235}U ^{d/}			10 kg or more
3. Uranium-233	Unirradiated ^{b/}	2 kg or more	Less than 2 kg but more than 500 g	500 g or less ^{c/}
4. Irradiated fuel			Depleted or natural uranium, thorium or low-enriched fuel (less than 10% fissile content) ^{e/, f/}	

^{a/} As identified in the Trigger List.

^{b/} 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 metre unshielded.

^{c/} Less than a radiologically significant quantity should be exempted.

^{d/} Natural uranium, depleted uranium and thorium and quantities of uranium enriched to less than 10% not falling in Category III should be protected in accordance with prudent management practice.

^{e/} 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.

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

Organizing Conference of the International Nuclear Fuel Cycle Evaluation*

TEXT OF FINAL COMMUNIQUE, OCTOBER 21

The participants in the Organizing Conference of the International Nuclear Fuel Cycle Evaluation are conscious of the urgent need to meet the world's energy requirements and that nuclear energy for peaceful purposes should be made widely available to that end. They are also convinced that effective measures can and should be taken at the national level and through international agreements to minimize the danger of the proliferation of nuclear weapons without jeopardizing energy supplies or the development of nuclear energy for peaceful purposes.

The following countries which participated in the Organizing Conference have therefore agreed that an International Nuclear Fuel Cycle Evaluation (INFCE) will be conducted to explore the best means of advancing these objectives:

Algeria	India
Argentina	Indonesia
Australia	Iran
Austria	Ireland
Belgium	Israel
Brazil	Italy
Canada	Japan
Czechoslovakia	Korea
Denmark	Mexico
Egypt	Netherlands
Finland	Nigeria
France	Norway
German Democratic Republic	Pakistan
Federal Republic of Germany	Philippines
	Poland
	Portugal

*DOSB, Vol. LXXVII, No. 2003, 14 Nov. 1977, pp. 661-664.

Romania
Spain
Sweden
Switzerland
Turkey

U.S.S.R.
United Kingdom
United States
Venezuela
Yugoslavia

The Organizing Conference was also attended by representatives of the International Atomic Energy Agency (IAEA), the Commission of the European Communities, the International Energy Agency, and the Nuclear Energy Agency, who expressed their willingness to participate in INFCE.

The participants agreed that all interested states and relevant international bodies may participate in the future work of INFCE. It was also agreed that all participants will have an equal opportunity to contribute to that work.

- They are aware of the vital importance of preventing proliferation and, moreover, of effective and urgent measures to stop and reverse the nuclear arms race among the nuclear weapons states.

The evaluation will be conducted along lines set out in the document entitled "International Nuclear Fuel Cycle Evaluation: Technical and Economic Scope and Methods of Work." The participants recognized that special consideration should also be given to the specific needs of and conditions in developing countries.

The participants agreed that INFCE was to be a technical and analytical study and not a negotiation. The results will be transmitted to governments for their consideration in developing their nuclear energy policies and in international discussions concerning nuclear energy cooperation and related controls and safeguards. Participants would not be committed to INFCE's results.

The evaluation will be carried out in a spirit of objectivity, with mutual respect for each country's choices and decisions in this field, without jeopardizing their respective fuel cycle policies or international cooperation, agreements, and contracts for the peaceful use of nuclear energy, provided that agreed safeguards measures are applied.

The participants welcomed the decision, in principle, of the International Atomic Energy Agency to support INFCE by providing appropriate technical and secretariat assistance. They expressed the hope that the extent and scope of such support will be considered by the appropriate bodies of IAEA. At the same time, they also expressed their hope that the IAEA will play an active role in the conduct of INFCE at all levels and particularly in the area of technical coordination. The participants acknowledge in this connection the dual responsibility of the IAEA in promoting and safeguarding nuclear activities.

The texts of the documents comprising the substantive work of the evaluation will be made available to all governments and international bodies which express an interest in them.

Scope and Methods of Work

A. Technical and Economic Scope

1) Fuel and Heavy Water Availability

a) Estimated needs for nuclear energy, and correlated needs for uranium and heavy water, according to different fuel cycle strategies.

b) Uranium availability:

- assessment of resources and production capacities;
- policies and incentives for encouraging exploration and production, including joint ventures;

- marketing policies and/or guarantees of sales for companies invested in exploration and production;

- marketing policies and/or guarantees of supply for utilities;

- technical development of exploration, mining, and milling methods.

c) Heavy water availability.

d) Thorium availability.

e) Special needs of developing countries.

2) Enrichment Availability

a) Enrichment needs and availability according to various fuel cycle strategies:

- joint planning of future capacities;

- opportunities for cross-investment;

- freedom of choice for customers in an open market.

b) Technical and economic assessment of the different enrichment technologies.

c) Assessment and comparison of the proliferation risks of the various enrichment techniques.

d) Safeguards aspects specific to enrichment.

e) Multinational or regional fuel cycle centers or similar arrangements.

f) Special needs of developing countries.

3) Assurances of Long-Term Supply of Technology, Fuel and Heavy Water and Services in the Interest of National Needs Consistent with Non-Proliferation

a) Incentives for long-term commercial contracts between suppliers and consumers, including factors affecting market stability, *e.g.*, supply, demand, and prices.

b) Guarantees of assured supply in the context of national import, export, and non-proliferation policies.

c) Multinational or international mechanisms guaranteeing timely deliveries in case of delays or cut-off of supplies.

d) Possible exchange or credit of plutonium for other nuclear fuels.

e) Special needs of developing countries.

4) *Reprocessing, Plutonium Handling, Recycle*

a) Reprocessing:

—study of the technological, economic, environmental, and energy aspects of reprocessing on a full industrial scale;

—safeguards aspects specific to reprocessing;

—multinational or regional fuel cycle centers or similar arrangements;

—alternative reprocessing methods;

—influence of reprocessing schemes on waste conditioning and disposal strategies and economics.

b) Plutonium handling:

—possible conditions and restrictions for adequate storage, transport, and use of highly concentrated plutonium;

—international control of separated plutonium (including storage under the auspices of the IAEA and related availability criteria);

—alternative handling methods including spiking or delivery of plutonium in the form of mixed oxide or fuel elements, possibly pre-irradiated.

c) Recycle in thermal reactors:

—study of the technological, economic, environmental, and energy aspects of the concept on an industrial scale;

—safeguards aspects specific to recycling;

—possible uranium-only recycle.

d) Special needs of developing countries.

5) *Fast Breeders*

a) Study of the technological, economic, environmental, and energy aspects of the concept on an industrial scale.

b) Safeguards aspects specific to fast breeders.

c) Reprocessing modes, including:

—study of the technological, economic, environmental, and energy aspects of reprocessing on a full industrial scale;

—safeguards aspects specific to fast breeder reprocessing;

—multinational or regional fuel cycle centers or similar arrangements;

—alternate reprocessing methods.

d) Special needs of the developing countries.

6) *Spent Fuel Management*

a) Storage strategies and costs:

- for light-water reactors;
- for heavy-water reactors;
- for gas-cooled reactors;
- for fast breeder reactors.

b) Short-term/intermediate storage:

- assessment of current storage capabilities;
- ways of increasing spent fuel storage;
- siting and transportation problems;
- more efficient utilization of existing spent fuel

capacity:

—institutional, environmental, safeguards, and safety aspects including fuel integrity problems and associated risks;

- costs;
- legal matters.

c) Special needs of the developing countries.

7) *Waste Management and Disposal*

a) Technology for handling and disposal:

- spent fuel;
- separated waste products.

b) Repositories (permanent or retrievable):

—siting problems;

—possibilities or risks of further recovery;

—institutional environmental, and safety aspects including repository integrity problems and geologic risks and protection against possible dissemination of fission products;

- costs;
- legal matters.

c) Special needs of the developing countries.

8) *Advanced Fuel Cycle and Reactor Concepts*

a) Once-through fuel utilization for present thermal reactors:

—methods to increase once-through fuel utilization:

- i) optimized fuel and loading designs;
- ii) tandem cycle;
- iii) spectral shift.

—energy balance and economic safeguarding and environmental aspects of once-through utilization:

- i) for light-water reactors;
- ii) for heavy-water reactors;
- iii) gas-cooled reactors.

b) Other reactors and fuel cycle concepts:

- production utilization and safeguards of highly-enriched uranium for power reactors;
- research reactors (use of highly-enriched uranium and possible alternatives);
- thorium-U-233 cycle;
- light-water and thorium breeder concepts;
- high temperature reactors;

—additional advanced reactor concepts including fusion and spallation breeder reactors with, when relevant, in each case:

i) identification of the fuel cycle stages at which nuclear weapons usable material may be separated, and the possible means of minimizing proliferation risks;

ii) economic, environmental, and energy aspects;

iii) commercialization lead-times;

iv) safety problems.

c) Special needs of developing countries.

B. Organization

1) One international working group is created for each of the aforementioned chapters, composed of all states desiring to make a contribution to their work. Designated co-chairmen of these eight working groups are as follows:

Group	Co-Chairmen
1	Canada Egypt India
2	France Federal Republic of Germany Iran
3	Australia Philippines Switzerland
4	Japan United Kingdom
5	Belgium Italy U.S.S.R.
6	Argentina Spain
7	Finland Netherlands Sweden
8	Republic of Korea Romania United States

2) Each group will decide, after consultation as appropriate with the chairmen of other related groups, whether or not sub-groups, which would report to the group, should be created. There would not be common funding of the studies, each participating country, including those providing chairmen, being responsible for the expenses of its own participation. Each group or sub-group would distribute its work among its members. Cooperative studies among na-

tional organizations or industries of participating countries would be organized to the extent possible. Contributions by a participating country would be welcome.

3) In order to enable the various groups to gather complete and realistic information in their respective fields, all participants will facilitate the exchange of the data necessary for the completion of the evaluation program.

4) The various groups will report to a plenary conference of the participants which will meet at least once a year. The next plenary conference should convene in Vienna in approximately one year. The studies should be completed in two years or less. These reports and these studies will be primarily technical and analytical. Where agreed positions are reached, a consensus will be expressed, but each participant would be entitled to a dissenting or separate opinion if it so wished, which would be included in the report of the working group. The final plenary conference of the participating countries will be held approximately two years from now.

5) A Technical Coordinating Committee composed of the co-chairmen of the working groups will be convened every six months, or as otherwise agreed, to coordinate the work of the various groups from the technical point of view. Other participating parties may attend as observers. The first meeting of the Technical Coordinating Committee will be held in Vienna beginning December 12, 1977 at the facilities of the IAEA. The Technical Coordinating Committee will report to the Plenary Conference.

6) The work of the evaluation will make use of the capabilities of the IAEA. The IAEA may be represented in all groups and sub-groups participating in the program, and in the Technical Coordinating Committee. The agency may be asked, in particular, to provide secretariat services. Other relevant international and intergovernmental bodies are invited to participate in the working groups.

NUCLEAR NON-PROLIFERATION ACT OF 1978

92 STAT. 120

Public Law 95-242
95th Congress

An Act

Mar. 10, 1978
[H.R. 8638]

To provide for more efficient and effective control over the proliferation of nuclear explosive capability.

Nuclear Non-
Proliferation Act
of 1978.
22 USC 3201
note.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Nuclear Non-Proliferation Act of 1978".

STATEMENT OF POLICY

22 USC 3201.

SEC. 2. The Congress finds and declares that the proliferation of nuclear explosive devices or of the direct capability to manufacture or otherwise acquire such devices poses a grave threat to the security interests of the United States and to continued international progress toward world peace and development. Recent events emphasize the urgency of this threat and the imperative need to increase the effectiveness of international safeguards and controls on peaceful nuclear activities to prevent proliferation. Accordingly, it is the policy of the United States to—

(a) actively pursue through international initiatives mechanisms for fuel supply assurances and the establishment of more effective international controls over the transfer and use of nuclear materials and equipment and nuclear technology for peaceful purposes in order to prevent proliferation, including the establishment of common international sanctions;

(b) take such actions as are required to confirm the reliability of the United States in meeting its commitments to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies by establishing procedures to facilitate the timely processing of requests for subsequent arrangements and export licenses;

(c) strongly encourage nations which have not ratified the Treaty on the Non-Proliferation of Nuclear Weapons to do so at the earliest possible date; and

(d) cooperate with foreign nations in identifying and adapting suitable technologies for energy production and, in particular, to identify alternative options to nuclear power in aiding such nations to meet their energy needs, consistent with the economic and material resources of those nations and environmental protection.

STATEMENT OF PURPOSE

22 USC 3202.

SEC. 3. It is the purpose of this Act to promote the policies set forth above by—

(a) establishing a more effective framework for international cooperation to meet the energy needs of all nations and to ensure that the worldwide development of peaceful nuclear activities and the export by any nation of nuclear materials and equipment and nuclear technology intended for use in peaceful nuclear activities do not contribute to proliferation;

(b) authorizing the United States to take such actions as are required to ensure that it will act reliably in meeting its commitment to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies;

(c) providing incentives to the other nations of the world to join in such international cooperative efforts and to ratify the Treaty; and

(d) ensuring effective controls by the United States over its exports of nuclear materials and equipment and of nuclear technology.

DEFINITIONS

SEC. 4. (a) As used in this Act, the term—

(1) "Commission" means the Nuclear Regulatory Commission;

(2) "Director" means the Director of the Arms Control and Disarmament Agency;

(3) "IAEA" means International Atomic Energy Agency;

(4) "nuclear materials and equipment" means source material, special nuclear material, production facilities, utilization facilities, and components, items or substances determined to have significance for nuclear explosive purposes pursuant to subsection 109 b. of the 1954 Act;

(5) "physical security measures" means measures to reasonably ensure that source or special nuclear material will only be used for authorized purposes and to prevent theft and sabotage;

(6) "sensitive nuclear technology" means any information (including information incorporated in a production or utilization facility or important component part thereof) which is not available to the public and which is important to the design, construction, fabrication, operation or maintenance of a uranium enrichment or nuclear fuel reprocessing facility or a facility for the production of heavy water, but shall not include Restricted Data controlled pursuant to chapter 12 of the 1954 Act;

(7) "1954 Act" means the Atomic Energy Act of 1954, as amended; and

(8) "the Treaty" means the Treaty on the Non-Proliferation of Nuclear Weapons.

(b) All other terms used in this Act not defined in this section shall have the meanings ascribed to them by the 1954 Act, the Energy Reorganization Act of 1974, and the Treaty.

22 USC 3203.

Post, p. 141.

42 USC 2011
note.

42 USC 5801
note.

TITLE I—UNITED STATES INITIATIVES TO PROVIDE ADEQUATE NUCLEAR FUEL SUPPLY

POLICY

Sec. 101. The United States, as a matter of national policy, shall take such actions and institute such measures as may be necessary and feasible to assure other nations and groups of nations that may seek to utilize the benefits of atomic energy for peaceful purposes that it will provide a reliable supply of nuclear fuel to those nations and groups of nations which adhere to policies designed to prevent proliferation. Such nuclear fuel shall be provided under agreements entered into pursuant to section 161 of the 1954 Act or as otherwise authorized by law. The United States shall ensure that it will have available the capacity on a long-term basis to enter into new fuel supply commitments consistent with its non-proliferation policies and domestic energy needs. The Commission shall, on a timely basis, authorize the export of nuclear materials and equipment when all the applicable statutory requirements are met.

22 USC 3221.

42 USC 2201.

22 USC 3222.

SEC. 102. The Secretary of Energy is directed to initiate construction planning and design, construction, and operation activities for expansion of uranium enrichment capacity, as elsewhere provided by law. Further the Secretary as well as the Nuclear Regulatory Commission, the Secretary of State, and the Director of the Arms Control and Disarmament Agency are directed to establish and implement procedures which will ensure to the maximum extent feasible, consistent with this Act, orderly processing of subsequent arrangements and export licenses with minimum time delay.

REPORT

Study.
22 USC 3222
note.

Report to
Congress.

SEC. 103. The President shall promptly undertake a study to determine the need for additional United States enrichment capacity to meet domestic and foreign needs and to promote United States non-proliferation objectives abroad. The President shall report to the Congress on the results of this study within twelve months after the date of enactment of this Act.

INTERNATIONAL UNDERTAKINGS

Discussions and
negotiations.
22 USC 3223.

SEC. 104. (a) Consistent with section 105 of this Act, the President shall institute prompt discussions with other nations and groups of nations, including both supplier and recipient nations, to develop international approaches for meeting future worldwide nuclear fuel needs. In particular, the President is authorized and urged to seek to negotiate as soon as practicable with nations possessing nuclear fuel production facilities or source material, and such other nations and groups of nations, such as the IAEA, as may be deemed appropriate, with a view toward the timely establishment of binding international undertakings providing for—

(1) the establishment of an international nuclear fuel authority (INFA) with responsibility for providing agreed upon fuel services and allocating agreed upon quantities of fuel resources to ensure fuel supply on reasonable terms in accordance with agreements between INFA and supplier and recipient nations;

(2) a set of conditions consistent with subsection (d) under which international fuel assurances under INFA auspices will be provided to recipient nations, including conditions which will ensure that the transferred materials will not be used for nuclear explosive devices;

(3) devising, consistent with the policy goals set forth in section 403 of this Act, feasible and environmentally sound approaches for the siting, development, and management under effective international auspices and inspection of facilities for the provision of nuclear fuel services, including the storage of special nuclear material;

(4) the establishment of repositories for the storage of spent nuclear reactor fuel under effective international auspices and inspection;

(5) the establishment of arrangements under which nations placing spent fuel in such repositories would receive appropriate compensation for the energy content of such spent fuel if recovery of such energy content is deemed necessary or desirable; and

(6) sanctions for violation of the provisions of or for abrogation of such binding international undertakings.

(b) The President shall submit to Congress not later than six months after the date of enactment of this Act proposals for initial fuel assurances, including creation of an interim stockpile of uranium enriched to less than 20 percent in the uranium isotope 235 (low-enriched uranium) to be available for transfer pursuant to a sales arrangement to nations which adhere to strict policies designed to prevent proliferation when and if necessary to ensure continuity of nuclear fuel supply to such nations. Such submission shall include proposals for the transfer of low-enriched uranium up to an amount

Proposals,
submittal to
Congress.

sufficient to produce 100,000 MWe years of power from light water nuclear reactors, and shall also include proposals for seeking contributions from other supplier nations to such an interim stockpile pending the establishment of INFA.

(c) The President shall, in the report required by section 103, also address the desirability of and options for foreign participation, including investment, in new United States uranium enrichment facilities. This report shall also address the arrangements that would be required to implement such participation and the commitments that would be required as a condition of such participation. This report shall be accompanied by any proposed legislation to implement these arrangements.

Proposed
legislation.

(d) The fuel assurances contemplated by this section shall be for the benefit of nations that adhere to policies designed to prevent proliferation. In negotiating the binding international undertakings called for in this section, the President shall, in particular, seek to ensure that the benefits of such undertakings are available to non-nuclear-weapon states only if such states accept IAEA safeguards on all their peaceful nuclear activities, do not manufacture or otherwise acquire any nuclear explosive device, do not establish any new enrichment or reprocessing facilities under their de facto or de jure control, and place any such existing facilities under effective international auspices and inspection.

(e) The report required by section 601 shall include information on the progress made in any negotiations pursuant to this section.

(f) (1) The President may not enter into any binding international undertaking negotiated pursuant to subsection (a) which is not a treaty until such time as such proposed undertaking has been submitted to the Congress and has been approved by concurrent resolution.

(2) The proposals prepared pursuant to subsection (b) shall be submitted to the Congress as part of an annual authorization Act for the Department of Energy.

REEVALUATION OF NUCLEAR FUEL CYCLE

SEC. 105. The President shall take immediate initiatives to invite all nuclear supplier and recipient nations to reevaluate all aspects of the nuclear fuel cycle, with emphasis on alternatives to an economy based on the separation of pure plutonium or the presence of high enriched uranium, methods to deal with spent fuel storage, and methods to improve the safeguards for existing nuclear technology. The President shall, in the first report required by section 601, detail the progress of such international reevaluation. 22 USC 3224.

TITLE II—UNITED STATES INITIATIVES TO STRENGTHEN THE INTERNATIONAL SAFEGUARDS SYSTEM

POLICY

SEC. 201. The United States is committed to continued strong support for the principles of the Treaty on the Non-Proliferation of Nuclear Weapons, to a strengthened and more effective International Atomic Energy Agency and to a comprehensive safeguards system administered by the Agency to deter proliferation. Accordingly, the United States shall seek to act with other nations to—

(a) continue to strengthen the safeguards program of the IAEA and, in order to implement this section, contribute funds, technical resources, and other support to assist the IAEA in effectively implementing safeguards;

(b) ensure that the IAEA has the resources to carry out the provisions of Article XII of the Statute of the IAEA;

(c) improve the IAEA safeguards system (including accountability) to ensure—

(1) the timely detection of a possible diversion of source or special nuclear materials which could be used for nuclear explosive devices;

(2) the timely dissemination of information regarding such diversion; and

(3) the timely implementation of internationally agreed procedures in the event of such diversion;

(d) ensure that the IAEA receives on a timely basis the data needed for it to administer an effective and comprehensive international safeguards program and that the IAEA provides timely notice to the world community of any evidence of a violation of any safeguards agreement to which it is a party; and

(e) encourage the IAEA, to the maximum degree consistent with the Statute, to provide nations which supply nuclear materials and equipment with the data needed to assure such nations of adherence to bilateral commitments applicable to such supply.

TRAINING PROGRAM

SEC. 202. The Department of Energy, in consultation with the Commission, shall establish and operate a safeguards and physical security training program to be made available to persons from nations and groups of nations which have developed or acquired, or may be expected to develop or acquire, nuclear materials and equipment for use for peaceful purposes. Any such program shall include training in the most advanced safeguards and physical security techniques and technology, consistent with the national security interests of the United States.

NEGOTIATIONS

SEC. 203. The United States shall seek to negotiate with other nations and groups of nations to—

(1) adopt general principles and procedures, including common international sanctions, to be followed in the event that a nation violates any material obligation with respect to the peaceful use of nuclear materials and equipment or nuclear technology, or in the event that any nation violates the principles of the Treaty, including the detonation by a non-nuclear-weapon state of a nuclear explosive device; and

(2) establish international procedures to be followed in the event of diversion, theft, or sabotage of nuclear materials or sabotage of nuclear facilities, and for recovering nuclear materials that have been lost or stolen, or obtained or used by a nation or by any person or group in contravention of the principles of the Treaty.

TITLE III—EXPORT ORGANIZATION AND CRITERIA

GOVERNMENT-TO-GOVERNMENT TRANSFERS

SEC. 301. (a) Section 54 of the 1954 Act is amended by adding a new subsection d. thereof as follows:

Post, p. 131.
42 USC 2074.

“d. The authority to distribute special nuclear material under this section other than under an export license granted by the Nuclear Regulatory Commission shall extend only to the following small quantities of special nuclear material (in no event more than five hundred grams per year of the uranium isotope 233, the uranium isotope 235, or plutonium contained in special nuclear material to any recipient):

“(1) which are contained in laboratory samples, medical devices, or monitoring or other instruments; or

“(2) the distribution of which is needed to deal with an emergency situation in which time is of the essence.”.

(b) Section 64 of the 1954 Act is amended by inserting the following immediately after the second sentence thereof: “The authority to distribute source material under this section other than under an export license granted by the Nuclear Regulatory Commission shall in no case extend to quantities of source material in excess of three metric tons per year per recipient.”.

42 USC 2094.

(c) Chapter 10 of the 1954 Act is amended by adding a new section 111 as follows:

"SEC. 111. a. The Nuclear Regulatory Commission is authorized to license the distribution of special nuclear material, source material, and byproduct material by the Department of Energy pursuant to section 54, 64, and 82 of this Act, respectively, in accordance with the same procedures established by law for the export licensing of such material by any person: *Provided*, That nothing in this section shall require the licensing of the distribution of byproduct material by the Department of Energy under section 82 of this Act. 42 USC 2141.

"b. The Department of Energy shall not distribute any special nuclear material or source material under section 54 or 64 of this Act other than under an export license issued by the Nuclear Regulatory Commission until (1) the Department has obtained the concurrence of the Department of State and has consulted with the Arms Control and Disarmament Agency, the Nuclear Regulatory Commission, and the Department of Defense under mutually agreed procedures which shall be established within not more than ninety days after the date of enactment of this provision and (2) the Department finds based on a reasonable judgment of the assurances provided and the information available to the United States Government, that the criteria in section 127 of this Act or their equivalent and any applicable criteria in subsection 128 are met, and that the proposed distribution would not be inimical to the common defense and security."

SEC. 302. Subsection 57 b. of the 1954 Act is amended to read as follows:

"b. It shall be unlawful for any person to directly or indirectly engage in the production of any special nuclear material outside of the United States except (1) as specifically authorized under an agreement for cooperation made pursuant to section 123, including a specific authorization in a subsequent arrangement under section 131 of this Act, or (2) upon authorization by the Secretary of Energy after a determination that such activity will not be inimical to the interest of the United States: *Provided*, That any such determination by the Secretary of Energy shall be made only with the concurrence of the Department of State and after consultation with the Arms Control and Disarmament Agency, the Nuclear Regulatory Commission, the Department of Commerce, and the Department of Defense. The Secretary of Energy shall, within ninety days after the enactment of the Nuclear Non-Proliferation Act of 1978, establish orderly and expeditious procedures, including provision for necessary administrative actions and inter-agency memoranda of understanding, which are mutually agreeable to the Secretaries of State, Defense, and Commerce, the Director of the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission for the consideration of requests for authorization under this subsection. Such procedures shall include, at a minimum, explicit direction on the handling of such requests, express deadlines for the solicitation and collection of the views of the consulted agencies (with identified officials responsible for meeting such deadlines), an interagency coordinating authority to monitor the processing of such requests, predetermined procedures for the expeditious handling of intra-agency and inter-agency disagreements and appeals to higher authorities, frequent meetings of inter-agency administrative coordinators to review the status of all pending requests, and similar administrative mechanisms. To the extent practicable, an applicant should be advised of all the information required of the applicant for the entire process for every agency's needs at the beginning of the process. Potentially controversial requests should be identified as quickly as possible so that any required policy decisions or diplomatic consultations can be initiated in a timely manner. An immediate effort should be undertaken to establish quickly any necessary standards and criteria, including the nature of any required assurances or evidentiary showings, for the decision required under this subsection. The processing of any request proposed and filed as of the date of enactment of the Nuclear Non-Proliferation Act of 1978 shall not be delayed pending the development and establishment of procedures to implement the requirements of this subsection. Any trade secrets or proprietary information submitted by any person

Supra.
42 USC 2112.

Post, p. 136.

Post, p. 137.

Special nuclear
material,
production.
Technology
transfers.
42 USC 2077.
Post, p. 142.

Post, p. 127.

Authorization
requests,
procedures.

Standards and
criteria.

Trade secrets,
protection.

42 USC 2014.
Post, pp. 131,
141.

42 USC 7172.

Ante, p. 125.
42 USC 2074,
2094.

seeking an authorization under this subsection shall be afforded the maximum degree of protection allowable by law: *Provided further*, That the export of component parts as defined in subsection 11 v. (2) or 11 cc. (2) shall be governed by sections 109 and 126 of this Act: *Provided further*, That notwithstanding subsection 402(d) of the Department of Energy Organization Act (Public Law 95-91), the Secretary of Energy and not the Federal Energy Regulatory Commission, shall have sole jurisdiction within the Department of Energy over any matter arising from any function of the Secretary of Energy in this section, section 54 d., section 64, or section 111 b.”.

SUBSEQUENT ARRANGEMENTS

Sec. 303. (a) Chapter 11 of the 1954 Act, as amended by sections 304, 305, 306, 307, and 308, is further amended by adding at the end thereof the following:

“SEC. 131. SUBSEQUENT ARRANGEMENTS.—

“a. (1) Prior to entering into any proposed subsequent arrangement under an agreement for cooperation (other than an agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c. of this Act), the Secretary of Energy shall obtain the concurrence of the Secretary of State and shall consult with the Director, the Commission, and the Secretary of Defense: *Provided*, That the Secretary of State shall have the leading role in any negotiations of a policy nature pertaining to any proposed subsequent arrangement regarding arrangements for the storage or disposition of irradiated fuel elements or approvals for the transfer, for which prior approval is required under an agreement for cooperation, by a recipient of source or special nuclear material, production or utilization facilities, or nuclear technology. Notice of any proposed subsequent arrangement shall be published in the Federal Register, together with the written determination of the Secretary of Energy that such arrangement will not be inimical to the common defense and security, and such proposed subsequent arrangement shall not take effect before fifteen days after publication. Whenever the Director declares that he intends to prepare a Nuclear Proliferation Assessment Statement pursuant to paragraph (2) of this subsection, notice of the proposed subsequent arrangement which is the subject of the Director's declaration shall not be published until after the receipt by the Secretary of Energy of such Statement or the expiration of the time authorized by subsection c. for the preparation of such Statement, whichever occurs first.

“(2) If in the Director's view a proposed subsequent arrangement might significantly contribute to proliferation, he may prepare an unclassified Nuclear Proliferation Assessment Statement with regard to such proposed subsequent arrangement regarding the adequacy of the safeguards and other control mechanisms and the application of the peaceful use assurances of the relevant agreement to ensure that assistance to be furnished pursuant to the subsequent arrangement will not be used to further any military or nuclear explosive purpose. For the purposes of this section, the term ‘subsequent arrangements’ means arrangements entered into by any agency or department of the United States Government with respect to cooperation with any nation or group of nations (but not purely private or domestic arrangements) involving—

“(A) contracts for the furnishing of nuclear materials and equipment;

“(B) approvals for the transfer, for which prior approval is required under an agreement for cooperation, by a recipient of any source or special nuclear material, production or utilization facility, or nuclear technology;

“(C) authorization for the distribution of nuclear materials and equipment pursuant to this Act which is not subject to the procedures set forth in section 111 b., section 126, or section 109 b.;

“(D) arrangements for physical security;

“(E) arrangements for the storage or disposition of irradiated fuel elements;

42 USC 2160.
Consultation.

42 USC 2121,
2164.

Notice,
publication in the
Federal Register.

Nuclear
Proliferation
Assessment
Statement.

“Subsequent
arrangements.”

Contracts.

Ante, p. 125.
Post, pp. 131,
141.

"(F) arrangements for the application of safeguards with respect to nuclear materials and equipment; or

"(G) any other arrangement which the President finds to be important from the standpoint of preventing proliferation.

"(3) The United States will give timely consideration to all requests for prior approval, when required by this Act, for the reprocessing of material proposed to be exported, previously exported and subject to the applicable agreement for cooperation, or special nuclear material produced through the use of such material or a production or utilization facility transferred pursuant to such agreement for cooperation, or to the altering of irradiated fuel elements containing such material, and additionally, to the maximum extent feasible, will attempt to expedite such consideration when the terms and conditions for such actions are set forth in such agreement for cooperation or in some other international agreement executed by the United States and subject to congressional review procedures comparable to those set forth in section 123 of this Act.

"(4) All other statutory requirements under other sections of this Act for the approval or conduct of any arrangement subject to this subsection shall continue to apply and any other such requirements for prior approval or conditions for entering such arrangements shall also be satisfied before the arrangement takes effect pursuant to subsection a. (1).

"b. With regard to any special nuclear material exported by the United States or produced through the use of any nuclear materials and equipment or sensitive nuclear technology exported by the United States—

"(1) the Secretary of Energy may not enter into any subsequent arrangement for the retransfer of any such material to a third country for reprocessing, for the reprocessing of any such material, or for the subsequent retransfer of any plutonium in quantities greater than 500 grams resulting from the reprocessing of any such material, until he has provided the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate with a report containing his reasons for entering into such arrangement and a period of 15 days of continuous session (as defined in subsection 130 g. of this Act) has elapsed: *Provided, however,* That if in the view of the President an emergency exists due to unforeseen circumstances requiring immediate entry into a subsequent arrangement, such period shall consist of fifteen calendar days;

"(2) the Secretary of Energy may not enter into any subsequent arrangement for the reprocessing of any such material in a facility which has not processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978 or for subsequent retransfer to a non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, unless in his judgment, and that of the Secretary of State, such reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device; and

"(3) the Secretary of Energy shall attempt to ensure, in entering into any subsequent arrangement for the reprocessing of any such material in any facility that has processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978, or for the subsequent retransfer to any non-nuclear-weapon state of any plutonium in

Post, p. 142.

Report to
congressional
committees.

Post, p. 139.

quantities greater than 500 grams resulting from such reprocessing, that such reprocessing or retransfer shall take place under conditions comparable to those which in his view, and that of the Secretary of State, satisfy the standards set forth in paragraph (2).

"c. The Secretary of Energy shall, within ninety days after the enactment of this section, establish orderly and expeditious procedures, including provision for necessary administrative actions and inter-agency memoranda of understanding, which are mutually agreeable to the Secretaries of State, Defense, and Commerce, the Director of the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission for the consideration of requests for subsequent arrangements under this section. Such procedures shall include, at a minimum, explicit direction on the handling of such requests, express deadlines for the solicitation and collection of the views of the consulted agencies (with identified officials responsible for meeting such deadlines), an inter-agency coordinating authority to monitor the processing of such requests, predetermined procedures for the expeditious handling of intra-agency and inter-agency disagreements and appeals to higher authorities, frequent meetings of inter-agency administrative coordinators to review the status of all pending requests, and similar administrative mechanisms. To the extent practicable, an applicant should be advised of all the information required of the applicant for the entire process for every agency's needs at the beginning of the process. Potentially controversial requests should be identified as quickly as possible so that any required policy decisions or diplomatic consultations can be initiated in a timely manner. An immediate effort should be undertaken to establish quickly any necessary standards and criteria, including the nature of any required assurance or evidentiary showings, for the decisions required under this section. Further, such procedures shall specify that if he intends to prepare a Nuclear Proliferation Assessment Statement, the Director shall so declare in his response to the Department of Energy. If the Director declares that he intends to prepare such a Statement, he shall do so within sixty days of his receipt of a copy of the proposed subsequent arrangement (during which time the Secretary of Energy may not enter into the subsequent arrangement), unless pursuant to the Director's request, the President waives the sixty-day requirement and notifies the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate of such waiver and the justification therefor. The processing of any subsequent arrangement proposed and filed as of the date of enactment of this section shall not be delayed pending the development and establishment of procedures to implement the requirements of this section.

"d. Nothing in this section is intended to prohibit, permanently or unconditionally, the reprocessing of spent fuel owned by a foreign nation which fuel has been supplied by the United States, to preclude the United States from full participation in the International Nuclear Fuel Cycle Evaluation provided for in section 105 of the Nuclear Non-Proliferation Act of 1978; to in any way limit the presentation or consideration in that evaluation of any nuclear fuel cycle by the United States or any other participation; nor to prejudice open and objective consideration of the results of the evaluation.

"e. Notwithstanding subsection 402(d) of the Department of Energy Organization Act (Public Law 95-91), the Secretary of Energy, and not the Federal Energy Regulatory Commission, shall have sole jurisdiction within the Department of Energy over any matter arising from any function of the Secretary of Energy in this section.

"f. (1) With regard to any subsequent arrangement under subsection a. (2) (E) (for the storage or disposition of irradiated fuel elements), where such arrangement involves a direct or indirect commitment of the United States for the storage or other disposition, interim or permanent, of any foreign spent nuclear fuel in the United States, the Secretary of Energy may not enter into any such subsequent arrangement, unless:

"(A) (i) Such commitment of the United States has been submitted to the Congress for a period of sixty days of continuous

Nuclear materials, reprocessing or transfer procedures.

Controversial requests, identification. Standards and criteria.

Nuclear Proliferation Assessment Statement. Presidential waiver. Notice to congressional committees.

42 USC 7172.

Presidential plan, submittal to Congress.

session (as defined in subsection 130 g. of this Act) and has been referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, but any such commitment shall not become effective if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that it does not favor the commitment, any such commitment to be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions; or (ii) if the President has submitted a detailed generic plan for such disposition or storage in the United States to the Congress for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act), which plan has been referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate and has not been disapproved during such sixty-day period by the adoption of a concurrent resolution stating in substance that Congress does not favor the plan; and the commitment is subject to the terms of an effective plan. Any such plan shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions;

"(B) The Secretary of Energy has complied with subsection a.; and

"(C) The Secretary of Energy has complied, or in the arrangement will comply with all other statutory requirements of this Act, under sections 54 and 55 and any other applicable sections, and any other requirements of law.

Ante, p. 125.

Post, p. 131.

Notice to congressional committees.

"(2) Subsection (1) shall not apply to the storage or other disposition in the United States of limited quantities of foreign spent nuclear fuel if the President determines that (A) a commitment under section 54 or 55 of this Act of the United States for storage or other disposition of such limited quantities in the United States is required by an emergency situation, (B) it is in the national interest to take such immediate action, and (C) he notifies the Committees on International Relations and Science and Technology of the House of Representatives and the Committees on Foreign Relations and Energy and Natural Resources of the Senate of the determination and action, with a detailed explanation and justification thereof, as soon as possible.

"(3) Any plan submitted by the President under subsection f. (1) shall include a detailed discussion, with detailed information, and any supporting documentation thereof, relating to policy objectives, technical description, geographic information, cost data and justifications, legal and regulatory considerations, environmental impact information and any related international agreements, arrangements or understandings.

Plan, contents.

"(4) For the purposes of this subsection, the term 'foreign spent nuclear fuel' shall include any nuclear fuel irradiated in any nuclear power reactor located outside of the United States and operated by any foreign legal entity, government or nongovernment, regardless of the legal ownership or other control of the fuel or the reactor and regardless of the origin or licensing of the fuel or reactor, but not including fuel irradiated in a research reactor."

"Foreign spent nuclear fuel."

(b) (1) Section 54 of the 1954 Act is amended by adding new subsection e. as follows,

Ante, p. 125.

"e. The authority in this section to commit United States funds for any activities pursuant to any subsequent arrangement under section 131 a. (2) (E) shall be subject to the requirements of section 131."

Ante, p. 127.

(2) Section 55 of the 1954 Act is amended by adding a proviso at the end of the section as follows, "Providing, That the authority in this section to commit United States funds for any activities pursuant to any subsequent arrangement under section 131 a. (2) (E) shall be subject to the requirements of section 131."

42 USC 2075.

EXPORT LICENSING PROCEDURES

SEC. 304. (a) Chapter 11 of the 1954 Act is amended by adding a new section 126 as follows:

"SEC. 126. EXPORT LICENSING PROCEDURES.—

"a. No license may be issued by the Nuclear Regulatory Commission (the 'Commission') for the export of any production or utilization facility, or any source material or special nuclear material, including distributions of any material by the Department of Energy under section 54, 64, or 82, for which a license is required or requested, and no exemption from any requirement for such an export license may be granted by the Commission, as the case may be, until—

"(1) the Commission has been notified by the Secretary of State that it is the judgment of the executive branch that the proposed export or exemption will not be inimical to the common defense and security, or that any export in the category to which the proposed export belongs would not be inimical to the common defense and security because it lacks significance for nuclear explosive purposes. The Secretary of State shall, within ninety days after the enactment of this section, establish orderly and expeditious procedures, including provision for necessary administrative actions and inter-agency memoranda of understanding, which are mutually agreeable to the Secretaries of Energy, Defense, and Commerce, the Director of the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission for the preparation of the executive branch judgment on export applications under this section. Such procedures shall include, at a minimum, explicit direction on the handling of such applications, express deadlines for the solicitation and collection of the views of the consulted agencies (with identified officials responsible for meeting such deadlines), an inter-agency coordinating authority to monitor the processing of such applications, predetermined procedures for the expeditious handling of intra-agency and inter-agency disagreements and appeals to higher authorities, frequent meetings of inter-agency administrative coordinators to review the status of all pending applications, and similar administrative mechanisms. To the extent practicable, an applicant should be advised of all the information required of the applicant for the entire process for every agency's needs at the beginning of the process. Potentially controversial applications should be identified as quickly as possible so that any required policy decisions or diplomatic consultations can be initiated in a timely manner. An immediate effort should be undertaken to establish quickly any necessary standards and criteria, including the nature of any required assurances or evidentiary showings, for the decisions required under this section. The processing of any export application proposed and filed as of the date of enactment of this section shall not be delayed pending the development and establishment of procedures to implement the requirements of this section. The executive branch judgment shall be completed in not more than sixty days from receipt of the application or request, unless the Secretary of State in his discretion specifically authorizes additional time for consideration of the application or request because it is in the national interest to allow such additional time. The Secretary shall notify the Committee on Foreign Relations of the Senate and the Committee on International Relations of the House of Representatives of any such authorization. In submitting any such judgment, the Secretary of State shall specifically address the extent to which the export criteria then in effect are met and the extent to which the cooperating party has adhered to the provisions of the applicable agreement for cooperation. In the event he considers it warranted, the Secretary may also address the following additional factors, among others:

42 USC 2155.

Exemption.

Anse, p. 125.

Supra.

42 USC 2112.

Executive branch judgement, notice to Commission.

Procedures.

Contents.

Standards and criteria.

Notice to congressional committees.

"(A) whether issuing the license or granting the exemption will materially advance the non-proliferation policy of the United States by encouraging the recipient nation to adhere to the Treaty, or to participate in the undertakings contemplated by section 403 or 404(a) of the Nuclear Non-Proliferation Act of 1978;

"(B) whether failure to issue the license or grant the exemption would otherwise be seriously prejudicial to the non-proliferation objectives of the United States; and

"(C) whether the recipient nation or group of nations has agreed that conditions substantially identical to the export criteria set forth in section 127 of this Act will be applied by another nuclear supplier nation or group of nations to the proposed United States export, and whether in the Secretary's judgment those conditions will be implemented in a manner acceptable to the United States.

Post, p. 136.

Data and
recommendations.

The Secretary of State shall provide appropriate data and recommendations, subject to requests for additional data and recommendations, as required by the Commission or the Secretary of Energy, as the case may be; and

"(2) the Commission finds, based on a reasonable judgment of the assurances provided and other information available to the Federal Government, including the Commission, that the criteria in section 127 of this Act or their equivalent, and any other applicable statutory requirements, are met: *Provided*, That continued cooperation under an agreement for cooperation as authorized in accordance with section 124 of this Act shall not be prevented by failure to meet the provisions of paragraph (4) or (5) of section 127 for a period of thirty days after enactment of this section, and for a period of twenty-three months thereafter if the Secretary of State notifies the Commission that the nation or group of nations bound by the relevant agreement has agreed to negotiations as called for in section 404(a) of the Nuclear Non-Proliferation Act of 1978; however, nothing in this subsection shall be deemed to relinquish any rights which the United States may have under agreements for cooperation in force on the date of enactment of this section: *Provided further*, That if, upon the expiration of such twenty-four month period, the President determines that failure to continue cooperation with any group of nations which has been exempted pursuant to the above proviso from the provisions of paragraph (4) or (5) of section 127 of this Act, but which has not yet agreed to comply with those provisions would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security, he may, after notifying the Congress of his determination, extend by Executive order the duration of the above proviso for a period of twelve months, and may further extend the duration of such proviso by one year increments annually thereafter if he again makes such determination and so notifies the Congress. In the event that the Committee on International Relations of the House of Representatives or the Committee on Foreign Relations of the Senate reports a joint resolution to take any action with respect to any such extension, such joint resolution will be considered in the House or Senate, as the case may be, under procedures identical to those provided for the consideration of resolutions pursuant to section 130 of this Act: *And additionally provided*, That the Commission is authorized to (A) make a single finding under this subsection for more than a single application or request, where the applications or requests involve exports to the same country, in the same general time frame, of similar significance for nuclear explosive purposes and under reasonably similar circumstances and (B) make a finding under this subsection that there is no material changed circumstance associated with a new application or request from those existing at the time of the last application or request for an export to the same country, where the prior application or request was approved by the Commission using all applicable procedures of this section, and such finding of no material changed circumstance shall be deemed to satisfy the requirement of this paragraph for findings of the Commission. The decision not to make any such finding in lieu of the findings which would otherwise be required to be made under this paragraph shall not be subject to judicial review: *And provided further*, That nothing contained

Post, p. 136.

42 USC 2154.

Extension, notice
to Congress.

Post, p. 139.
Findings.

Judicial review,
exception.

in this section is intended to require the Commission independently to conduct or prohibit the Commission from independently conducting country or site specific visitations in the Commission's consideration of the application of IAEA safeguards.

"b. (1) Timely consideration shall be given by the Commission to requests for export licenses and exemptions and such requests shall be granted upon a determination that all applicable statutory requirements have been met.

Presidential
review.

"(2) If, after receiving the executive branch judgment that the issuance of a proposed export license will not be inimical to the common defense and security, the Commission does not issue the proposed license on a timely basis because it is unable to make the statutory determinations required under this Act, the Commission shall publicly issue its decision to that effect, and shall submit the license application to the President. The Commission's decision shall include an explanation of the basis for the decision and any dissenting or separate views. If, after receiving the proposed license application and reviewing the Commission's decision, the President determines that withholding the proposed export would be seriously prejudicial to the achievement of United States non-proliferation objectives, or would otherwise jeopardize the common defense and security, the proposed export may be authorized by Executive order: *Provided*, That prior to any such export, the President shall submit the Executive order, together with his explanation of why, in light of the Commission's decision, the export should nonetheless be made, to the Congress for a period of sixty days of continuous session (as defined in subsection 130 g.) and shall be referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, but any such proposed export shall not occur if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that it does not favor the proposed export. Any such Executive order shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions: *And provided further*, That the procedures established pursuant to subsection (b) of section 304 of the Nuclear Non-Proliferation Act of 1978 shall provide that the Commission shall immediately initiate review of any application for a license under this section and to the maximum extent feasible shall expeditiously process the application concurrently with the executive branch review, while awaiting the final executive branch judgment. In initiating its review, the Commission may identify a set of concerns and requests for information associated with the projected issuance of such license and shall transmit such concerns and requests to the executive branch which shall address such concerns and requests in its written communications with the Commission. Such procedures shall also provide that if the Commission has not completed action on the application within sixty days after the receipt of an executive branch judgment that the proposed export or exemption is not inimical to the common defense and security or that any export in the category to which the proposed export belongs would not be inimical to the common defense and security because it lacks significance for nuclear explosive purposes, the Commission shall inform the applicant in writing of the reason for delay and provide follow-up reports as appropriate. If the Commission has not completed action by the end of an additional sixty days (a total of one hundred and twenty days from receipt of the executive branch judgment), the President may authorize the proposed export by Executive order, upon a finding that further delay would be excessive and upon making the findings required for such Presidential authorizations under this subsection, and subject to the Congressional review procedures set forth herein. However, if the Commission has commenced procedures for public participation regarding the proposed export under regulations promulgated pursuant to subsection (b) of section 304 of the Nuclear Non-Proliferation Act of 1978, or—within sixty days after receipt of the executive branch judgment on the proposed export—the Commission has identified and transmitted to the executive branch a set of addi-

Report to
Congress and
congressional
committees.

Post, p. 139.

Review.

Concerns and
requests,
transmittal to
executive branch.

tional concerns or requests for information, the President may not authorize the proposed export until sixty days after public proceedings are completed or sixty days after a full executive branch response to the Commission's additional concerns or requests has been made consistent with subsection a. (1) of this section: *Provided further*, That nothing in this section shall affect the right of the Commission to obtain data and recommendations from the Secretary of State at any time as provided in subsection a. (1) of this section.

"c. In the event that the House of Representatives or the Senate passes a joint resolution which would adopt one or more additional export criteria, or would modify any existing export criteria under this Act, any such joint resolution shall be referred in the other House to the Committee on Foreign Relations of the Senate or the Committee on International Relations of the House of Representatives, as the case may be, and shall be considered by the other House under applicable procedures provided for the consideration of resolutions pursuant to section 130 of this Act."

Referral to congressional committees.

(b) Within one hundred and twenty days of the date of enactment of this Act, the Commission shall, after consultations with the Secretary of State, promulgate regulations establishing procedures (1) for the granting, suspending, revoking, or amending of any nuclear export license or exemption pursuant to its statutory authority; (2) for public participation in nuclear export licensing proceedings when the Commission finds that such participation will be in the public interest and will assist the Commission in making the statutory determinations required by the 1954 Act, including such public hearings and access to information as the Commission deems appropriate: *Provided*, That judicial review as to any such finding shall be limited to the determination of whether such finding was arbitrary and capricious; (3) for a public written Commission opinion accompanied by the dissenting or separate views of any Commissioner, in those proceedings where one or more Commissioners have dissenting or separate views on the issuance of an export license; and (4) for public notice of Commission proceedings and decisions, and for recording of minutes and votes of the Commission: *Provided further*, That until the regulations required by this subsection have been promulgated, the Commission shall implement the provisions of this Act under temporary procedures established by the Commission.

Post, p. 139.
Regulations.
42 USC 2155a.

(c) The procedures to be established pursuant to subsection (b) shall constitute the exclusive basis for hearings in nuclear export licensing proceedings before the Commission and, notwithstanding section 189 a. of the 1954 Act, shall not require the Commission to grant any person an on-the-record hearing in such a proceeding.

Hearings.
42 USC 2155a.
42 USC 2239.

(d) Within sixty days of the date of enactment of this Act, the Commission shall, in consultation with the Secretary of State, the Secretary of Energy, the Secretary of Defense, and the Director, promulgate (and may from time to time amend) regulations establishing the levels of physical security which in its judgment are no less strict than those established by any international guidelines to which the United States subscribes and which in its judgment will provide adequate protection for facilities and material referred to in paragraph (3) of section 127 of the 1954 Act taking into consideration variations in risks to security as appropriate.

Regulations.
42 USC 2156a.

Post, p. 136.

CRITERIA GOVERNING UNITED STATES NUCLEAR EXPORTS

Sec. 305. Chapter 11 of the 1954 Act, as amended by section 304, is further amended by adding at the end thereof the following:

42 USC 2156.

"SEC. 127. CRITERIA GOVERNING UNITED STATES NUCLEAR EXPORTS.—

"The United States adopts the following criteria which, in addition to other requirements of law, will govern exports for peaceful nuclear uses from the United States of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology:

"(1) IAEA safeguards as required by Article III(2) of the Treaty will be applied with respect to any such material or facilities proposed to be exported, to any such material or facilities

previously exported and subject to the applicable agreement for cooperation, and to any special nuclear material used in or produced through the use thereof.

"(2) No such material, facilities, or sensitive nuclear technology proposed to be exported or previously exported and subject to the applicable agreement for cooperation, and no special nuclear material produced through the use of such materials, facilities, or sensitive nuclear technology, will be used for any nuclear explosive device or for research on or development of any nuclear explosive device.

"(3) Adequate physical security measures will be maintained with respect to such material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof. Following the effective date of any regulations promulgated by the Commission pursuant to section 304(d) of the Nuclear Non-Proliferation Act of 1978, physical security measures shall be deemed adequate if such measures provide a level of protection equivalent to that required by the applicable regulations.

"(4) No such materials, facilities, or sensitive nuclear technology proposed to be exported, and no special nuclear material produced through the use of such material, will be retransferred to the jurisdiction of any other nation or group of nations unless the prior approval of the United States is obtained for such retransfer. In addition to other requirements of law, the United States may approve such retransfer only if the nation or group of nations designated to receive such retransfer agrees that it shall be subject to the conditions required by this section.

"(5) No such material proposed to be exported and no special nuclear material produced through the use of such material will be reprocessed, and no irradiated fuel elements containing such material removed from a reactor shall be altered in form or content, unless the prior approval of the United States is obtained for such reprocessing or alteration.

"(6) No such sensitive nuclear technology shall be exported, unless the foregoing conditions shall be applied to any nuclear material or equipment which is produced or constructed under the jurisdiction of the recipient nation or group of nations by or through the use of any such exported sensitive nuclear technology."

ADDITIONAL EXPORT CRITERION AND PROCEDURES

SEC. 306. Chapter 11 of the 1954 Act, as amended by sections 304 and 305, is further amended by adding at the end thereof the following:

"SEC. 128. ADDITIONAL EXPORT CRITERION AND PROCEDURES.—

42 USC 2157.

"a. (1) As a condition of continued United States export of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology to non-nuclear-weapon states, no such export shall be made unless IAEA safeguards are maintained with respect to all peaceful nuclear activities in, under the jurisdiction of, or carried out under the control of such state at the time of the export.

"(2) The President shall seek to achieve adherence to the foregoing criterion by recipient non-nuclear-weapon states.

"b. The criterion set forth in subsection a. shall be applied as an export criterion with respect to any application for the export of materials, facilities, or technology specified in subsection a. which is filed after eighteen months from the date of enactment of this section, or for any such application under which the first export would occur at least twenty-four months after the date of enactment of this section, except as provided in the following paragraphs:

Export applications, criterion enforcement.

"(1) If the Commission or the Department of Energy, as the case may be, is notified that the President has determined that failure to approve an export to which this subsection applies because such criterion has not yet been met would be seriously prejudicial to the achievement of United States non-proliferation

objectives or otherwise jeopardize the common defense and security, the license or authorization may be issued subject to other applicable requirements of law: *Provided*, That no such export of any production or utilization facility or of any source or special nuclear material (intended for use as fuel in any production or utilization facility) which has been licensed or authorized pursuant to this subsection shall be made to any non-nuclear-weapon state which has failed to meet such criterion until the first such license or authorization with respect to such state is submitted to the Congress (together with a detailed assessment of the reasons underlying the President's determination, the judgment of the executive branch required under section 126 of this Act, and any Commission opinion and views) for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act) and referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, but such export shall not occur if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that the Congress does not favor the proposed export. Any such license or authorization shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions.

Report to congressional committees.

Ante, p. 131.

Post, p. 139.

"(2) If the Congress adopts a resolution of disapproval pursuant to paragraph (1), no further export of materials, facilities, or technology specified in subsection a. shall be permitted for the remainder of that Congress, unless such state meets the criterion or the President notifies the Congress that he has determined that significant progress has been made in achieving adherence to such criterion by such state or that United States foreign policy interests dictate reconsideration and the Congress, pursuant to the procedure of paragraph (1), does not adopt a concurrent resolution stating in substance that it disagrees with the President's determination.

Congressional disapproval, resolution.

"(3) If the Congress does not adopt a resolution of disapproval with respect to a license or authorization submitted pursuant to paragraph (1), the criterion set forth in subsection a. shall not be applied as an export criterion with respect to exports of materials, facilities and technology specified in subsection a. to that state: *Provided*, That the first license or authorization with respect to that state which is issued pursuant to this paragraph after twelve months from the elapse of the sixty-day period specified in paragraph (1), and the first such license or authorization which is issued after each twelve-month period thereafter, shall be submitted to the Congress for review pursuant to the procedures specified in paragraph (1): *Provided further*, That if the Congress adopts a resolution of disapproval during any review period provided for by this paragraph, the provisions of paragraph (2) shall apply with respect to further exports to such state."

Export authorizations, congressional review.

CONDUCT RESULTING IN TERMINATION OF NUCLEAR EXPORTS

SEC. 307. Chapter 11 of the 1954 Act, as amended by sections 304, 305, and 306, is further amended by adding at the end thereof:

"SEC. 129. CONDUCT RESULTING IN TERMINATION OF NUCLEAR EXPORTS.—

"No nuclear materials and equipment or sensitive nuclear technology shall be exported to—

"(1) any non-nuclear-weapon state that is found by the President to have, at any time after the effective date of this section,

"(A) detonated a nuclear explosive device; or

"(B) terminated or abrogated IAEA safeguards; or

"(C) materially violated an IAEA safeguards agreement;

or

"(D) engaged in activities involving source or special nuclear material and having direct significance for the manufacture or acquisition of nuclear explosive devices, and has

Export terminations, criterion.
42 USC 2158.

failed to take steps which, in the President's judgment, represent sufficient progress toward terminating such activities; or

"(2) any nation or group of nations that is found by the President to have, at any time after the effective date of this section,

"(A) materially violated an agreement for cooperation with the United States, or, with respect to material or equipment not supplied under an agreement for cooperation, materially violated the terms under which such material or equipment was supplied or the terms of any commitments obtained with respect thereto pursuant to section 402(a) of the Nuclear Non-Proliferation Act of 1978; or

"(B) assisted, encouraged, or induced any non-nuclear-weapon state to engage in activities involving source or special nuclear material and having direct significance for the manufacture or acquisition of nuclear explosive devices, and has failed to take steps which, in the President's judgment, represent sufficient progress toward terminating such assistance, encouragement, or inducement; or

"(C) entered into an agreement after the date of enactment of this section for the transfer of reprocessing equipment, materials, or technology to the sovereign control of a non-nuclear-weapon state except in connection with an international fuel cycle evaluation in which the United States is a participant or pursuant to a subsequent international agreement or understanding to which the United States subscribes; unless the President determines that cessation of such exports would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security: *Provided*, That prior to the effective date of any such determination, the President's determination, together with a report containing the reasons for his determination, shall be submitted to the Congress and referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act), but any such determination shall not become effective if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that it does not favor the determination. Any such determination shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions."

Report to Congress.

Infra.

CONGRESSIONAL REVIEW PROCEDURES

SEC. 308. Chapter 11 of the 1954 Act, as amended by sections 304, 305, 306, and 307, is further amended by adding at the end thereof the following:

"SEC. 130. CONGRESSIONAL REVIEW PROCEDURES.—

"a. Not later than forty-five days of continuous session of Congress after the date of transmittal to the Congress of any submission of the President required by subsection 123 d., 126 a. (2), 126 b. (2), 128 b., 129, 131 a. (3), or 131 f. (1) (A) of this Act, the Committee on Foreign Relations of the Senate and the Committee on International Relations of the House of Representatives, and in addition, in the case of a proposed agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., the Committee on Armed Services of the House of Representatives and the Committee on Armed Services of the Senate, shall each submit a report to its respective House on its views and recommendations respecting such Presidential submission together with a resolution, as defined in subsection f., stating in substance that the Congress approves or disapproves such submission, as the case may be: *Provided*, That if any such committee has not reported such a resolution at the end of such forty-five day period, such committee shall be deemed to be discharged from further consideration of such submission and if, in the case of a proposed agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c. of this Act, the

42 USC 2159.

Congressional committee reports.

Post, p. 142.
Ante, pp. 131, 137, 138, 127.

42 USC 2121, 2164.

other relevant committee of that House has reported such a resolution, such committee shall be deemed discharged from further consideration of that resolution. If no such resolution has been reported at the end of such period, the first resolution, as defined in subsection f., which is introduced within five days thereafter within such House shall be placed on the appropriate calendar of such House.

"b. When the relevant committee or committees have reported such a resolution (or have been discharged from further consideration of such a resolution pursuant to subsection a.) or when a resolution has been introduced and placed on the appropriate calendar pursuant to subsection a., as the case may be, it is at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) for any Member of the respective House to move to proceed to the consideration of the resolution. The motion is highly privileged and is not debatable. The motion shall not be subject to amendment, or to a motion to postpone, or to a motion to proceed to the consideration of other business. A motion to reconsider the vote by which the motion is agreed to or disagreed to shall not be in order. If a motion to proceed to the consideration of the resolution is agreed to, the resolution shall remain the unfinished business of the respective House until disposed of.

"c. Debate on the resolution, and on all debatable motions and appeals in connection therewith, shall be limited to not more than ten hours, which shall be divided equally between individuals favoring and individuals opposing the resolution. A motion further to limit debate is in order and not debatable. An amendment to a motion to postpone, or a motion to recommit the resolution, or a motion to proceed to the consideration of other business is not in order. A motion to reconsider the vote by which the resolution is agreed to or disagreed to shall not be in order. No amendment to any concurrent resolution pursuant to the procedures of this section is in order except as provided in subsection d.

"d. Immediately following (1) the conclusion of the debate on such concurrent resolution, (2) a single quorum call at the conclusion of debate if requested in accordance with the rules of the appropriate House, and (3) the consideration of an amendment introduced by the Majority Leader or his designee to insert the phrase, 'does not' in lieu of the word 'does' if the resolution under consideration is a concurrent resolution of approval, the vote on final approval of the resolution shall occur.

"e. Appeals from the decisions of the Chair relating to the application of the rules of the Senate or the House of Representatives, as the case may be, to the procedure relating to such a resolution shall be decided without debate.

"f. For the purposes of subsections a. through e. of this section, the term 'resolution' means a concurrent resolution of the Congress, the matter after the resolving clause of which is as follows: 'That the Congress (does or does not) favor the _____, transmitted to the Congress by the President on _____, the blank spaces therein to be appropriately filled, and the affirmative or negative phrase within the parenthetical to be appropriately selected.

"g. For the purposes of this section—

"(1) continuity of session is broken only by an adjournment of Congress sine die; and

"(2) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of any period of time in which Congress is in continuous session.

"h. This section is enacted by Congress—

"(1) as an exercise of the rulemaking power of the Senate and the House of Representatives, respectively, and as such they are deemed a part of the rules of each House, respectively, but applicable only with respect to the procedure to be followed in that House in the case of resolutions described by subsection f. of this section; and they supersede other rules only to the extent that they are inconsistent therewith; and

"Resolution."

Continuous
sessions of
Congress,
computation.

"(2) with full recognition of the constitutional right of either House to change the rules (so far as relating to the procedure of that House) at any time, in the same manner and to the same extent as in the case of any other rule of that House."

COMPONENT AND OTHER PARTS OF FACILITIES

SEC. 309. (a) Section 109 of the 1954 Act is amended to read as follows: 42 USC 2139.

"SEC. 109. COMPONENT AND OTHER PARTS OF FACILITIES.—

"a. With respect to those utilization and production facilities which are so determined by the Commission pursuant to subsection 11 v. (2) or 11 cc. (2) the Commission may issue general licenses for domestic activities required to be licensed under section 101, if the Commission determines in writing that such general licensing will not constitute an unreasonable risk to the common defense and security. Domestic activities licenses, issuance authorization. 42 USC 2139.

"b. After consulting with the Secretaries of State, Energy, and Commerce and the Director, the Commission is authorized and directed to determine which component parts as defined in subsection 11 v. (2) or 11 cc. (2) and which other items or substances are especially relevant from the standpoint of export control because of their significance for nuclear explosive purposes. Except as provided in section 126 b. (2), no such component, substance, or item which is so determined by the Commission shall be exported unless the Commission issues a general or specific license for its export after finding, based on a reasonable judgment of the assurances provided and other information available to the Federal Government, including the Commission, that the following criteria or their equivalent are met: (1) IAEA safeguards as required by Article III (2) of the Treaty 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; and after determining in writing that the issuance of each such general or specific license or category of licenses will not be inimical to the common defense and security: *Provided*, That a specific license shall not be required for an export pursuant to this section if the component, item or substance is covered by a facility license issued pursuant to section 126 of this Act. Export licenses. Ante, P. 131.

"c. The Commission shall not issue an export license under the authority of subsection b. if it is advised by the executive branch, in accordance with the procedures established under subsection 126 a., that the export would be inimical to the common defense and security of the United States."

(b) The Commission, not later than one hundred and twenty days after the date of the enactment of this Act, shall publish regulations to implement the provisions of subsections b. and c. of section 109 of the 1954 Act. Among other things, these regulations shall provide for the prior consultation by the Commission with the Department of State, the Department of Energy, the Department of Defense, the Department of Commerce, and the Arms Control and Disarmament Agency. Regulations. 42 USC 2139a. Supra.

(c) The President, within not more than one hundred and twenty days after the date of enactment of this Act, shall publish procedures regarding the control by the Department of Commerce over all export items, other than those licensed by the Commission, which could be, if used for purposes other than those for which the export is intended, of significance for nuclear explosive purposes. Among other things, these procedures shall provide for prior consultations, as required, by the Department of Commerce with the Department of State, the Arms Control and Disarmament Agency, the Commission, the Department of Energy, and the Department of Defense. Export control procedures, Presidential publications. 42 USC 2139a.

(d) The amendments to section 109 of the 1954 Act made by this section shall not affect the approval of exports contracted for prior to November 1, 1977, which are made within one year of the date of enactment of such amendments.

Savings provision. 42 USC 2139 note. Ante, p. 141.

TITLE IV—NEGOTIATION OF FURTHER EXPORT CONTROLS

COOPERATION WITH OTHER NATIONS

42 USC 2153.

SEC. 401. Section 123 of the 1954 Act is amended to read as follows:

“SEC. 123. COOPERATION WITH OTHER NATIONS.—

42 USC 2073,
2074, 2077,
2094, 2112,
2121, 2133,
2134, 2164.

“No cooperation with any nation, group of nations or regional defense organization pursuant to section 53, 54 a., 57, 64, 82, 91, 103, 104, or 144 shall be undertaken until—

Cooperative
agreements,
submittal to
President.
Contents.

“a. the proposed agreement for cooperation has been submitted to the President, which proposed agreement shall include the terms, conditions, duration, nature, and scope of the cooperation; and shall include the following requirements:

“(1) 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;

“(2) 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;

“(3) except in the case of those agreements for cooperation arranged pursuant to subsection 91 c., 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;

“(4) except in the case of those agreements for cooperation arranged pursuant to subsection 91 c. and agreements for cooperation with nuclear-weapon states, 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;

“(5) a guaranty by the cooperating party that any material or any Restricted Data transferred pursuant to the agreement for cooperation and, except in the case of agreements arranged pursuant to subsection 91 c., 144 b. or 144 c., 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;

“(6) 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

42 USC 2121,
2164.

utilization facility transferred pursuant to such agreement;

"(7) except in the case of agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., 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;

"(8) except in the case of agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., 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; and

"(9) except in the case of agreements for cooperation arranged pursuant to subsection 91 c., 144 b. or 144 c., 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.

The President may exempt a proposed agreement for cooperation (except an agreement arranged pursuant to subsection 91 c., 144 b., or 144 c.) from any of the requirements of the foregoing sen-

Agreement
requirements,
Presidential
exemptions.

tence if he determines that inclusion of any such requirement would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security. Except in the case of those agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., any proposed agreement for cooperation shall be negotiated by the Secretary of State, with the technical assistance and concurrence of the Secretary of Energy and in consultation with the Director of the Arms Control and Disarmament Agency ('the Director'); and after consultation with the Commission shall be submitted to the President jointly by the Secretary of State and the Secretary of Energy accompanied by the views and recommendations of the Secretary of State, the Secretary of Energy, the Nuclear Regulatory Commission, and the Director, who shall also provide to the President an unclassified Nuclear Proliferation Assessment Statement regarding the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the agreement for cooperation to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose. In the case of those agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., any proposed agreement for cooperation shall be submitted to the President by the Secretary of Energy or, in the case of those agreements for cooperation arranged pursuant to subsection 91 c. or 144 b. which are to be implemented by the Department of Defense, by the Secretary of Defense;

"b. the President has approved and authorized the execution of the proposed agreement for cooperation and has made a determination in writing that the performance of the proposed agreement will promote, and will not constitute an unreasonable risk to, the common defense and security;

Proposed
cooperation
agreements,
submittal to
President.
Nuclear
Proliferation
Assessment
Statement,
submitted to
President.
42 USC 2121,
2164.

Submittal to congressional committees.

Ante, p. 139.

42 USC 2073, 2074, 2133, 2134.

"c. the proposed agreement for cooperation (if not an agreement subject to subsection d.), together with the approval and determination of the President, has been submitted to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate for a period of thirty days of continuous session (as defined in subsection 130 g.): *Provided, however*, That these committees, after having received such agreement for cooperation, may by resolution in writing waive the conditions of all or any portion of such thirty-day period; and

"d. the proposed agreement for cooperation (if arranged pursuant to subsection 91 c., 144 b., or 144 c., or if entailing implementation of section 53, 54 a., 103, or 104 in relation to a reactor that may be capable of producing more than five thermal megawatts or special nuclear material for use in connection therewith) has been submitted to the Congress, together with the approval and determination of the President, for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act) and referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, and in addition, in the case of a proposed agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., the Committee on Armed Services of the House of Representatives and the Committee on Armed Services of the Senate, but such proposed agreement for cooperation shall not become effective if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that the Congress does not favor the proposed agreement for cooperation: *Provided*, That the sixty-day period shall not begin until a Nuclear Proliferation Assessment Statement prepared by the Director of the Arms Control and Disarmament Agency, when required by subsection 123 a., has been submitted to the Congress. Any such proposed agreement for cooperation shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions.

Ante, p. 142.

Ante, p. 139.

"Following submission of a proposed agreement for cooperation (except an agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c.) to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, the Nuclear Regulatory Commission, the Department of State, the Department of Energy, the Arms Control and Disarmament Agency, and the Department of Defense shall, upon the request of either of those committees, promptly furnish to those committees their views as to whether the safeguards and other controls contained therein provide an adequate framework to ensure that any exports as contemplated by such agreement will not be inimical to or constitute an unreasonable risk to the common defense and security.

Agency views to congressional committees.
42 USC 2121, 2164.

"If, after the date of enactment of the Nuclear Non-Proliferation Act of 1978, the Congress fails to disapprove a proposed agreement for cooperation which exempts the recipient nation from the requirement set forth in subsection 123 a. (2), such failure to act shall constitute a failure to adopt a resolution of disapproval pursuant to subsection 128 b. (3) for purposes of the Commission's consideration of applications and requests under section 126 a. (2) and there shall be no congressional review pursuant to section 128 of any subsequent license or authorization with respect to that state until the first such license or authorization which is issued after twelve months from the elapse of the sixty-day period in which the agreement for cooperation in question is reviewed by the Congress."

Ante, p. 137.

Ante, p. 131.

ADDITIONAL REQUIREMENTS

SEC. 402. (a) 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: *Provided*, That the procedures governing such approvals shall be identical to those

Nuclear material enrichment, approval.
42 USC 2153a.

set forth for the approval of proposed subsequent arrangements under section 131 of the 1954 Act, and any commitments from the recipient which the Secretary of Energy and the Secretary of State deem necessary to ensure that such approval will be obtained prior to such enrichment shall be obtained prior to the submission of the executive branch judgment regarding the export in question and shall be set forth in such submission: *And provided further*, That no 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. *And*, p. 127

(b) 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 (except an agreement for cooperation pursuant to subsection 91 c., 144 b., or 144 c. of the 1954 Act) unless such agreement for cooperation specifically designates such components as items to be exported pursuant to the agreement for cooperation. For purposes of this subsection, the term "major critical component" means any component part or group of component parts which the President determines to be essential to the operation of a complete uranium enrichment, nuclear fuel reprocessing, or heavy water production facility.

Enrichment facility components, export prohibition.

42 USC 2121, 2164.
"Major critical component."

PEACEFUL NUCLEAR ACTIVITIES

Export policies.
42 USC 2153b.

SEC. 403. The President shall take immediate and vigorous steps to seek agreement from all nations and groups of nations to commit themselves to adhere to the following export policies with respect to their peaceful nuclear activities and their participation in international nuclear trade:

(a) No nuclear materials and equipment and no sensitive nuclear technology within the territory of any nation or group of nations, under its jurisdiction, or under its control anywhere will be transferred to the jurisdiction of any other nation or group of nations unless the nation or group of nations receiving such transfer commits itself to strict undertakings including, but not limited to, provisions sufficient to ensure that—

(1) no nuclear materials and equipment and no nuclear technology in, under the jurisdiction of, or under the control of any non-nuclear-weapon state, shall be used for nuclear explosive devices for any purpose or for research on or development of nuclear explosive devices for any purpose, except as permitted by Article V, the Treaty;

(2) IAEA safeguards will be applied to all peaceful nuclear activities in, under the jurisdiction of, or under the control of any non-nuclear-weapon state;

(3) adequate physical security measures will be established and maintained by any nation or group of nations on all of its nuclear activities;

(4) no nuclear materials and equipment and no nuclear technology intended for peaceful purposes in, under the jurisdiction of, or under the control of any nation or group of nations shall be transferred to the jurisdiction of any other nation or group of nations which does not agree to stringent undertakings meeting the objectives of this section; and

(5) no nation or group of nations will assist, encourage, or induce any non-nuclear-weapon state to manufacture or otherwise acquire any nuclear explosive device.

(b) (1) No source or special nuclear material within the territory of any nation or group of nations, under its jurisdiction, or under its control anywhere will be enriched (as described in paragraph aa. (2) of section 11 of the 1954 Act) or reprocessed, no irradiated fuel elements containing such material which are to be removed from a reactor will be altered in form or content, and no fabrication or stockpiling involving plutonium, uranium 233, or uranium enriched to greater than 20 percent in the isotope 235

Enriched nuclear material and sources, prohibition. Proposed international agreements.
42 USC 2014.

shall be performed except in a facility under effective international auspices and inspection, and any such irradiated fuel elements shall be transferred to such a facility as soon as practicable after removal from a reactor consistent with safety requirements. Such facilities shall be limited in number to the greatest extent feasible and shall be carefully sited and managed so as to minimize the proliferation and environmental risks associated with such facilities. In addition, there shall be conditions to limit the access of non-nuclear-weapon states other than the host country to sensitive nuclear technology associated with such facilities.

(2) Any facilities within the territory of any nation or group of nations, under its jurisdiction, or under its control anywhere for the necessary short-term storage of fuel elements containing plutonium, uranium 233, or uranium enriched to greater than 20 percent in the isotope 235 prior to placement in a reactor or of irradiated fuel elements prior to transfer as required in subparagraph (1) shall be placed under effective international auspices and inspection.

(c) Adequate physical security measures will be established and maintained with respect to all nuclear activities within the territory of each nation and group of nations, under its jurisdiction, or under its control anywhere, and with respect to any international shipment of significant quantities of source or special nuclear material or irradiated source or special nuclear material, which shall also be conducted under international safeguards.

(d) Nothing in this section shall be interpreted to require international control or supervision of any United States military activities.

Enriched nuclear material, short-term storage. International inspection.

RENEGOTIATION OF AGREEMENTS FOR COOPERATION

Sec. 404. (a) The President shall initiate a program immediately to renegotiate agreements for cooperation in effect on the date of enactment of this Act, or otherwise to obtain the agreement of parties to such agreements for cooperation to the undertakings that would be required for new agreements under the 1954 Act. To the extent that an agreement for cooperation in effect on the date of enactment of this Act with a cooperating party contains provisions equivalent to any or all of the criteria set forth in section 127 of the 1954 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 this Act 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 1954 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. Nothing in this Act or in the 1954 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 this Act.

42 USC 2153c.

Ante, p. 136.

Ante, p. 142.

Export agreement conditions and policy goals, Presidential review.
Ante, p. 142.

(b) The President shall annually review each of requirements (1) through (9) set forth for inclusion in agreements for cooperation under section 123 a. of the 1954 Act and the export policy goals set forth in section 401 to determine whether it is in the interest of United States non-proliferation objectives for any such requirements or export policies which are not already being applied as export criteria to be enacted as additional export criteria.

Presidential
export criteria
proposals,
submittal to
Congress.

(c) If the President proposes enactment of any such requirements or export policies as additional export criteria or to take any other action with respect to such requirements or export policy goals for the purpose of encouraging adherence by nations and groups of nations to such requirements and policies, he shall submit such a proposal together with an explanation thereof to the Congress.

(d) If the Committee on Foreign Relations of the Senate or the Committee on International Relations of the House of Representatives, after reviewing the President's annual report or any proposed legislation, determines that it is in the interest of United States non-proliferation objectives to take any action with respect to such requirements or export policy goals, it shall report a joint resolution to implement such determination. Any joint resolution so reported shall be considered in the Senate and the House of Representatives, respectively, under applicable procedures provided for the consideration of resolutions pursuant to subsection 130 b. through g. of the 1954 Act.

Ante, p. 139.

AUTHORITY TO CONTINUE AGREEMENTS

Savings
provision.
42 USC 2153d.

Sec. 405. (a) The amendments to section 123 of the 1954 Act made by this Act shall not affect the authority to continue cooperation pursuant to agreements for cooperation entered into prior to the date of enactment of this Act.

(b) Nothing in this Act shall affect the authority to include dispute settlement provisions, including arbitration, in any agreement made pursuant to an Agreement for Cooperation.

REVIEW

42 USC 2160a.

Sec. 406. No court or regulatory body shall have any jurisdiction under any law to compel the performance of or to review the adequacy of the performance of any Nuclear Proliferation Assessment Statement called for in this Act or in the 1954 Act.

PROTECTION OF THE ENVIRONMENT

42 USC 2153e.

Sec. 407. The President shall endeavor to provide in any agreement entered into pursuant to section 123 of the 1954 Act for cooperation between the parties in protecting the international environment from radioactive, chemical or thermal contamination arising from peaceful nuclear activities.

TITLE V—UNITED STATES ASSISTANCE TO DEVELOPING COUNTRIES

POLICY; REPORT

Nuclear and non-
nuclear energy,
resource
development.
22 USC 3261.

Sec. 501. The United States shall endeavor to cooperate with other nations, international institutions, and private organizations in establishing programs to assist in the development of non-nuclear energy resources, to cooperate with both developing and industrialized nations in protecting the international environment from contamination arising from both nuclear and non-nuclear energy activities, and shall seek to cooperate with and aid developing countries in meeting their energy needs through the development of such resources and the application of non-nuclear technologies consistent with the economic factors, the material resources of those countries, and environmental protection. The United States shall additionally seek to encourage other industrialized nations and groups of nations to make commitments for similar cooperation and aid to developing countries. The President shall report annually to Congress on the level of other nations' and groups of nations' commitments under such program and the relation of any such commitments to United States efforts under this title. In cooperating with and providing such assistance to developing countries, the United States shall give priority to parties to the Treaty.

Presidential
report to
Congress.

PROGRAMS

SEC. 502. (a) The United States shall initiate a program, consistent with the aims of section 501, to cooperate with developing countries for the purpose of—

Developing countries, energy development programs.

(1) meeting the energy needs required for the development of such countries;

(2) reducing the dependence of such countries on petroleum fuels, with emphasis given to utilizing solar and other renewable energy resources; and

(3) expanding the energy alternatives available to such countries.

(b) Such program shall include cooperation in evaluating the energy alternatives of developing countries, facilitating international trade in energy commodities, developing energy resources, and applying suitable energy technologies. The program shall include both general and country-specific energy assessments and cooperative projects in resource exploration and production, training, research and development.

Assessment and cooperative projects.

(c) As an integral part of such program, the Department of Energy, under the general policy guidance of the Department of State and in cooperation with the Agency for International Development and other Federal agencies as appropriate, shall initiate, as soon as practicable, a program for the exchange of United States scientists, technicians, and energy experts with those of developing countries to implement the purposes of this section.

Experts, exchange.

(d) For the purposes of carrying out this section, there is authorized to be appropriated such sums as are contained in annual authorization Acts for the Department of Energy, including such sums which have been authorized for such purposes under previous legislation.

Appropriation authorization.

(e) Under the direction of the President, the Secretary of State shall ensure the coordination of the activities authorized by this title with other related activities of the United States conducted abroad, including the programs authorized by sections 103(c), 106(a)(2), and 119 of the Foreign Assistance Act of 1961.

22 USC 2151a, 2151d, 2151q.

REPORT

SEC. 503. Not later than twelve months after the date of enactment of this Act, the President shall report to the Congress on the feasibility of expanding the cooperative activities established pursuant to section 502(c) into an international cooperative effort to include a scientific peace corps designed to encourage large numbers of technically trained volunteers to live and work in developing countries for varying periods of time for the purpose of engaging in projects to aid in meeting the energy needs of such countries through the search for and utilization of indigenous energy resources and the application of suitable technology, including the widespread utilization of renewable and unconventional energy technologies. Such report shall also include a discussion of other mechanisms to conduct a coordinated international effort to develop, demonstrate, and encourage the utilization of such technologies in developing countries.

Presidential report to Congress.
22 USC 3262 note.

TITLE VI—EXECUTIVE REPORTING

REPORTS OF THE PRESIDENT

Governmental nuclear non-proliferation activities.
22 USC 3281.

SEC. 601. (a) The President shall review all activities of Government departments and agencies relating to preventing proliferation and shall make a report to Congress in January of 1979 and annually in January of each year thereafter on the Government's efforts to prevent proliferation. This report shall include but not be limited to—

(1) a description of the progress made toward—

(A) negotiating the initiatives contemplated in sections 104 and 105 of this Act;

(B) negotiating the international arrangements or other mutual undertakings contemplated in section 403 of this Act;

(C) encouraging non-nuclear-weapon states that are not party to the Treaty to adhere to the Treaty or, pending such adherence, to enter into comparable agreements with respect to safeguards and to forswear the development of any nuclear explosive devices, and discouraging nuclear exports to non-nuclear-weapon states which have not taken such steps;

(D) strengthening the safeguards of the IAEA as contemplated in section 201 of this Act; and

(E) renegotiating agreements for cooperation as contemplated in section 404 (a) of this Act;

(2) an assessment of the impact of the progress described in paragraph (1) on the non-proliferation policy of the United States; an explanation of the precise reasons why progress has not been made on any particular point and recommendations with respect to appropriate measures to encourage progress; and a statement of what legislative modifications, if any, are necessary in his judgment to achieve the non-proliferation policy of the United States;

(3) a determination as to which non-nuclear-weapon states with which the United States has an agreement for cooperation in effect or under negotiation, if any, have—

(A) detonated a nuclear device; or

(B) refused to accept the safeguards of the IAEA on all of their peaceful nuclear activities; or

(C) refused to give specific assurances that they will not manufacture or otherwise acquire any nuclear explosive device; or

(D) engaged in activities involving source or special nuclear material and having direct significance for the manufacture or acquisition of nuclear explosive devices;

(4) an assessment of whether any of the policies set forth in this Act have, on balance, been counterproductive from the standpoint of preventing proliferation; and

(5) a description of the progress made toward establishing procedures to facilitate the timely processing of requests for subsequent arrangements and export licenses in order to enhance the reliability of the United States in meeting its commitments to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies.

(b) In the first report required by this section, the President shall analyze each civil agreement for cooperation negotiated pursuant to section 123 of the 1954 Act, and shall discuss the scope and adequacy of the requirements and obligations relating to safeguards and other controls therein.

Current civil agreements, analysis.

ADDITIONAL REPORTS

SEC. 602. (a) The annual reports to the Congress by the Commission and the Department of Energy which are otherwise required by law shall also include views and recommendations regarding the policies and actions of the United States to prevent proliferation which are the statutory responsibility of those agencies. The Department's report shall include a detailed analysis of the proliferation implications of advanced enrichment and reprocessing techniques, advanced reactors, and alternative nuclear fuel cycles. This part of the report shall include a comprehensive version which includes any relevant classified information and a summary unclassified version.

Reports to Congress. Governmental nuclear non-proliferation activities. 22 USC 3282.

(b) The reporting requirements of this title are in addition to and not in lieu of any other reporting requirements under applicable law.

(c) The Department of State, the Arms Control and Disarmament Agency, the Department of Commerce, the Department of Energy, and the Commission shall keep the Committees on Foreign Relations and Governmental Affairs of the Senate and the Committee on International Relations of the House of Representatives fully and currently informed with respect to their activities to carry out the purposes and

policies of this Act and to otherwise prevent proliferation, and with respect to the current activities of foreign nations which are of significance from the proliferation standpoint.

(d) Any classified portions of the reports required by this Act shall be submitted to the Senate Foreign Relations Committee and the House International Relations Committee.

(e) Three years after enactment of this Act, the Comptroller General shall complete a study and report to the Congress on the implementation and impact of this Act on the nuclear non-proliferation policies, purposes, and objectives of this Act. The Secretaries of State, Energy, Defense, and Commerce and the Commission and the Director shall cooperate with the Comptroller General in the conduct of the study. The report shall contain such recommendations as the Comptroller General deems necessary to support the nuclear non-proliferation policies, purposes, and objectives of this Act.

Report to
Congress.
Nuclear non-
proliferation
policies, study.

SAVING CLAUSE

42 USC 2153f.

SEC. 603. (a) All orders, determinations, rules, regulations, permits, contracts, agreements, certificates, licenses, and privileges—

(1) which have been issued, made, granted, or allowed to become effective in the exercise of functions which are the subject of this Act, by (i) any agency or officer, or part thereof, in exercising the functions which are affected by this Act, or (ii) any court of competent jurisdiction, and

(2) which are in effect at the time this Act takes effect, shall continue in effect according to their terms until modified, terminated, superseded, set aside, or repealed as the case may be, by the parties thereto or by any court of competent jurisdiction.

42 USC 2153f.

(b) Nothing in this Act shall affect the procedures or requirements applicable to agreements for cooperation entered into pursuant to sections 91 c., 144 b., or 144 c. of the 1954 Act or arrangements pursuant thereto as it was in effect immediately prior to the date of enactment of this Act.

42 USC 2121,
2164.

Effective date.
22 USC 3201
note.

(c) Except where otherwise provided, the provisions of this Act shall take effect immediately upon enactment regardless of any requirement for the promulgation of regulations to implement such provisions.

Approved March 10, 1978.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 95-587 (Comm. on International Relations).

SENATE REPORT No. 95-467 accompanying S. 897 (Comms. on Governmental Affairs, Energy and Natural Resources, and Foreign Relations).

CONGRESSIONAL RECORD:

Vol. 123 (1977): Aug. 5, S. 897 considered in Senate.

Sept. 22, 28, considered and passed House.

Nov. 2, S. 897 considered in Senate.

Vol. 124 (1978): Feb. 2, 7, considered and passed Senate, amended, in lieu of S. 897.

Feb. 9, House concurred in Senate amendment.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS:

Vol. 14, No. 10 (1978): Mar. 10, Presidential statement.

APPENDIX 22

UNITED NATIONS GENERAL ASSEMBLY



Distr.
GENERAL

A/RES/S 10/2
13 July 1978

Tenth special session
Agenda items 9, 10, 11 and 12

RESOLUTION ADOPTED BY THE GENERAL ASSEMBLY

On the report of the Ad Hoc Committee of the Tenth Special Session
(A/S-10/23)

S-10/2. Final Document of the Tenth Special Session
of the General Assembly

The General Assembly,

Alarmed by the threat to the very survival of mankind posed by the existence of nuclear weapons and the continuing arms race, and recalling the devastation inflicted by all wars,

Convinced that disarmament and arms limitation, particularly in the nuclear field, are essential for the prevention of the danger of nuclear war and the strengthening of international peace and security and for the economic and social advancement of all peoples, thus facilitating the achievement of the new international economic order,

Having resolved to lay the foundations of an international disarmament strategy which, through co-ordinated and persevering efforts in which the United Nations should play a more effective role, aims at general and complete disarmament under effective international control,

Adopts the following Final Document of this special session of the General Assembly devoted to disarmament:

I. INTRODUCTION

1. Attainment of the objective of security, which is an inseparable element of peace, has always been one of the most profound aspirations of humanity. States have for a long time sought to maintain their security through the possession of arms. Admittedly, their survival has, in certain cases, effectively depended on whether they could count on appropriate means of defence. Yet the accumulation of weapons, particularly nuclear weapons, today constitutes much more a threat than a protection for the future of mankind. The time has therefore come to put an end to this situation, to abandon the use of force in international relations and to seek security in disarmament, that is to say, through a gradual but effective process beginning with a reduction in the present level of armaments. The ending of the arms race and the achievement of real disarmament are tasks of primary importance and urgency. To meet this historic challenge is in the political and economic interests of all the nations and peoples of the world as well as in the interests of ensuring their genuine security and peaceful future.

2. Unless its avenues are closed, the continued arms race means a growing threat to international peace and security and even to the very survival of mankind. The nuclear and conventional arms build-up threatens to stall the efforts aimed at reaching the goals of development, to become an obstacle on the road of achieving the new international economic order and to hinder the solution of other vital problems facing mankind.

3. Dynamic development of détente, encompassing all spheres of international relations in all regions of the world, with the participation of all countries, would create conditions conducive to the efforts of States to end the arms race, which has engulfed the world, thus reducing the danger of war. Progress on détente and progress on disarmament mutually complement and strengthen each other.

4. The Disarmament Decade solemnly declared in 1969 by the United Nations is coming to an end. Unfortunately, the objectives established on that occasion by the General Assembly appear to be as far away today as they were then, or even further because the arms race is not diminishing but increasing and outstrips by far the efforts to curb it. While it is true that some limited agreements have been reached, "effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament" continue to elude man's grasp. Yet the implementation of such measures is urgently required. There has not been any real progress either that might lead to the conclusion of a treaty on general and complete disarmament under effective international control. Furthermore, it has not been possible to free any amount, however modest, of the enormous resources, both material and human, which are wasted on the unproductive and spiralling arms race and which should be made available for the purpose of economic and social development, especially since such a race "places a great burden on both the developing and the developed countries".

5. The Members of the United Nations are fully aware of the conviction of their peoples that the question of general and complete disarmament is of utmost importance and that peace, security and economic and social development are indivisible, and they have therefore recognized that the corresponding obligations and responsibilities are universal.

6. Thus a powerful current of opinion has gradually formed, leading to the convening of what will go down in the annals of the United Nations as the first special session of the General Assembly devoted entirely to disarmament.

7. The outcome of this special session, whose deliberations have to a large extent been facilitated by the five sessions of the Preparatory Committee which preceded it, is the present Final Document. This introduction serves as a preface to the document which comprises also the following three sections: a Declaration, a Programme of Action and recommendations concerning the international machinery for disarmament negotiations.

8. While the final objective of the efforts of all States should continue to be general and complete disarmament under effective international control, the immediate goal is that of the elimination of the danger of a nuclear war and the implementation of measures to halt and reverse the arms race and clear the path towards lasting peace. Negotiations on the entire range of those issues should be based on the strict observance of the purposes and principles enshrined in the Charter of the United Nations, with full recognition of the role of the United Nations in the field of disarmament and reflecting the vital interest of all the peoples of the world in this sphere. The aim of the Declaration is to review and assess the existing situation, outline the objectives and the priority tasks and set forth fundamental principles for disarmament negotiations.

9. For disarmament - the aims and purposes of which the Declaration proclaims - to become a reality, it was essential to agree on a series of specific disarmament measures, selected by common accord as those on which there is a consensus to the effect that their subsequent realization in the short term appears to be feasible. There is also a need to prepare through agreed procedures a comprehensive disarmament programme. That programme, passing through all the necessary stages, should lead to general and complete disarmament under effective international control. Procedures for watching over the fulfilment of the obligations thus assumed had also to be agreed upon. That is the purpose of the Programme of Action.

10. Although the decisive factor for achieving real measures of disarmament is the "political will" of States, and especially of those possessing nuclear weapons, a significant role can also be played by the effective functioning of an appropriate international machinery designed to deal with the problems of disarmament in its various aspects. Consequently, it would be necessary that the two kinds of organs required to that end, the deliberative and the negotiating organs, have the appropriate organization and procedures that would be most conducive to obtaining constructive results. The last section of the Final Document, section IV, has been prepared with that end in view.

II. DECLARATION

11. Mankind today is confronted with an unprecedented threat of self-extinction arising from the massive and competitive accumulation of the most destructive weapons ever produced. Existing arsenals of nuclear weapons alone are more than sufficient to destroy all life on earth. Failure of efforts to halt and reverse the arms race, in particular the nuclear arms race, increases the danger of the proliferation of nuclear weapons. Yet the arms race continues. Military budgets are constantly growing, with enormous consumption of human and material resources. The increase in weapons, especially nuclear weapons, far from helping to strengthen international security, on the contrary weakens it. The vast stockpiles and tremendous build-up of arms and armed forces and the competition for qualitative refinement of weapons of all kinds to which scientific resources and technological advances are diverted, pose incalculable threats to peace. This situation both reflects and aggravates international tensions, sharpens conflicts in various regions of the world, hinders the process of détente, exacerbates the differences between opposing military alliances, jeopardizes the security of all States, heightens the sense of insecurity among all States, including the non-nuclear-weapon States, and increases the threat of nuclear war.

12. The arms race, particularly in its nuclear aspect, runs counter to efforts to achieve further relaxation of international tension, to establish international relations based on peaceful coexistence and trust between all States, and to develop broad international co-operation and understanding. The arms race impedes the realization of the purposes, and is incompatible with the principles, of the Charter of the United Nations, especially respect for sovereignty, refraining from the threat or use of force against the territorial integrity or political independence of any State, peaceful settlement of disputes and non-intervention and non-interference in the internal affairs of States. It also adversely affects the rights of peoples freely to determine their systems of social and economic

development, and hinders the struggle for self-determination and the elimination of colonial rule, racial or foreign domination or occupation. Indeed, the massive accumulation of armaments and the acquisition of armaments technology by racist régimes, as well as their possible acquisition of nuclear weapons, present a challenging and increasingly dangerous obstacle to a world community faced with the urgent need to disarm. It is, therefore, essential for purposes of disarmament to prevent any further acquisition of arms or arms technology by such régimes, especially through strict adherence by all States to relevant decisions of the Security Council.

13. Enduring international peace and security cannot be built on the accumulation of weaponry by military alliances nor be sustained by a precarious balance of deterrence or doctrines of strategic superiority. Genuine and lasting peace can only be created through the effective implementation of the security system provided for in the Charter of the United Nations and the speedy and substantial reduction of arms and armed forces, by international agreement and mutual example, leading ultimately to general and complete disarmament under effective international control. At the same time, the causes of the arms race and threats to peace must be reduced and to this end effective action should be taken to eliminate tensions and settle disputes by peaceful means.

14. Since the process of disarmament affects the vital security interests of all States, they must all be actively concerned with and contribute to the measures of disarmament and arms limitation, which have an essential part to play in maintaining and strengthening international security. Therefore the role and responsibility of the United Nations in the sphere of disarmament, in accordance with its Charter, must be strengthened.

15. It is essential that not only Governments but also the peoples of the world recognize and understand the dangers in the present situation. In order that an international conscience may develop and that world public opinion may exercise a positive influence, the United Nations should increase the dissemination of information on the armaments race and disarmament with the full co-operation of Member States.

16. In a world of finite resources there is a close relationship between expenditure on armaments and economic and social development. Military expenditures are reaching ever higher levels, the highest percentage of which can be attributed to the nuclear-weapon States and most of their allies, with prospects of further expansion and the danger of further increases in the expenditures of other countries. The hundreds of billions of dollars spent annually on the manufacture or improvement of weapons are in sombre and dramatic contrast to the want and poverty in which two thirds of the world's population live. This colossal waste of resources is even more serious in that it diverts to military purposes not only material but also technical and human resources which are urgently needed for development in all countries, particularly in the developing countries. Thus, the economic and social consequences of the arms race are so detrimental that its continuation is obviously incompatible with the implementation of the new international economic order based on justice, equity and co-operation. Consequently, resources released as a result of the implementation of disarmament measures should be used in a manner which will help to promote the well-being of all peoples and to improve the economic conditions of the developing countries.

17. Disarmament has thus become an imperative and most urgent task facing the international community. No real progress has been made so far in the crucial field of reduction of armaments. However, certain positive changes in international relations in some areas of the world provide some encouragement. Agreements have been reached that have been important in limiting certain weapons or eliminating them altogether, as in the case of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction 1/ and excluding particular areas from the

1/ General Assembly resolution 2826 (XXVI), annex.

arms race. The fact remains that these agreements relate only to measures of limited restraint while the arms race continues. These partial measures have done little to bring the world closer to the goal of general and complete disarmament. For more than a decade there have been no negotiations leading to a treaty on general and complete disarmament. The pressing need now is to translate into practical terms the provisions of this Final Document and to proceed along the road of binding and effective international agreements in the field of disarmament.

18. Removing the threat of a world war - a nuclear war - is the most acute and urgent task of the present day. Mankind is confronted with a choice: we must halt the arms race and proceed to disarmament or face annihilation.

19. The ultimate objective of the efforts of States in the disarmament process is general and complete disarmament under effective international control. The principal goals of disarmament are to ensure the survival of mankind and to eliminate the danger of war, in particular nuclear war, to ensure that war is no longer an instrument for settling international disputes and that the use and the threat of force are eliminated from international life, as provided for in the Charter of the United Nations. Progress towards this objective requires the conclusion and implementation of agreements on the cessation of the arms race and on genuine measures of disarmament, taking into account the need of States to protect their security.

20. Among such measures, effective measures of nuclear disarmament and the prevention of nuclear war have the highest priority. To this end, it is imperative to remove the threat of nuclear weapons, to halt and reverse the nuclear arms race until the total elimination of nuclear weapons and their delivery systems has been achieved, and to prevent the proliferation of nuclear weapons. At the same time, other measures designed to prevent the outbreak of nuclear war and to lessen the danger of the threat or use of nuclear weapons should be taken.

21. Along with these measures, agreements or other effective measures should be adopted to prohibit or prevent the development, production or use of other weapons of mass destruction. In this context, an agreement on elimination of all chemical weapons should be concluded as a matter of high priority.

22. Together with negotiations on nuclear disarmament measures, negotiations should be carried out on the balanced reduction of armed forces and of conventional armaments, based on the principle of undiminished security of the parties with a view to promoting or enhancing stability at a lower military level, taking into account the need of all States to protect their security. These negotiations should be conducted with particular emphasis on armed forces and conventional weapons of nuclear-weapon States and other militarily significant countries. There should also be negotiations on the limitation of international transfer of conventional weapons, based in particular on the same principle, and taking into account the inalienable right to self-determination and independence of peoples under colonial or foreign domination and the obligations of States to respect that right, in accordance with the Charter of the United Nations and the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States, 2/ as well as the need of recipient States to protect their security.

23. Further international action should be taken to prohibit or restrict for humanitarian reasons the use of specific conventional weapons, including those which may be excessively injurious, cause unnecessary suffering or have indiscriminate effects.

24. Collateral measures in both the nuclear and conventional fields, together with other measures specifically designed to build confidence, should be undertaken in order to contribute to the creation of favourable conditions for the adoption of

2/ General Assembly resolution 2625 (XXV), annex.

additional disarmament measures and to further the relaxation of international tension.

25. Negotiations and measures in the field of disarmament shall be guided by the fundamental principles set forth below.

26. All States Members of the United Nations reaffirm their full commitment to the purposes of the Charter of the United Nations and their obligation strictly to observe its principles as well as other relevant and generally accepted principles of international law relating to the maintenance of international peace and security. They stress the special importance of refraining from the threat or use of force against the sovereignty, territorial integrity or political independence of any State, or against peoples under colonial or foreign domination seeking to exercise their right to self-determination and to achieve independence; non-intervention and non-interference in the internal affairs of other States; the inviolability of international frontiers, and the peaceful settlement of disputes, having regard to the inherent right of States to individual and collective self-defence in accordance with the Charter.

27. In accordance with the Charter, the United Nations has a central role and primary responsibility in the sphere of disarmament. In order effectively to discharge this role and facilitate and encourage all measures in this field, the United Nations should be kept appropriately informed of all steps in this field, whether unilateral, bilateral, regional or multilateral, without prejudice to the progress of negotiations.

28. All the peoples of the world have a vital interest in the success of disarmament negotiations. Consequently, all States have the duty to contribute to efforts in the field of disarmament. All States have the right to participate in disarmament negotiations. They have the right to participate on an equal footing in those multilateral disarmament negotiations which have a direct bearing on their national security. While disarmament is the responsibility of all States, the nuclear-weapon States have the primary responsibility for nuclear disarmament and, together with other militarily significant States, for halting and reversing the arms race. It is therefore important to secure their active participation.

29. The adoption of disarmament measures should take place in such an equitable and balanced manner as to ensure the right of each State to security and to ensure that no individual State or group of States may obtain advantages over others at any stage. At each stage the objective should be undiminished security at the lowest possible level of armaments and military forces.

30. An acceptable balance of mutual responsibilities and obligations for nuclear and non-nuclear-weapon States should be strictly observed.

31. Disarmament and arms limitation agreements should provide for adequate measures of verification satisfactory to all parties concerned in order to create the necessary confidence and ensure that they are being observed by all parties. The form and modalities of the verification to be provided for in any specific agreement depend upon and should be determined by the purposes, scope and nature of the agreement. Agreements should provide for the participation of parties directly or through the United Nations system in the verification process. Where appropriate, a combination of several methods of verification as well as other compliance procedures should be employed.

32. All States, and in particular nuclear-weapon States, should consider various proposals designed to secure the avoidance of the use of nuclear weapons, and the prevention of nuclear war. In this context, while noting the declarations made by nuclear-weapon States, effective arrangements, as appropriate, to assure non-nuclear-weapon States against the use or the threat of use of nuclear weapons could strengthen the security of those States and international peace and security.

33. The establishment of nuclear-weapon-free zones on the basis of agreements or

arrangements freely arrived at among the States of the zone concerned, and the full compliance with those agreements or arrangements, thus ensuring that the zones are genuinely free from nuclear weapons, and respect for such zones by nuclear-weapon States, constitute an important disarmament measure.

34. Disarmament, relaxation of international tension, respect for the right to self-determination and national independence, the peaceful settlement of disputes in accordance with the Charter of the United Nations and the strengthening of international peace and security are directly related to each other. Progress in any of these spheres has a beneficial effect on all of them; in turn, failure in one sphere has negative effects on others.

35. There is also a close relationship between disarmament and development. Progress in the former would help greatly in the realization of the latter. Therefore resources released as a result of the implementation of disarmament measures should be devoted to the economic and social development of all nations and contribute to the bridging of the economic gap between developed and developing countries.

36. Non-proliferation of nuclear weapons is a matter of universal concern. Measures of disarmament must be consistent with the inalienable right of all States, without discrimination, to develop, acquire and use nuclear technology, equipment and materials for the peaceful use of nuclear energy and to determine their peaceful nuclear programmes in accordance with their national priorities, needs and interests, bearing in mind the need to prevent the proliferation of nuclear weapons. International co-operation in the peaceful uses of nuclear energy should be conducted under agreed and appropriate international safeguards applied on a non-discriminatory basis.

37. Significant progress in disarmament, including nuclear disarmament, would be facilitated by parallel measures to strengthen the security of States and to improve the international situation in general.

38. Negotiations on partial measures of disarmament should be conducted concurrently with negotiations on more comprehensive measures and should be followed by negotiations leading to a treaty on general and complete disarmament under effective international control.

39. Qualitative and quantitative disarmament measures are both important for halting the arms race. Efforts to that end must include negotiations on the limitation and cessation of the qualitative improvement of armaments, especially weapons of mass destruction and the development of new means of warfare so that ultimately scientific and technological achievements may be used solely for peaceful purposes.

40. Universality of disarmament agreements helps create confidence among States. When multilateral agreements in the field of disarmament are negotiated, every effort should be made to ensure that they are universally acceptable. The full compliance of all parties with the provisions contained in such agreements would also contribute to the attainment of that goal.

41. In order to create favourable conditions for success in the disarmament process, all States should strictly abide by the provisions of the Charter of the United Nations, refrain from actions which might adversely affect efforts in the field of disarmament, and display a constructive approach to negotiations and the political will to reach agreements. There are certain negotiations on disarmament under way at different levels, the early and successful completion of which could contribute to limiting the arms race. Unilateral measures of arms limitation or reduction could also contribute to the attainment of that goal.

42. Since prompt measures should be taken in order to halt and reverse the arms race, Member States hereby declare that they will respect the objectives and principles stated above and make every effort faithfully to carry out the Programme of Action set forth in section III below.

III. PROGRAMME OF ACTION

43. Progress towards the goal of general and complete disarmament can be achieved through the implementation of a programme of action on disarmament, in accordance with the goals and principles established in the Declaration on disarmament. The present Programme of Action contains priorities and measures in the field of disarmament that States should undertake as a matter of urgency with a view to halting and reversing the arms race and to giving the necessary impetus to efforts designed to achieve genuine disarmament leading to general and complete disarmament under effective international control.

44. The present Programme of Action enumerates the specific measures of disarmament which should be implemented over the next few years, as well as other measures and studies to prepare the way for future negotiations and for progress towards general and complete disarmament.

45. Priorities in disarmament negotiations shall be: nuclear weapons; other weapons of mass destruction, including chemical weapons; conventional weapons, including any which may be deemed to be excessively injurious or to have indiscriminate effects; and reduction of armed forces.

46. Nothing should preclude States from conducting negotiations on all priority items concurrently.

47. Nuclear weapons pose the greatest danger to mankind and to the survival of civilization. It is essential to halt and reverse the nuclear arms race in all its aspects in order to avert the danger of war involving nuclear weapons. The ultimate goal in this context is the complete elimination of nuclear weapons.

48. In the task of achieving the goals of nuclear disarmament, all the nuclear-weapon States, in particular those among them which possess the most important nuclear arsenals, bear a special responsibility.

49. The process of nuclear disarmament should be carried out in such a way, and requires measures to ensure, that the security of all States is guaranteed at progressively lower levels of nuclear armaments, taking into account the relative qualitative and quantitative importance of the existing arsenals of the nuclear-weapon States and other States concerned.

50. The achievement of nuclear disarmament will require urgent negotiation of agreements at appropriate stages and with adequate measures of verification satisfactory to the States concerned for:

(a) Cessation of the qualitative improvement and development of nuclear-weapon systems;

(b) Cessation of the production of all types of nuclear weapons and their means of delivery, and of the production of fissionable material for weapons purposes;

(c) A comprehensive, phased programme with agreed time-frames, whenever feasible, for progressive and balanced reduction of stockpiles of nuclear weapons and their means of delivery, leading to their ultimate and complete elimination at the earliest possible time.

Consideration can be given in the course of the negotiations to mutual and agreed limitation or prohibition, without prejudice to the security of any State, of any types of nuclear armaments.

51. The cessation of nuclear-weapon testing by all States within the framework of an effective nuclear disarmament process would be in the interest of mankind. It would make a significant contribution to the above aim of ending the qualitative

improvement of nuclear weapons and the development of new types of such weapons and of preventing the proliferation of nuclear weapons. In this context the negotiations now in progress on "a treaty prohibiting nuclear-weapon tests, and a protocol covering nuclear explosions for peaceful purposes, which would be an integral part of the treaty," should be concluded urgently and the result submitted for full consideration by the multilateral negotiating body with a view to the submission of a draft treaty to the General Assembly at the earliest possible date. All efforts should be made by the negotiating parties to achieve an agreement which, following endorsement by the General Assembly, could attract the widest possible adherence. In this context, various views were expressed by non-nuclear-weapon States that, pending the conclusion of this treaty, the world community would be encouraged if all the nuclear-weapon States refrained from testing nuclear weapons. In this connexion, some nuclear-weapon States expressed different views.

52. The Union of Soviet Socialist Republics and the United States of America should conclude at the earliest possible date the agreement they have been pursuing for several years in the second series of the strategic arms limitation talks (SALT II). They are invited to transmit in good time the text of the agreement to the General Assembly. It should be followed promptly by further strategic arms limitation negotiations between the two parties, leading to agreed significant reductions of, and qualitative limitations on strategic arms. It should constitute an important step in the direction of nuclear disarmament and, ultimately, of establishment of a world free of such weapons.

53. The process of nuclear disarmament described in the paragraph on this subject should be expedited by the urgent and vigorous pursuit to a successful conclusion of ongoing negotiations and the urgent initiation of further negotiations among the nuclear-weapon States.

54. Significant progress in nuclear disarmament would be facilitated both by parallel political or international legal measures to strengthen the security of States and by progress in the limitation and reduction of armed forces and conventional armaments of the nuclear-weapon States and other States in the regions concerned.

55. Real progress in the field of nuclear disarmament could create an atmosphere conducive to progress in conventional disarmament on a world-wide basis.

56. The most effective guarantee against the danger of nuclear war and the use of nuclear weapons is nuclear disarmament and the complete elimination of nuclear weapons.

57. Pending the achievement of this goal, for which negotiations should be vigorously pursued, and bearing in mind the devastating results which nuclear war would have on belligerents and non-belligerents alike, the nuclear-weapon States have special responsibilities to undertake measures aimed at preventing the outbreak of nuclear war, and of the use of force in international relations, subject to the provisions of the Charter of the United Nations, including the use of nuclear weapons.

58. In this context all States, and in particular nuclear-weapon States, should consider as soon as possible various proposals designed to secure the avoidance of the use of nuclear weapons, the prevention of nuclear war and related objectives, where possible through international agreement and thereby ensure that the survival of mankind is not endangered. All States should actively participate in efforts to bring about conditions in international relations among States in which a code of peaceful conduct of nations in international affairs could be agreed and which would preclude the use or threat of use of nuclear weapons.

59. In the same context, the nuclear-weapon States are called upon to take steps to assure the non-nuclear-weapon States against the use or threat of use of nuclear weapons. The General Assembly notes the declarations made by the nuclear-weapon States and urges them to pursue efforts to conclude, as appropriate, effective

arrangements to assure non-nuclear-weapon States against the use or threat of use of nuclear weapons.

60. The establishment of nuclear-weapon-free zones on the basis of arrangements freely arrived at among the States of the region concerned constitutes an important disarmament measure.

61. The process of establishing such zones in different parts of the world should be encouraged with the ultimate objective of achieving a world entirely free of nuclear weapons. In the process of establishing such zones, the characteristics of each region should be taken into account. The States participating in such zones should undertake to comply fully with all the objectives, purposes and principles of the agreements or arrangements establishing the zones, thus ensuring that they are genuinely free from nuclear weapons.

62. With respect to such zones, the nuclear-weapon States in turn are called upon to give undertakings, the modalities of which are to be negotiated with the competent authority of each zone, in particular:

(a) To respect strictly the status of the nuclear-weapon-free zone;

(b) To refrain from the use or threat of use of nuclear weapons against the States of the zone.

63. In the light of existing conditions, and without prejudice to other measures which may be considered in other regions, the following measures are especially desirable:

(a) Adoption by the States concerned of all relevant measures to ensure the full application of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco), ^{3/} taking into account the views expressed at the tenth special session on the adherence to it;

(b) Signature and ratification of the Additional Protocols of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco) by the States entitled to become parties to those instruments which have not yet done so;

(c) In Africa, where the Organization of African Unity has affirmed a decision for the denuclearization of the region, the Security Council of the United Nations shall take appropriate effective steps whenever necessary to prevent the frustration of this objective;

(d) The serious consideration of the practical and urgent steps, as described in the paragraphs above, required for the implementation of the proposal to establish a nuclear-weapon-free zone in the Middle East, in accordance with the relevant General Assembly resolutions, where all parties directly concerned have expressed their support for the concept and where the danger of nuclear-weapon proliferation exists. The establishment of a nuclear-weapon-free zone in the Middle East would greatly enhance international peace and security. Pending the establishment of such a zone in the region, States of the region should solemnly declare that they will refrain on a reciprocal basis from producing, acquiring or in any other way possessing nuclear weapons and nuclear explosive devices, and from permitting the stationing of nuclear weapons on their territory by any third party and agree to place all their nuclear activities under International Atomic Energy Agency safeguards. Consideration should be given to a Security Council role in advancing the establishment of a nuclear-weapon-free zone in the Middle East;

(e) All States in the region of South Asia have expressed their determination to keep their countries free of nuclear weapons. No action should be taken by them which might deviate from that objective. In this context, the question of

^{3/} United Nations, Treaty Series, vol. 634, No. 9068.

establishing a nuclear-weapon-free zone in South Asia has been dealt with in several resolutions of the General Assembly, which is keeping the subject under consideration.

64. The establishment of zones of peace in various regions of the world under appropriate conditions, to be clearly defined and determined freely by the States concerned in the zone, taking into account the characteristics of the zone and the principles of the Charter of the United Nations, and in conformity with international law, can contribute to strengthening the security of States within such zones and to international peace and security as a whole. In this regard, the General Assembly notes the proposals for the establishment of zones of peace inter alia, in:

(a) South-East Asia where States in the region have expressed interest in the establishment of such a zone, in conformity with their views;

(b) The Indian Ocean, taking into account the deliberations of the General Assembly and its relevant resolutions and the need to ensure the maintenance of peace and security in the region.

65. It is imperative as an integral part of the effort to halt and reverse the arms race to prevent the proliferation of nuclear weapons. The goal of nuclear non-proliferation is on the one hand to prevent the emergence of any additional nuclear-weapon States besides the existing five nuclear-weapon States, and on the other progressively to reduce and eventually eliminate nuclear weapons altogether. This involves obligations and responsibilities on the part of both nuclear-weapon States and non-nuclear-weapon States, the former undertaking to stop the nuclear arms race and to achieve nuclear disarmament by urgent application of the measures outlined in the relevant paragraphs of this Final Document, and all States undertaking to prevent the spread of nuclear weapons.

66. Effective measures can and should be taken at the national level and through international agreements to minimize the danger of the proliferation of nuclear weapons without jeopardizing energy supplies or the development of nuclear energy for peaceful purposes. Therefore, the nuclear-weapon States and the non-nuclear-weapon States should jointly take further steps to develop an international consensus of ways and means, on a universal and non-discriminatory basis, to prevent the proliferation of nuclear weapons.

67. Full implementation of all the provisions of existing instruments on non-proliferation, such as the Treaty on the Non-Proliferation of Nuclear Weapons 4/ and/or the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco) by States parties to those instruments will be an important contribution to this end. Adherence to such instruments has increased in recent years and the hope has been expressed by the parties that this trend might continue.

68. Non-proliferation measures should not jeopardize the full exercise of the inalienable rights of all States to apply and develop their programmes for the peaceful uses of nuclear energy for economic and social development in conformity with their priorities, interests and needs. All States should also have access to and be free to acquire technology, equipment and materials for peaceful uses of nuclear energy, taking into account the particular needs of the developing countries. International co-operation in this field should be under agreed and appropriate international safeguards applied through the International Atomic Energy Agency on a non-discriminatory basis in order to prevent effectively the proliferation of nuclear weapons.

69. Each country's choices and decisions in the field of the peaceful uses of nuclear energy should be respected without jeopardizing their respective fuel

4/ General Assembly resolution 2373 (XXII), annex.

peaceful use of nuclear energy, agreements and contracts for the peaceful use of nuclear energy, provided that the agreed safeguard measures mentioned above are applied.

70. In accordance with the principles and provisions of General Assembly resolution 32/50 of 8 December 1977, international co-operation for the promotion of the transfer and utilization of nuclear technology for economic and social development, especially in the developing countries, should be strengthened.

71. Efforts should be made to conclude the work of the International Nuclear Fuel Cycle Evaluation strictly in accordance with the objectives set out in the final communiqué of its Organizing Conference. 5/

72. All States should adhere to the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925. 6/

73. All States which have not yet done so should consider adhering to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction.

74. States should also consider the possibility of adhering to multilateral agreements concluded so far in the disarmament field which are mentioned below in this section.

75. The complete and effective prohibition of the development, production and stockpiling of all chemical weapons and their destruction represent one of the most urgent measures of disarmament. Consequently, conclusion of a convention to this end, on which negotiations have been going on for several years, is one of the most urgent tasks of multilateral negotiations. After its conclusion, all States should contribute to ensuring the broadest possible application of the convention through its early signature and ratification.

76. A convention should be concluded prohibiting the development, production, stockpiling and use of radiological weapons.

77. In order to help prevent a qualitative arms race and so that scientific and technological achievements may ultimately be used solely for peaceful purposes, effective measures should be taken to avoid the danger and prevent the emergence of new types of weapons of mass destruction based on new scientific principles and achievements. Efforts should be appropriately pursued aiming at the prohibition of such new types and new systems of weapons of mass destruction. Specific agreements could be concluded on particular types of new weapons of mass destruction which may be identified. This question should be kept under continuing review.

78. The Committee on Disarmament should keep under review the need for a further prohibition of military or any other hostile use of environmental modification techniques in order to eliminate the dangers to mankind from such use.

79. In order to promote the peaceful use of and to avoid an arms race on the sea-bed and the ocean floor and in the subsoil thereof, the Committee on Disarmament is requested -- in consultation with the States parties to the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof, 7/ and taking into account the proposals made during the 1977 Review Conference of

5/ See A/C.1/32/7.

6/ League of Nations, Treaty Series, vol. XCIV (1929), No. 2138.

7/ General Assembly resolution 2660 (XXV), annex.

the parties to that Treaty and any relevant technological developments - to proceed promptly with the consideration of further measures in the field of disarmament for the prevention of an arms race in that environment.

80. In order to prevent an arms race in outer space, further measures should be taken and appropriate international negotiations held in accordance with the spirit of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. 8/

81. Together with negotiations on nuclear disarmament measures, the limitation and gradual reduction of armed forces and conventional weapons should be resolutely pursued within the framework of progress towards general and complete disarmament. States with the largest military arsenals have a special responsibility in pursuing the process of conventional armaments reductions.

82. In particular the achievement of a more stable situation in Europe at a lower level of military potential on the basis of approximate equality and parity, as well as on the basis of undiminished security of all States with full respect for security interests and independence of States outside military alliances, by agreement on appropriate mutual reductions and limitations would contribute to the strengthening of security in Europe and constitute a significant step towards enhancing international peace and security. Current efforts to this end should be continued most energetically.

83. Agreements or other measures should be resolutely pursued on a bilateral, regional and multilateral basis with the aim of strengthening peace and security at a lower level of forces, by the limitation and reduction of armed forces and of conventional weapons, taking into account the need of States to protect their security, bearing in mind the inherent right of self-defence embodied in the Charter of the United Nations and without prejudice to the principle of equal rights and self-determination of peoples in accordance with the Charter, and the need to ensure balance at each stage and undiminished security of all States. Such measures might include those in the following two paragraphs.

84. Bilateral, regional and multilateral consultations and conferences where appropriate conditions exist with the participation of all the countries concerned for the consideration of different aspects of conventional disarmament such as the initiative envisaged in the Declaration of Ayacucho subscribed to by eight Latin American countries on 9 December 1974. 9/

85. Consultations should be carried out among major arms supplier and recipient countries on the limitation of all types of international transfer of conventional weapons, based in particular on the principle of undiminished security of the parties with a view to promoting or enhancing stability at a lower military level, taking into account the need of all States to protect their security as well as the inalienable right to self-determination and independence of peoples under colonial or foreign domination and the obligations of States to respect that right, in accordance with the Charter of the United Nations and the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States.

86. The United Nations Conference on Prohibitions or Restrictions of Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, to be held in 1979, should seek agreement, in the light of humanitarian and military considerations, on the prohibition or restriction of use of certain conventional weapons including those which may cause unnecessary suffering or have indiscriminate effects. The Conference should

8/ General Assembly resolution 2222 (XXI), annex.

9/ See A/10044, annex.

consider specific categories of such weapons, including those which were the subject-matter of previously conducted discussions.

87. All States are called upon to contribute towards carrying out this task.

88. The result of the Conferences should be considered by all States, and especially producer States, in regard to the question of the transfer of such weapons to other States.

89. Gradual reduction of military budgets on a mutually agreed basis, for example, in absolute figures or in terms of percentage points, particularly by nuclear-weapon States and other militarily significant States, would be a measure that would contribute to the curbing of the arms race and would increase the possibilities of reallocation of resources now being used for military purposes to economic and social development, particularly for the benefit of the developing countries. The basis for implementing this measure will have to be agreed by all participating States and will require ways and means of its implementation acceptable to all of them, taking account of the problems involved in assessing the relative significance of reductions as among different States and with due regard to the proposals of States on all the aspects of reduction of military budgets.

90. The General Assembly should continue to consider what concrete steps should be taken to facilitate the reduction of military budgets, bearing in mind the relevant proposals and documents of the United Nations on this question.

91. In order to facilitate the conclusion and effective implementation of disarmament agreements and to create confidence, States should accept appropriate provisions for verification in such agreements.

92. In the context of international disarmament negotiations, the problem of verification should be further examined and adequate methods and procedures in this field be considered. Every effort should be made to develop appropriate methods and procedures which are non-discriminatory and which do not unduly interfere with the internal affairs of other States or jeopardize their economic and social development.

93. In order to facilitate the process of disarmament, it is necessary to take measures and pursue policies to strengthen international peace and security and to build confidence among States. Commitment to confidence-building measures could significantly contribute to preparing for further progress in disarmament. For this purpose, measures such as the following, and other measures yet to be agreed upon, should be undertaken:

(a) The prevention of attacks which take place by accident, miscalculation or communications failure by taking steps to improve communications between Governments, particularly in areas of tension, by the establishment of "hot lines" and other methods of reducing the risk of conflict;

(b) States should assess the possible implications of their military research and development for existing agreements as well as for further efforts in the field of disarmament;

(c) The Secretary-General shall periodically submit reports to the General Assembly on the economic and social consequences of the arms race and its extremely harmful effects on world peace and security.

94. In view of the relationship between expenditure on armaments and economic and social development and the necessity to release real resources now being used for military purposes to economic and social development in the world, particularly for the benefit of the developing countries, the Secretary-General should, with the assistance of a group of qualified governmental experts appointed by him, initiate an expert study on the relationship between disarmament and development. The Secretary-General should submit an interim report on the subject to the General

Assembly at its thirty-fourth session and submit the final results to the Assembly at its thirty-sixth session for subsequent action.

95. The expert study should have the terms of reference contained in the report of the Ad Hoc Group on the Relationship between Disarmament and Development 10/ appointed by the Secretary-General in accordance with General Assembly resolution 32/38 A of 12 December 1977. It should investigate the three main areas listed in the report, bearing in mind the United Nations studies previously carried out. The study should be made in the context of how disarmament can contribute to the establishment of the new international economic order. The study should be forward-looking and policy-oriented and place special emphasis on both the desirability of a reallocation, following disarmament measures, of resources now being used for military purposes to economic and social development, particularly for the benefit of the developing countries and the substantive feasibility of such a reallocation. A principal aim should be to produce results that could effectively guide the formulation of practical measures to reallocate those resources at the local, national, regional and international levels.

96. Taking further steps in the field of disarmament and other measures aimed at promoting international peace and security would be facilitated by carrying out studies by the Secretary-General in this field with appropriate assistance from governmental or consultant experts.

97. The Secretary-General shall, with the assistance of consultant experts appointed by him, continue the study of the interrelationship between disarmament and international security requested in Assembly resolution 32/37 C of 12 December 1977 and submit it to the thirty-fourth session of the General Assembly.

98. The thirty-third and subsequent sessions of the General Assembly should determine the specified guidelines for carrying out studies, taking into account the proposals already submitted including those made by individual countries at the special session, as well as other proposals which can be introduced later in this field. In doing so, the Assembly would take into consideration a report on these matters prepared by the Secretary-General.

99. In order to mobilize world public opinion on behalf of disarmament, the specific measures set forth below, designed to increase the dissemination of information about the armaments race and the efforts to halt and reverse it, should be adopted.

100. Governmental and non-governmental information organs and those of the United Nations and its specialized agencies should give priority to the preparation and distribution of printed and audio-visual material relating to the danger represented by the armaments race as well as to the disarmament efforts and negotiations on specific disarmament measures.

101. In particular, publicity should be given to the Final Document of the tenth special session.

102. The General Assembly proclaims the week starting 24 October, the day of the foundation of the United Nations, as a week devoted to fostering the objectives of disarmament.

103. To encourage study and research on disarmament, the United Nations Centre for Disarmament should intensify its activities in the presentation of information concerning the armaments race and disarmament. Also, the United Nations Educational, Scientific and Cultural Organization is urged to intensify its activities aimed at facilitating research and publications on disarmament, related to its fields of competence, especially in developing countries, and should disseminate the results of such research.

104. Throughout this process of disseminating information about developments in the disarmament field of all countries, there should be increased participation by non-governmental organizations concerned with the matter, through closer liaison between them and the United Nations.

105. Member States should be encouraged to ensure a better flow of information with regard to the various aspects of disarmament to avoid dissemination of false and tendentious information concerning armaments, and to concentrate on the danger of escalation of the armaments race and on the need for general and complete disarmament under effective international control.

106. With a view to contributing to a greater understanding and awareness of the problems created by the armaments race and of the need for disarmament, Governments and governmental and non-governmental international organizations are urged to take steps to develop programmes of education for disarmament and peace studies at all levels.

107. The General Assembly welcomes the initiative of the United Nations Educational Scientific and Cultural Organization in planning to hold a world congress on disarmament education and, in this connexion, urges that Organization to step up its programme aimed at the development of disarmament education as a distinct field of study through the preparation, *inter alia*, of teachers' guides, textbooks, readers and audio-visual materials. Member States should take all possible measures to encourage the incorporation of such materials in the curricula of their educational institutes.

108. In order to promote expertise in disarmament in more Member States, particularly in the developing countries, the General Assembly decides to establish a programme of fellowships on disarmament. The Secretary-General, taking into account the proposal submitted to the special session, should prepare guidelines for the programme. He should also submit the financial requirements of 20 fellowships to the General Assembly at its thirty-third session for inclusion in the regular budget of the United Nations, bearing in mind the savings that can be made within the existing budgetary appropriations.

109. Implementation of these priorities should lead to general and complete disarmament under effective international control, which remains the ultimate goal of all efforts exerted in the field of disarmament. Negotiations on general and complete disarmament shall be conducted concurrently with negotiations on partial measures of disarmament. With this purpose in mind, the Committee on Disarmament will undertake the elaboration of a comprehensive programme of disarmament encompassing all measures thought to be advisable in order to ensure that the goal of general and complete disarmament under effective international control becomes a reality in a world in which international peace and security prevail and in which the new international economic order is strengthened and consolidated. The comprehensive programme should contain appropriate procedures for ensuring that the General Assembly is kept fully informed of the progress of the negotiations including an appraisal of the situation when appropriate and, in particular, a continuing review of the implementation of the programme.

110. Progress in disarmament should be accompanied by measures to strengthen institutions for maintaining peace and the settlement of international disputes by peaceful means. During and after the implementation of the programme of general and complete disarmament, there should be taken, in accordance with the principles of the Charter of the United Nations, the necessary measures to maintain international peace and security, including the obligation of States to place at the disposal of the United Nations agreed manpower necessary for an international peace force to be equipped with agreed types of armaments. Arrangements for the use of this force should ensure that the United Nations can effectively deter or suppress any threat or use of arms in violation of the purposes and principles of the United Nations.

111. General and complete disarmament under strict and effective international

control shall permit States to have at their disposal only those non-nuclear forces, armaments, facilities and establishments as are agreed to be necessary to maintain internal order and protect the personal security of citizens and in order that States shall support and provide agreed manpower for a United Nations peace force.

112. In addition to the several questions dealt with in this Programme of Action, there are a few others of fundamental importance, on which, because of the complexity of the issues involved and the short time at the disposal of the special session, it has proved impossible to reach satisfactory agreed conclusions. For those reasons they are treated only in very general terms and, in a few instances, not even treated at all in the Programme. It should be stressed, however, that a number of concrete approaches to deal with such questions emerged from the exchange of views carried out in the General Assembly which will undoubtedly facilitate the continuation of the study and negotiation of the problems involved in the competent disarmament organs.

IV. MACHINERY

113. While disarmament, particularly in the nuclear field, has become a necessity for the survival of mankind and for the elimination of the danger of nuclear war, little progress has been made since the end of the Second World War. In addition to the need to exercise political will, the international machinery should be utilized more effectively and also improved to enable implementation of the Programme of Action and help the United Nations to fulfil its role in the field of disarmament. In spite of the best efforts of the international community, adequate results have not been produced with the existing machinery. There is, therefore, an urgent need that existing disarmament machinery be revitalized and forums appropriately constituted for disarmament deliberations and negotiations with a better representative character. For maximum effectiveness, two kinds of bodies are required in the field of disarmament - deliberative and negotiating. All Member States should be represented on the former, whereas the latter, for the sake of convenience, should have a relatively small membership.

114. The United Nations, in accordance with the Charter, has a central role and primary responsibility in the sphere of disarmament. Accordingly, it should play a more active role in this field and, in order to discharge its functions effectively, the United Nations should facilitate and encourage all disarmament measures - unilateral, bilateral, regional or multilateral - and be kept duly informed through the General Assembly, or any other appropriate United Nations channel reaching all Members of the Organization, of all disarmament efforts outside its aegis without prejudice to the progress of negotiations.

115. The General Assembly has been and should remain the main deliberative organ of the United Nations in the field of disarmament and should make every effort to facilitate the implementation of disarmament measures. An item entitled "Review of the implementation of the recommendations and decisions adopted by the General Assembly at its tenth special session" shall be included in the provisional agenda of the thirty-third and subsequent sessions of the General Assembly.

116. Draft multilateral disarmament conventions should be subjected to the normal procedures applicable in the law of treaties. Those submitted to the General Assembly for its commendation should be subject to full review by the Assembly.

117. The First Committee of the General Assembly should deal in the future only with questions of disarmament and related international security questions.

118. The General Assembly establishes, as successor to the Commission originally established by resolution 502 (VI) of 11 January 1952 a Disarmament Commission, composed of all States Members of the United Nations, and decides that:

(a) The Disarmament Commission shall be a deliberative body, a subsidiary organ of the General Assembly, the function of which shall be to consider and make recommendations on various problems in the field of disarmament and to follow up the relevant decisions and recommendations of the special session devoted to disarmament. The Disarmament Commission should, inter alia, consider the elements of a comprehensive programme for disarmament to be submitted as recommendations to the General Assembly and, through it, to the negotiating body, the Committee on Disarmament

(b) The Disarmament Commission shall function under the rules of procedure relating to the committees of the General Assembly with such modifications as the Commission may deem necessary and shall make every effort to ensure that, in so far as possible, decisions on substantive issues be adopted by consensus;

(c) The Disarmament Commission shall report annually to the General Assembly and will submit for consideration by the Assembly at its thirty-third session a report on organizational matters; in 1979, the Disarmament Commission will meet for a period not exceeding four weeks, the dates to be decided at the thirty-third session of the Assembly;

(d) The Secretary-General shall furnish such experts, staff and services as are necessary for the effective accomplishment of the Commission's functions.

119. A second special session of the General Assembly devoted to disarmament should be held on a date to be decided by the Assembly at its thirty-third session.

120. The General Assembly is conscious of the work that has been done by the international negotiating body that has been meeting since 14 March 1962 as well as the considerable and urgent work that remains to be accomplished in the field of disarmament. The Assembly is deeply aware of the continuing requirement for a single multilateral disarmament negotiating forum of limited size taking decisions on the basis of consensus. It attaches great importance to the participation of all the nuclear-weapon States in an appropriately constituted negotiating body, the Committee on Disarmament. The Assembly welcomes the agreement reached following appropriate consultations among the Member States during the special session of the General Assembly devoted to disarmament that the Committee on Disarmament will be open to the nuclear-weapon States, and thirty-two to thirty-five other States to be chosen in consultation with the President of the thirty-second session of the Assembly; that the membership of the Committee on Disarmament will be reviewed at regular intervals; that the Committee on Disarmament will be convened in Geneva not later than January 1979 by the country whose name appears first in the alphabetical list of membership; and that the Committee on Disarmament will:

(a) Conduct its work by consensus;

(b) Adopt its own rules of procedure;

(c) Request the Secretary-General of the United Nations, following consultations with the Committee on Disarmament, to appoint the Secretary of the Committee, who shall also act as his personal representative, to assist the Committee and its Chairman in organizing the business and time-tables of the Committee;

(d) Rotate the chairmanship of the Committee among all its members on a monthly basis;

(e) Adopt its own agenda taking into account the recommendations made to it by the General Assembly and the proposals presented by the members of the Committee;

(f) Submit a report to the General Assembly annually, or more frequently as appropriate, and provide its formal and other relevant documents to the States Members of the United Nations on a regular basis;

(g) Make arrangements for interested States, not members of the Committee, to submit to the Committee written proposals or working documents on measures of disarmament that are the subject of negotiation in the Committee and to participate in the discussion of the subject-matter of such proposals or working documents;

(h) Invite States not members of the Committee, upon their request, to express views in the Committee when the particular concerns of those States are under discussion;

(i) Open its plenary meetings to the public unless otherwise decided.

121. Bilateral and regional disarmament negotiations may also play an important role and could facilitate negotiations of multilateral agreements in the field of disarmament.

122. At the earliest appropriate time, a world disarmament conference should be convened with universal participation and with adequate preparation.

123. In order to enable the United Nations to continue to fulfil its role in the field of disarmament and to carry out the additional tasks assigned to it by this special session, the United Nations Centre for Disarmament should be adequately strengthened and its research and information functions accordingly extended. The Centre should also take account fully of the possibilities offered by specialized agencies and other institutions and programmes within the United Nations system with regard to studies and information on disarmament. The Centre should also increase contacts with non-governmental organizations and research institutions in view of the valuable role they play in the field of disarmament. This role could be encouraged also in other ways that may be considered as appropriate.

124. The Secretary-General is requested to set up an advisory board of eminent persons, selected on the basis of their personal expertise and taking into account the principle of equitable geographical representation, to advise him on various aspects of studies to be made under the auspices of the United Nations in the field of disarmament and arms limitation, including a programme of such studies.

* * *

125. The General Assembly notes with satisfaction that the active participation of the Member States in the consideration of the agenda items of the special session and the proposals and suggestions submitted by them and reflected to a considerable extent in the Final Document have made a valuable contribution to the work of the special session and to its positive conclusion. Since a number of those proposals and suggestions, 11/ which have become an integral part of the work of the special session of the General Assembly, deserve to be studied further and more thoroughly, taking into consideration the many relevant comments and observations made in both the general debate of the plenary and the deliberations of the Ad Hoc Committee of the Tenth Special Session, the Secretary-General is requested to transmit, together with this Final Document, to the appropriate deliberative and negotiating organs dealing with the questions of disarmament all the official records of the special session devoted to disarmament, in accordance with the recommendations which the Assembly may adopt at its thirty-third session. Some of the proposals put forth for the consideration of the special session are listed below:

(a) Text of the decision of the Central Committee of the Romanian Communist Party concerning Romania's position on disarmament and, in particular, on nuclear disarmament, adopted on 9 May 1978; 12/

11/ See A/S-10/PV.1-25, A/S-10/1-14 and 17, A/S-10/AC.1/PV.1-16, A/S-10/AC.1/1-40, A/S-10/AC.1/L.1-17.

12/ A/S-10/14.

(b) Views of the Swiss Government on problems to be discussed at the tenth special session of the General Assembly; 13/

(c) Proposals of the Union of Soviet Socialist Republics on practical measures for ending the arms race; 14/

(d) Memorandum from France concerning the establishment of an International Satellite Monitoring Agency; 15/

(e) Memorandum from France concerning the establishment of an International Institute for Research on Disarmament; 16/

(f) Proposal by Sri Lanka for the establishment of a World Disarmament Authority; 17/

(g) Working paper submitted by the Federal Republic of Germany entitled "Contribution to the seismological verification of a comprehensive test ban"; 18/

(h) Working paper submitted by the Federal Republic of Germany entitled "Invitation to attend an international chemical-weapon verification workshop in the Federal Republic of Germany"; 19/

(i) Working paper submitted by China on disarmament; 20/

(j) Working paper submitted by the Federal Republic of Germany concerning zones of confidence-building measures as a first step towards the preparation of a world-wide convention on confidence-building measures; 21/

(k) Proposal by Ireland for a study of the possibility of establishing a system of incentives to promote arms control and disarmament; 22/

(l) Working paper submitted by Romania concerning a synthesis of the proposals in the field of disarmament; 23/

(m) Proposal by the United States of America on the establishment of a United Nations Peace-keeping Reserve and on confidence-building measures and stabilizing measures in various regions, including notification of manoeuvres, invitation of observers to manoeuvres, and United Nations machinery to study and promote such measures; 24/

13/ A/S-10/AC.1/2.

14/ A/S-10/AC.1/4.

15/ A/S-10/AC.1/7.

16/ A/S-10/AC.1/8.

17/ A/S-10/AC.1/9 and Add.1.

18/ A/S-10/AC.1/12.

19/ A/S-10/AC.1/13.

20/ A/S-10/AC.1/17.

21/ A/S-10/AC.1/20.

22/ A/S-10/AC.1/21.

23/ A/S-10/AC.1/23.

24/ A/S-10/AC.1/24.

(n) Proposal by Uruguay on the possibility of establishing a polemological agency; 25/

(o) Proposal by Belgium, Canada, Denmark, Germany, Federal Republic of, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom of Great Britain and Northern Ireland and the United States of America on the strengthening of the security role of the United Nations in the peaceful settlement of disputes and peace-keeping; 26/

(p) Memorandum from France concerning the establishment of an International Disarmament Fund for Development; 27/

(q) Proposal by Norway entitled "Evaluation of the impact of new weapons on arms control and disarmament efforts"; 28/

(r) Note verbale transmitting the text, signed in Washington on 22 June 1978 by the Ministers for Foreign Affairs of Argentina, Bolivia, Chile, Colombia, Ecuador, Panama, Peru and Venezuela, reaffirming the principles of the Declaration of Ayacucho with respect to the limitation of conventional weapons; 29/

(s) Memorandum from Liberia entitled "Declaration of a new philosophy on disarmament"; 30/

(t) Statements made by the representatives of China, on 22 June 1978, on the draft Final Document of the tenth special session; 31/

(u) Proposal by the President of Cyprus for the total demilitarization and disarmament of the Republic of Cyprus and the implementation of the resolutions of the United Nations; 32/

(v) Proposal by Costa Rica on economic and social incentives to halt the arms race; 33/

(w) Amendments submitted by China to the draft Final Document of the tenth special session; 34/

(x) Proposals by Canada for the implementation of a strategy of suffocation of the nuclear arms race; 35/

(y) Draft resolution submitted by Cyprus, Ethiopia and India on the urgent need for cessation of further testing of nuclear weapons; 36/

25/ A/S-10/AC.1/25.

26/ A/S-10/AC.1/26 and Corr.1 and 2.

27/ A/S-10/AC.1/28.

28/ A/S-10/AC.1/31.

29/ A/S-10/AC.1/34.

30/ A/S-10/AC.1/35.

31/ A/S-10/AC.1/36.

32/ A/S-10/AC.1/39.

33/ A/S-10/AC.1/40.

34/ A/S-10/AC.1/L.2-4, A/S-10/AC.1/L.7 and 8.

35/ A/S-10/AC.1/L.6.

36/ A/S-10/AC.1/L.10.

(z) Draft resolution submitted by Ethiopia and India on the non-use of nuclear weapons and prevention of nuclear war; 37/

(aa) Proposal by the non-aligned countries on the establishment of a zone of peace in the Mediterranean; 38/

(bb) Proposal by the Government of Senegal for a tax on military budgets; 39/

(cc) Proposal by Austria for the transmission to Member States of working paper A/AC.187/109 and the ascertainment of their views on the subject of verification; 40/

(dd) Proposal by the non-aligned countries for the dismantling of foreign military bases in foreign territories and withdrawal of foreign troops from foreign territories; 41/

(ee) Proposal by Mexico for the opening, on a provisional basis, of an ad hoc account in the United Nations Development Programme to use for development the funds which may be released as a result of disarmament measures; 42/

(ff) Proposal by Italy on the role of the Security Council in the field of disarmament in accordance with Article 26 of the Charter of the United Nations; 43/

(gg) Proposal by the Netherlands for a study on the establishment of an international disarmament organization. 44/

126. In adopting this Final Document, the States Members of the United Nations solemnly reaffirm their determination to work for general and complete disarmament and to make further collective efforts aimed at strengthening peace and international security; eliminating the threat of war, particularly nuclear war; implementing practical measures aimed at halting and reversing the arms race; strengthening the procedures for the peaceful settlement of disputes; and reducing military expenditures and utilizing the resources thus released in a manner which will help to promote the well-being of all peoples and to improve the economic conditions of the developing countries.

127. The General Assembly expresses its satisfaction that the proposals submitted to its special session devoted to disarmament and the deliberations thereon have made it possible to reaffirm and define in this Final Document fundamental principles, goals, priorities and procedures for the implementation of the above purposes, either in the Declaration or the Programme of Action or in both. The Assembly also welcomes the important decisions agreed upon regarding the deliberative and negotiating machinery and is confident that these organs will discharge their functions in an effective manner.

128. Finally, it should be borne in mind that the number of States that participated in the general debate, as well as the high level of representation and the depth and scope of that debate, are unprecedented in the history of disarmament efforts. Several Heads of State or Government addressed the General Assembly. In addition, other Heads of State or Government sent messages and

37/ A/S-10/AC.1/L.11.

38/ A/S-10/AC.1/37, para. 72.

39/ A/S-10/AC.1/37, para. 101.

40/ A/S-10/AC.1/37, para. 113.

41/ A/S-10/AC.1/37, para. 126.

42/ A/S-10/AC.1/37, para. 141.

43/ A/S-10/AC.1/37, para. 179.

44/ A/S-10/AC.1/37, para. 186.

expressed their good wishes for the success of the special session of the Assembly. Several high officials of specialized agencies and other institutions and programmes within the United Nations system and spokesmen of twenty-five non-governmental organizations and six research institutes also made valuable contributions to the proceedings of the session. It must be emphasized, moreover, that the special session marks not the end but rather the beginning of a new phase of the efforts of the United Nations in the field of disarmament.

129. The General Assembly is convinced that the discussions of the disarmament problems at the special session and its Final Document will attract the attention of all peoples, further mobilize world public opinion and provide a powerful impetus for the cause of disarmament.

27th plenary meeting
30 June 1978

SALT II Agreement

Selected Documents No. 12A

Vienna, June 18, 1979

United States Department of State
Bureau of Public Affairs

Washington, D.C.

President Carter Addresses the Congress on the SALT II Treaty

Address before a joint session of the Congress on June 18, 1979.

The truth of the nuclear age is that the United States and the Soviet Union must live in peace, or we may not live at all. From the beginning of history, the fortunes of men and nations were made and unmade in unending cycles of war and peace. Combat was often the measure of human courage. Willingness to risk war was the mark of statecraft.

My fellow Americans, that pattern of war must now be broken forever. Between nations armed with thousands of thermonuclear weapons—each one capable of causing unimaginable destruction—there can be no more cycles of both war and peace. There can only be peace.

About 2 hours ago, I returned from 3 days of intensive talks with President Leonid Brezhnev of the Soviet Union. I come here tonight to meet with you in a spirit of patience, of hope, and of reason and responsibility.

- **Patience**—because the way is long and hard, and the obstacles ahead are at least as great as those that have been overcome in the last 30 years of diligent and dedicated work.

- **Hope**—because I'm thankful to be able to report to you tonight that real progress has been made.

- **Reason and responsibility**—because both will be needed in full measure if the promise which has been awakened in Vienna is to be fulfilled, and the way is to be opened for the next phase in the struggle for a safe and a sane Earth.

Nothing will more strongly affect the outcome of that struggle than the relationship between the two predominant military powers in the world, the United States of America and the Soviet Union.

The talks in Vienna were important in themselves. But their truest significance was as a part of a process—a process that, as you well know, began long before I became President.

This is the 10th time since the end of World War II when the leader of the United States and the leader of the Soviet Union have met at a summit conference. During these past 3 days, we've moved closer to a goal of stability and security in Soviet-American relationships. That has been the purpose of American policy ever since the rivalry between the United States and the Soviet Union became a central fact in international relations more than a generation ago at the end of World War II.

With the support of the Congress of the United States and with the support of the people of this nation, every

President throughout this period has sought to reduce the most dangerous elements of the Soviet-American competition. While the United States still had an absolute nuclear monopoly, President Truman sought to place control of the atomic bomb under international authority. President Eisenhower made the first efforts to control nuclear testing. President Kennedy negotiated with the Soviet Union prohibition against atmospheric testing of nuclear explosives. President Johnson broadened the area of negotiations for the first time to include atomic weapons themselves. President Nixon concluded the first strategic arms limitation agreement, SALT I. President Ford negotiated the Vladivostok accords. You can see that this is a vital and a continuing process.

Importance of SALT II

Later this week I will deliver to the U.S. Senate the complete and signed text of the second strategic arms limitation agreement—SALT II. This treaty is the product of 7 long years of tough, painstaking negotiation under the leadership of three different Presidents. When ratified, it will be a truly national achievement—an achievement of the Executive and of the Congress, an achievement of civilians and of our military leaders, of liberals and conservatives, of Democrats and Republicans.

Of course, SALT II will not end the competition between the United States and the Soviet Union. That competition is based on fundamentally different visions of human society and human destiny. As long as that basic difference persists, there will always be some degree of tension in the relationship between our two countries.

The United States has no fear of this rivalry. But we want it to be peaceful. In any age, such rivalry risks degeneration into war, but our age is unique, for the terrible power of nuclear weapons has created an incentive that never existed before for avoiding war. This tendency transcends even the

very deep differences of politics and philosophy. In the age of the hydrogen bomb, there is no longer any meaningful distinction between global war and global suicide.

Our shared understanding of these realities has given the world an interval of peace—a kind of a strange peace, marked by tension, marked by danger, marked even sometimes by regional conflict, but a kind of peace nonetheless. In the 27 years before Hiroshima, the leading powers of the world were twice engulfed in total war. In the 34 years since Hiroshima, humanity has by no means been free of armed conflict. Yet at least we have avoided a world war.

Yet this kind of twilight peace carries the ever-present danger of a catastrophic nuclear war, a war that in horror and destruction and massive death would dwarf all the combined wars of man's long and bloody history.

We must prevent such a war. We absolutely must prevent such a war.

To keep the peace, to prevent the war, we must have strong military forces, we must have strong alliances, we must have a strong national resolve—so strong that no potential adversary would dare be tempted to attack our country. We have that strength—and the strength of the United States is not diminishing, the strength of our great country is growing, and I thank God for it.

Yet, for these same reasons—in order to keep the peace—we must prevent an uncontrolled and pointless nuclear arms race that would damage the security of all countries, including our own, by exposing the world to an ever greater risk of war through instability and through tension and through uncertainty about the future.

That's why the new strategic arms limitation treaty is so important. SALT II will undoubtedly become the most exhaustively discussed and debated treaty of our time, perhaps of all times. The Secretary of State, the Secretary of Defense, the members of the Joint Chiefs of Staff, the Director of

Arms Control and Disarmament Agency, and many others who hammered out this treaty will testify for it before the Senate, in detail, and in public. As President of our country, I will explain it throughout our nation, to every American who will listen. This treaty will withstand the most severe scrutiny because it is so clearly in the interest of American security and of world peace.

SALT II is the most detailed, far-reaching, comprehensive treaty in the history of arms control. Its provisions are interwoven by the give and take of the long negotiating process. Neither side obtained everything it sought. But the package that did emerge is a carefully balanced whole, and it will make the world a safer place for both sides.

The restrictions on strategic nuclear weapons are complex because these weapons represent the highest development of the complicated technical skills of two great nations. But the basic realities underlying this treaty—and the thrust of the treaty itself—are not so complex. When all is said and done, SALT II is a matter of common sense.

The SALT II treaty reduces the danger of nuclear war. For the first time it places equal ceilings on the strategic arsenals of both sides, ending a previous numerical imbalance in favor of the Soviet Union.

SALT II preserves our options to build the forces we need to maintain that strategic balance. The treaty enhances our own ability to monitor what the Soviet Union is doing. And it leads directly to the next step in more effectively controlling nuclear weapons.

Again, SALT II does not end the arms competition, but it does make that competition safer and more predictable, with clear rules and verifiable limits where otherwise there would be no rules and there would be no limits.

It's in our interest because it slows down—it even reverses—the momentum of the Soviet arms buildup that has been of such great concern to all of us.

Under this new treaty, the Soviet Union will be held to a third fewer strategic missile launchers and bombers by 1985 than they would have—simply by continuing to build at their present rate.

With SALT II, the numbers of warheads on missiles, their throw-weight, and the qualitative development of new missiles will all be limited. The Soviet Union will have to destroy or dismantle some 250 strategic missile systems—systems such as nuclear submarines armed with relatively new missiles, built in the early 1970's, and aircraft will have to be destroyed by the Soviet Union carrying their largest multimegaton bomb. Once dismantled, under the provisions of SALT II, these systems cannot be replaced.

By contrast, no operational U.S. forces will have to be reduced. For one Soviet missile alone—the SS-18—the SALT II limits will mean that some 6,000 fewer Soviet nuclear warheads can be built and aimed at our country.

SALT II limits severely for the first time the number of warheads that can be mounted on these very large missiles of the Soviet Union, cutting down their actual potential by 6,000.

With or without SALT II, we must modernize and strengthen our own strategic forces, and we are doing so, but SALT II will make this task easier, surer, and less expensive. The agreement constrains none of the reasonable programs we've planned to improve our own defenses. Moreover, it helps us to respond more effectively to our most pressing strategic problem—the prospective vulnerability in the 1980's of our land-based silo missile. The M-X missile, which has been so highly publicized, is permitted under SALT II, yet its verifiable mobile development system will enhance stability as it deprives an attacker of the confidence that a successful first-strike could be launched against the United States ICBM's, or intercontinental ballistic missiles.

Without the SALT II limits, the Soviet Union could build so many warheads that any land-based system, fixed or mobile, could be jeopardized.

With SALT II, we can concentrate more effort on preserving the balance in our own conventional and NATO forces. Without the SALT II treaty, we would be forced to spend extra billions and billions of dollars each year in a dangerous, destabilizing, unnecessary nuclear arms race.

Verification of SALT II

As I have said many times, SALT II is not based on trust. Compliance will be assured by our own nation's means of verification, including extremely sophisticated satellites, powerful electronic systems, and a vast intelligence network. Were the Soviet Union to take the enormous risk of trying to violate this treaty in any way that might affect the strategic balance, there is no doubt that we would discover it in time to respond fully and effectively.

It is the SALT II agreement itself which forbids concealment measures, many of them for the first time, forbids interference with our monitoring, and forbids the encryption or the encoding of crucial missile test information. A violation of this part of the agreement—which we would quickly detect—would be just as serious as a violation of the limits on strategic weapons themselves.

Consider these prospects for a moment:

- Suppose the Soviet leaders build a thousand additional missiles—above and beyond the ones they have now—many new, advanced, and of a formidable design. This can happen only if the SALT II treaty is defeated.

- Suppose the Soviet leaders wanted to double the number of warheads on all their existing missiles; suppose they wanted to triple the annual production rate of the Backfire bomber and greatly improve its characteristics in range and payload. These kinds of

things can happen only if the SALT II treaty is defeated.

- Suppose the Soviet Union leaders encrypt all data on their missile tests; suppose they conceal their nuclear launcher deployment rate and hide all their existing missile systems. Those things can happen only if the SALT II treaty is defeated.

SALT II is very important, but it's more than a single arms control agreement. It's part of a long historical process of gradually reducing the danger of nuclear war—a process that we in this room must not undermine.

Need for Ratification

The SALT II treaty must be judged on its own merits, and on its own merits it is a substantial gain for national security for us and the people whom we represent, and it is a gain for international stability. But it would be the height of irresponsibility to ignore other possible consequences of a failure to ratify this treaty.

These consequences would include:

- Greatly increased spending for strategic nuclear arms which we do not need;
- Greater uncertainty about the strategic balance between ourselves and the Soviet Union;
- Vastly increased danger of nuclear proliferation among other nations of the world who do not presently have nuclear explosives;
- Increased political tension between the East and the West, with greater likelihood that other inevitable problems would escalate into serious superpower confrontations.

Rejection would also be a damaging blow to the Western alliance. All of our European and other allies, including especially those who are most directly and courageously facing Soviet power, all of them, strongly support SALT II. If the Senate were to reject the treaty, America's leadership of this alliance would be compromised, and the alliance itself would be severely shaken.

In short, SALT II is not a favor we are doing for the Soviet Union. It's a deliberate, calculated move that we are making as a matter of self-interest for the United States—a move that happens to serve the goals of both security and survival, that strengthens both the military position of our own country and the cause of world peace.

And, of course, SALT II is the absolutely indispensable precondition for moving on to much deeper and more significant cuts under SALT III.

U.S.-Soviet Relationship

Although we will not begin negotiations on SALT III until SALT II goes into effect, I discussed other nuclear control issues with President Brezhnev, such as much deeper mutual reductions in nuclear-weapon inventories, stricter limit on the production of nuclear warheads and launchers, enhanced survivability and stability of missile systems that are authorized under existing SALT agreement, prenotification about missile tests and mass use or exercises of strategic bombers, and limits and controls on types of missiles which are not presently covered under any SALT agreement.

Though SALT is the most important single part of the complex relationship between the United States and the Soviet Union, it is only a part. The U.S.-Soviet relationship covers a broad range of issues, some of which bear directly on our joint responsibility to reduce the possibility of war. President Brezhnev and I discussed these issues in Vienna this morning in a long private session with only the interpreters present. I undertook all these discussions with a firm confidence in the strength of America.

Militarily our power is second to none. I'm determined that it will remain so. We will continue to have military power to deter any possible aggression, to maintain security of our country, and to permit the continuing search for peace and for the control of arms from a position of strength. We

must have that strength so that we will never be afraid to negotiate for peace.

Economically, despite serious problems of energy and inflation, we are by far the most productive nation on Earth. Along with our allies, our economic strength is three times greater than that of the Soviet Union and all its allies.

Diplomatically we've strengthened our friendships with Western Europe and Japan, with China and India, with Israel and Egypt, and with the countries of the Third World. Our alliances are stronger because they are based not on force, but on common interests and often on common values.

Politically our democratic system is an enormous advantage—not only to each of us as individuals who enjoy freedom but to all of us together because our nation is stronger. Our support of human rights, backed by the concrete example of the American society, has aligned us with peoples all over the world who yearn for freedom.

These strengths are such that we need fear no other country. This confidence in our nation helped me in Vienna as we discussed specific areas of potential either direct or indirect confrontation around the world, including places like southern Africa or the Middle East.

For instance, I made it clear to President Brezhnev that Cuban military activities in Africa, sponsored by or supported by the Soviet Union, and also the growing Cuban involvement in the problems of Central America and the Caribbean, can only have a negative impact on U.S.-Soviet relations.

Our strength, our resolve, our determination, our willingness to protect our own interests, our willingness to discuss these problems with others are the best means by which we can resolve these differences and alleviate these tests successfully for our people.

Despite disagreement, our exchange in Vienna was useful because it enabled us to clarify our positions directly to each other face-to-face and, thus,

to reduce the chances of future miscalculations on both sides.

And, finally, I would like to say to you that President Brezhnev and I developed a better sense of each other as leaders and as men. The responsibility for many decisions involving the very future of the world rests on me as the leader of this great country, and it's vital that my judgments be based on as much firsthand knowledge and experience as possible. In these conversations, I was careful to leave no doubt about either my desire for peace or my determination to defend the interests of the United States and of our allies.

I believe that together we laid a foundation on which we can build a more stable relationship between our two countries. We will seek to broaden the areas of cooperation, and we will compete where and when we must. We know how determined the Soviet leaders are to secure their inter-

ests and we are equally determined to protect and to advance our own.

We look to the future—all of us Americans look to the future—with anticipation and with confidence not only because of the vast material powers of our nation but because of the power of our nation's ideas and ideals and principles. The ultimate future of the human race lies not with tyranny but with freedom, not with war but with peace.

With that kind of vision to sustain us, we must now complete the work of ratifying this treaty, a major step in the limitation of nuclear weapons and a major step toward world peace. And then we may turn our energies not only to further progress along that path, but also more urgently to our own domestic agenda—in the knowledge that we have strengthened the security of a nation which we love and also strengthened peace for all the world.

President's Letter of Transmittal,

June 22, 1979

TO THE SENATE OF THE UNITED STATES:

I transmit herewith, for the advice and consent of the Senate to ratification, the Treaty on the Limitation of Strategic Offensive Arms, known as SALT II, including the Protocol thereto, both signed in Vienna, Austria, on June 18, 1979.

I transmit also, for the information of the Senate, the Report of the Secretary of State with respect to the Treaty, together with the following related documents:

1. a series of Agreed Statements and Common Understandings concerning the obligations of the Parties under particular articles of the Treaty;
2. a Memorandum of Understanding that will establish an agreed data base by categories of strategic offensive arms along with associated statements of current data;
3. a Joint Statement of Principles and Basic Guidelines on the Limitation of Strategic Arms concerning the next phase of negotiation on this subject; and
4. a Soviet statement on the Backfire bomber, together with a U.S. response.

For thirty years the United States has pursued a fundamentally bi-partisan foreign policy towards the Soviet Union, with the objectives of deterring aggression by maintaining strategic forces second to none, creating a pattern and tradition of negotiation to

settle differences, building a strong framework of allies, and stabilizing the globe by halting the uncontrolled growth and spread of nuclear weapons.

SALT II strengthens each of these objectives. The seven years of negotiations, under three administrations representing both political parties, were carried out in closer consultation with Congress and under greater public scrutiny than any other arms limitation treaty. SALT II is truly a national accomplishment.

It is my best judgment and firm belief that these patiently negotiated agreements further the long-standing goals for our nation's security. They improve our strategic situation and allow for further improvements in the future. They reaffirm our leadership of the world in the cause of nuclear arms control. They allow us to negotiate for peace from strength in SALT III.

Like SALT I, the Test Ban Treaty, and the Non-Proliferation Treaty, SALT II is another important step forward toward our basic goal of a secure America at peace in a stable world.

I pledge the full cooperation of my administration in helping to explain the principles and details of the agreements.

Therefore, I request with a sense of special urgency the advice and consent of the U.S. Senate to ratification of the SALT II Treaty.

JIMMY CARTER

Secretary's Letter of Submittal,

June 21, 1979

The President:

I have the honor to submit to you, with a view to transmission to the Senate for its advice and consent to ratification, the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms, and the Protocol thereto, together referred to as the SALT II Treaty.

I am enclosing with the Treaty: a series of Agreed Statements and Common Understandings, reflecting understandings and supplementary provisions associated with various articles of the Treaty; a Memorandum of Understanding and Statements of Data, which record the numbers, by category, of the strategic offensive arms of each Party that are limited by the Treaty; a Joint Statement of Principles and Basic Guidelines for the conduct of the next phase of negotiations on the limitation of strategic arms; and a Soviet statement on the Tu-22M (Backfire) bomber, along with subsequent exchanges between the two Presidents on this issue.

The SALT II Treaty and the enclosed related documents were meticulously negotiated over more than six years. In my judgment, they strengthen our national security and that of our Allies.

- For the first time, the two sides will be limited to an equal number of strategic weapon systems.

- For the first time, reductions in the number of operational Soviet weapon systems will be required.

- And for the first time, we will be

slowing the race to build new and more destructive weapons.

The Treaty limits can be adequately verified by our own national technical means. These highly sophisticated systems, such as photo-reconnaissance satellites, enable us to determine for ourselves what strategic systems the Soviets have, what new systems they test and deploy, and what existing systems they dismantle or destroy in order to bring and maintain their forces within Treaty ceilings. The Treaty establishes rules for counting strategic systems and other provisions which will simplify the task of verifying Soviet compliance.

Finally, the Treaty allows us to develop and deploy the systems we need to modernize our strategic triad—such as the Trident submarine and ballistic missiles, the cruise missile for our bombers, and a new intercontinental ballistic missile, the MX.

During these negotiations, we have consulted extensively with our Allies. Allied leaders have expressed their strong support for the SALT II Treaty as a contribution to NATO security and to stability in East-West relations.

We have also consulted closely with the Congress. Numerous Congressional hearings and briefings were held during the negotiations, and Members of the Senate and House of Representatives participated as advisers to the United States Delegation in Geneva. As you know, the Departments of State and Defense, the Arms Control and Disarmament Agency, the Joint Chiefs of Staff, the Central Intelligence Agency and the National Se-

curity Council Staff were involved in the formulation of recommendations concerning positions and policy throughout the negotiations.

A detailed analysis of the provisions of the Treaty and related documents is annexed to this report. The basic features of the Treaty, which lasts until the end of 1985, are as follows:

Numerical Limits on Strategic Systems

The Treaty imposes equal overall ceilings on the number of strategic nuclear delivery systems for both Parties. The systems limited by the ceilings consist of intercontinental ballistic missile (ICBM) launchers, submarine launched ballistic missile (SLBM) launchers, heavy bombers, and air-to-surface ballistic missiles capable of a range in excess of 600 kilometers (ASBMs).

Article III places an initial ceiling of 2,400 on these armaments; this was the level agreed at the Vladivostok summit in 1974. In addition, Article III goes beyond that level by lowering the ceiling to 2,250 beginning on January 1, 1981. At that time a Party must begin to dismantle or destroy systems which exceed that number. This process must be completed by December 31, 1981.

The Soviet Union will have to dismantle or destroy more than 250 strategic offensive systems in order to comply with the 2,250 aggregate limitation. The United States will not have to dismantle or destroy any of its operational systems.

Article V of the Treaty imposes upon each Party an equal sublimit of 1,320 for the combined number of launchers of ICBMs and SLBMs equipped with multiple independently targetable reentry vehicles (MIRVs), ASBMs equipped with MIRVs, and airplanes equipped for long-range cruise missiles (i.e., cruise missiles capable of a range of over 600 kilometers).

Article V imposes further sublimits on particular subcategories of weapons equipped with MIRVs. Each

Party is limited to a total of 1,200 launchers of MIRVed ICBMs and SLBMs, and MIRVed ASBMs. Of this number, no more than 820 may be launchers of MIRVed ICBMs.

Additional Limits on Ballistic Missiles

In addition to these overall numerical limits, the Treaty places important restrictions on fixed launchers of ICBMs, which are potentially the most destabilizing of strategic offensive arms. Under Article IV, the Parties are prohibited from constructing any additional fixed ICBM launchers, relocating existing ones, or converting launchers of light ICBMs or older heavy ICBMs into launchers of modern heavy ICBMs. Taken together, these limitations will prevent the Soviets from increasing the number of their heavy ICBM launchers.

The Treaty restricts heavy missiles in other ways. Article II of the Treaty places an upper limit on the launch-weight and throw-weight of light ICBMs by defining those missiles which exceed certain limits as heavy ICBMs. Article IX prohibits mobile launchers of heavy ICBMs, heavy SLBMs and their launchers, and heavy ASBMs. In addition, Article IV also limits the launch-weight and throw-weight of heavy ICBMs.

The Treaty also limits qualitative improvements in ICBMs. Article IV permits each Party to flight-test and deploy only one new type of ICBM, which must be "light", as defined by the Treaty. Certain key parameters of each existing ICBM type may not be varied by more than five percent, plus or minus, from previously tested missiles of that type. Under this limitation, the United States will be able to proceed with the development and deployment of its only planned new ICBM, the MX.

Limits on Numbers of Reentry Vehicles

Article IV limits the numbers of reentry vehicles on ICBMs, SLBMs and ASBMs. The Article establishes a

freeze on the maximum number of reentry vehicles permitted on existing types of ICBMs, e.g., four for the Soviet SS-17, ten for the SS-18 and six for the SS-19. The one new type of ICBM permitted to each Party may not have more than ten warheads (which is the number planned for the MX). These "fractionation" limits on ICBMs will prevent the Soviet Union from fully exploiting the larger throw-weight of its ICBMs by increasing the number of reentry vehicles. Moreover, under Article IV, SLBMs may not be flight-tested or deployed with more than fourteen reentry vehicles, nor ASBMs with more than ten.

Limits on Airplanes

For purposes of the aggregate limits, the Treaty includes as "heavy bombers" the following: (a) certain designated types of current bombers (the US B-52 and B-1, and the Soviet Bear and Bison); (b) any future types of bombers which can carry out the mission of a heavy bomber in a manner similar or superior to that of the listed current heavy bombers; (c) airplanes equipped for cruise missiles capable of a range in excess of 600 kilometers; and (d) airplanes equipped for ASBMs.

Furthermore, the Parties can deploy up to, but not in excess of, an average of twenty-eight long-range cruise missiles per heavy bomber so equipped. The Parties may not deploy more than twenty such cruise missiles on any current type of heavy bomber.

Other Limits on Weapons Systems

Article IX prohibits certain other types of weapons systems. These include surface-ship ballistic missile launchers, systems to launch missiles from the seabed or the beds of internal waters, and systems for delivery of nuclear weapons from earth orbit (including fractional orbital missiles).

Verification

Article XV sets forth important

rules which facilitate verification of compliance with the provisions of the Treaty. To verify compliance, each Party will use intelligence-gathering capabilities known as national technical means. These include highly sophisticated technical equipment such as photo-reconnaissance satellites, land-based radars, and radar and other intelligence systems based on ships and aircraft, which we use to monitor Soviet missile tests. Any interference with national technical means of verification or any deliberate concealment measures which impede verification are prohibited.

The ban on such deliberate concealment encompasses, among other things, measures to deliberately conceal verification-related information during missile testing. Certain characteristics of some systems limited by the Treaty become apparent during the testing phase. This ban specifically includes any deliberate denial of telemetry information, including any telemetry encryption, whenever such denial impedes verification, as well as any concealment of association of an ICBM with its launcher during testing.

Various other provisions also contribute to the verification structure set up by the Treaty. The Treaty establishes "type rules" to simplify the counting of various systems and therefore facilitate verification of compliance with the Treaty's numerical aggregate limitations. For example, if a particular type of launcher contains or launches an ICBM, then all launchers of that type are considered to be ICBM launchers and will be included in the Article III aggregate limitation.

The definition of a MIRV launcher also includes "type rules" to assist in determining what systems are to be counted within the MIRV limits.

The first of these, the "missile type" rule, provides that if a missile is a MIRVed missile, all missiles of that type are thereafter considered to be MIRVed missiles regardless of the actual number of reentry vehicles with which they are deployed. This rule is important because the Soviet SS-17,

SS-18 and SS-19 ICBMs have been flight-tested with both a single reentry vehicle and with MIRVs. A second rule, the "MIRV launcher type" rule, provides that if a launcher of a given type is a MIRV launcher, all launchers of that type will be counted as MIRV launchers and will be included under the appropriate Article V sublimits. Thus, it will not be necessary to determine whether each launcher of a given type actually contains a MIRVed missile.

A further constraint related to verification, included at United States insistence, is a ban on production, testing, or deployment of the Soviet SS-16 ICBM. This missile appeared to be compatible with the launcher for the Soviet SS-20, a mobile intermediate-range ballistic missile. (Intermediate-range ballistic missiles are not covered by the Treaty.) Without the ban on the SS-16, it would have been very difficult to verify whether SS-20 launchers were equipped for ICBMs.

Other Provisions

Article XII states that neither Party will circumvent the provisions of the Treaty. This will not affect existing patterns of defense collaboration or cooperation with our Allies, nor will it preclude cooperation in modernization. Article XIII provides that neither Party in the future will undertake obligations which conflict with the obligations of this Treaty.

Article XVI provides for advance notification of any multiple ICBM launches, and of any single ICBM launch which is planned to extend beyond the national territory of the launching Party.

Article XVII sets forth the charter of the U.S.-Soviet Standing Consultative Commission for this Treaty. The Commission is empowered to address questions relating to compliance with the provisions of the Treaty and to develop measures to implement these provisions.

Under Article XVII, the Parties will also maintain in the Standing Consultative Commission the agreed data

base established by the Memorandum of Understanding. They have exchanged data on weapons in categories limited by the Treaty, and will update this data base at each semi-annual session of the Standing Consultative Commission. Although the United States does not require this data for verification purposes, the data base will assist us in confirming that the Parties are interpreting their obligations under the Treaty in a like manner.

Finally, the Parties preserve the right to modernize and replace their strategic offensive arms in a manner not inconsistent with other provisions of the Treaty (Article X); undertake to begin further negotiations promptly after entry into force of the Treaty (Article XIV); and agree to procedures for amendment, entry into force, and withdrawal (Articles XVIII and XIX).

The Protocol

The Protocol, which is an integral part of the Treaty, sets forth certain limitations through December 31, 1981. These limitations deal with several issues about which the Parties were unable to agree for the entire term of the Treaty. Deployment of mobile ICBM launchers and flight-testing of ICBMs from such launchers are prohibited during the period of the Protocol. Under the Treaty, mobile ICBM launchers will be permitted after the Protocol expires. (The Protocol will not affect the MX program; the MX missile will not be ready for flight-testing before expiration of the Protocol.)

In addition, during the period of the Protocol the deployment of ground-launched and sea-launched cruise missiles capable of a range in excess of 600 kilometers is prohibited. However, there is no range restriction on the flight-testing of such cruise missiles. (As a result, the Protocol will not affect the U.S. cruise missile program since such systems will not be ready

for deployment in any event prior to expiration of the Protocol.) Finally, the Protocol prohibits both the flight-testing and the deployment of ASBMs.

These shorter-term limits will remain in force only until December 31, 1981. The limitations in the Protocol will not serve as a precedent for any limitations which may be negotiated in the next stage of SALT negotiations.

The Joint Statement of Principles

The Joint Statement of Principles states the intentions of the Parties concerning future negotiations on strategic arms limitations. The Joint Statement sets forth general goals to be achieved in the next round of talks: to work for significant and substantial reductions in the numbers of strategic offensive arms; to seek further qualitative limits on strategic offensive arms; and to attempt to resolve the issues addressed in the Protocol in the context of implementing the other agreed joint principles. The sides will also consider other steps to enhance strategic stability, and either side may bring up any other topic relevant to the further limitation of strategic arms.

The Joint Statement of Principles also sets forth the principle that further limitations and reductions of strategic arms must be subject to adequate verification by national technical means, using, additionally, as appropriate, cooperative measures to strengthen such verification.

Backfire

During the SALT discussion at the Vienna Summit President Brezhnev provided to the United States a written statement by the Soviet Union dealing with the Backfire's capabilities and rate of production. He also confirmed that the Soviet Backfire production rate would not exceed thirty per year. In response, President Carter stated that the United States enters into the SALT II Agreement on the basis of the commitments contained in the Soviet statement and that it considers the carrying out of these commitments to be essential to the obligations assumed under the Treaty. President Carter also affirmed that the United States has the right to an aircraft comparable to Backfire.

Conclusion

I firmly believe that the SALT II Treaty will measurably strengthen strategic stability and help reduce the risk of nuclear war. It is a major contribution to the national security of the United States. I recommend that it be transmitted to the Senate with a view to entry into force at the earliest possible date.

Respectfully submitted,

CYRUS VANCE

The President,
The White House.

ANNEX: DETAILED ANALYSIS OF SALT II PROVISIONS

On June 18, 1979, Presidents Carter and Brezhnev signed at Vienna the Treaty on the Limitation of Strategic Offensive Arms and the Protocol thereto, which is an integral part of the Treaty, along with the document containing the Agreed Statements and Common Understandings associated with various provisions of the Treaty and Protocol, and the Joint Statement of Principles. The Treaty establishes certain limitations on strategic offensive arms through December 31, 1985, while the Protocol provides for additional limitations through December 31, 1981.

This Annex analyzes in detail the various provisions of the Treaty and its Protocol, together with those Agreed Statements and Common Understandings which relate to each provision. The Annex also discusses the Joint Statement of Principles concerning the next phase of negotiations on the limitation of strategic arms, the exchanges between the Parties concerning the Soviet Backfire bomber, and the Memorandum of Understanding and Statements of Data regarding an agreed data base on the strategic offensive arms of the two Parties.

THE TREATY

The Treaty consists of nine preambular clauses and nineteen operative Articles.

The Preamble

The preamble identifies the Parties and contains nine paragraphs that set forth common general views and objectives of the United States and the Soviet Union concerning the limitation of strategic arms.

The first paragraph recognizes that nuclear war would have devastating consequences for all mankind.

The second paragraph refers to the

Basic Principles of Relations between the United States and the Soviet Union of May 29, 1972.

The third paragraph records the significance the Parties attach to limiting strategic arms and states their determination to continue these efforts.

The fourth paragraph states the Parties' conviction that the additional measures provided for in this Treaty to limit strategic offensive arms will contribute to the improvement of relations between them, help to reduce the risk of outbreak of nuclear war, and strengthen international peace and security.

The fifth paragraph acknowledges the obligations of the Parties in Article VI of the Non-Proliferation Treaty¹ (under which they undertook to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament).

The sixth paragraph states that the Parties have been guided by the principle of equality and equal security.

The seventh paragraph expresses the recognition by the Parties that the strengthening of strategic stability serves both the interests of the Parties and the interests of international security.

The eighth paragraph reaffirms the desire of the Parties to take measures for the further limitation and reduction of strategic arms, having in mind the goal of general and complete disarmament.

The ninth paragraph declares the intention of the Parties to undertake negotiations in the near future further to limit and reduce strategic offensive arms.

Article I—Basic Obligations

Article I sets forth the basic undertaking of each Party, in accordance

¹Treaty on the Non-Proliferation of Nuclear Weapons, signed at London, Moscow and Washington, July 1, 1968, 21 UST 483, TIAS 6839. The United States and the Soviet Union are both Parties to this Treaty.

with the provisions of the Treaty, to limit strategic offensive arms quantitatively and qualitatively, to exercise restraint in the development of new types of strategic offensive arms, and to adopt other measures provided for in the Treaty.

Article II—Definitions and Associated Verification Rules

Article II sets forth the definitions of strategic offensive arms subject to the limitations of the Treaty. The article defines (1) ICBM launchers, (2) SLBM launchers, (3) heavy bombers, (4) ASBMs, (5) launchers of MIRVed ICBMs and MIRVed SLBMs, (6) MIRVed ASBMs, (7) heavy ICBMs, and (8) cruise missiles. It also includes certain provisions facilitating verification.

ICBM Launchers. Paragraph 1 of Article II defines ICBM launchers as land-based launchers of ballistic missiles that are capable of a range in excess of the shortest distance between the northeastern border of the continental United States and the northwestern border of the continental Soviet Union, that is, a range in excess of 5,500 kilometers. This definition is patterned on the definition of such launchers in the 1972 Interim Agreement,² but is more explicit. The term "ICBM launchers" is used in the Treaty to refer only to fixed or mobile land-based launchers of ICBMs. The provision defines an ICBM launcher in terms of the range and basing of the missile it launches. Air-launched ballistic missiles are covered by paragraph 4 of Article II which defines ASBMs.

An Agreed Statement and two Common Understandings associated with paragraph 1 contain rules for counting launchers, by types, in the

aggregate limitations set forth in Article III of the Treaty as follows:

- All launchers of a particular type shall be considered ICBM launchers if any launcher of that type has been developed and tested for launching an ICBM (First Agreed Statement). This provision establishes the launcher type rule for ICBM launchers. The word "tested" is a broad term which refers to any kind of test of a launcher for use with ICBMs, not only a flight test of an ICBM from the launcher.

- Any launcher that contains or launches an ICBM shall be considered to have been developed and tested for launching ICBMs and, therefore, shall be considered an ICBM launcher (First Common Understanding). This is a rule to facilitate application of the First Agreed Statement. However, as the language indicates, the "contains or launches" criterion is not exclusive. Other evidence, for example, the presence of certain ground support equipment, could be used to establish that a launcher has been developed and tested for launching ICBMs.

- If a launcher has been developed and tested for launching an ICBM, all launchers of that type, except ICBM test and training launchers, shall be included in the aggregate Treaty limitations (Second Common Understanding). ICBM test and training launchers are dealt with in Article VII.

Under the Third Common Understanding, the United States' 177 former Atlas and Titan I ICBM launchers, which are no longer operational and are partially dismantled, will not be subject to the Treaty limitations. A total of more than 220 older Soviet ICBM launchers, i.e., all the SS-6, SS-7 and SS-8 launchers, have been dismantled under the Interim Agreement or otherwise removed from the Soviet operational force, and therefore are not among the Soviet systems which are subject to the Treaty limitations.

To emphasize that launchers of mobile ICBMs are permitted after the

² Interim Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Measures With Respect to the Limitation of Strategic Offensive Arms, signed at Moscow, May 26, 1972, 23 UST 3462, TIAS 7504.

expiration of the Protocol,³ the Second Agreed Statement states that mobile ICBM launchers, which are included in the definition of ICBM launchers in paragraph 1 of Article II, are subject to the limitations of the Treaty applicable to ICBM launchers, unless the Parties subsequently agree that mobile ICBM launchers shall not be deployed after the Protocol expires on December 31, 1981. The term "mobile ICBM launcher" includes the various basing concepts the United States has been considering, including those, such as the "multiple protective structure" (MPS) system, in which missiles with their launchers are moved among shelters which might themselves be hardened. The basis for classifying the MPS system as mobile is that essentially all the equipment required to launch the missile, as well as the missile itself, are moved together periodically from one shelter to another—with the shelter providing a protected launch location. Of course, any mobile ICBM basing system would have to permit adequate verification of the number of launchers deployed, in order to be fully consistent with the verification provisions of SALT II.

The following existing operational launcher types would be treated as ICBM launchers under this Article: for the United States, Titan II and Minuteman II and III; for the Soviet Union, SS-9, SS-11, SS-13, SS-17, SS-18, and SS-19. (As indicated below, the production, testing, and deployment of the Soviet SS-16 missile will be prohibited.)

SLBM Launchers. Paragraph 2 of Article II defines SLBM launchers as launchers of ballistic missiles installed on any nuclear-powered submarine or launchers of modern ballistic missiles installed on any submarine, nuclear-powered or non-nuclear-powered.

The Agreed Statement associated with this paragraph defines modern SLBMs for the United States as ballistic missiles installed in all nuclear-powered submarines; for the Soviet Union, as ballistic missiles of the type installed in nuclear-powered submarines which have been made operational since 1965 (this currently includes the SS-N-6, SS-N-8, SS-NX-17, and SS-N-18, which have all been installed in such submarines); and for both parties, as all SLBMs first flight-tested since 1965 and installed in any submarine regardless of its type (this is intended to include any future SLBM whether installed on a nuclear or a non-nuclear-powered submarine).

The effect of this paragraph and its Agreed Statement, as under the Interim Agreement, is to include all present and future United States SLBMs, and all present and future Soviet SLBMs except for a small number of launchers of older missiles on existing Soviet diesel-powered submarines.

Existing SLBM Launchers to be Counted Under SALT II

Party	Launcher (by missile deployed)	Submarine(s) on which deployed (by class)
US	Polaris A-3	Polaris
	Poseidon C-3	Poseidon
	Trident C-4	Poseidon
USSR	SS-N-5	H-II
	SS-N-6	Y-I, G-IV
	SS-NX-17	Y-II
	SS-N-8	D-I, D-II, G-III
	SS-N-18	D-III

All Soviet launchers of the SS-N-4 SLBM, and most launchers of the SS-N-5, both of which missiles were flight-tested prior to 1965, are deployed on diesel type submarines (G-I and G-II class), and hence are not counted under SALT II.

Heavy Bombers. Paragraph 3 of Article II establishes which airplanes are

³While the Protocol is in force, the Parties are prohibited from deploying mobile ICBM launchers or flight-testing ICBMs from such launchers.

counted as heavy bombers. It lists current types of heavy bombers to be counted, provides that the mission capabilities of these current airplanes will be used as the basis for identifying future types of heavy bombers, and sets certain other conditions which cause airplanes to be considered as heavy bombers.

Subparagraph (a) lists the current types of heavy bombers for each Party. For the United States, these are bombers of the B-52 and B-1 types. (Four B-1 test airplanes have been produced and will be included in the aggregate.) For the Soviet Union, current types of heavy bombers are the Tupolev-95 (or "Bear") bomber and the Myasishchev (or "Bison") bomber. Pursuant to subparagraph (b), heavy bombers in the future will include all types of bombers that can carry out the mission of a heavy bomber in a manner similar or superior to those current heavy bombers listed in subparagraph (a). The Third Agreed Statement associated with this paragraph provides that the criteria to be utilized in making determinations as to which future types of bombers are similar or superior to current heavy bombers will be agreed upon in the Standing Consultative Commission.

Subparagraph (c) of paragraph 3 provides that all types of bombers equipped for cruise missiles capable of a range in excess of 600 kilometers are considered to be heavy bombers.⁴ The term "bomber" as used in the Treaty is defined in the First Agreed Statement associated with this paragraph (discussed below). Subparagraph (d) provides that all types of bombers equipped for ASBMs are considered to be heavy bombers. However, under paragraph 5 of Article III, heavy bombers equipped *only* for ASBMs are not counted toward the Treaty's aggregate limits, because the ASBMs

themselves are counted. (Also, airplanes do not become subject to Treaty limitations pursuant to this provision merely because they are used to transport ballistic missiles.)

The first Agreed Statement associated with paragraph 3 of Article II defines "bombers" as those types of airplanes initially constructed to be equipped for bombs or missiles. Pursuant to this definition, any type of airplane, including one based on an airframe originally designed for other purposes (e.g., one of wide-bodied design), that is initially constructed for cruise missiles will be considered to be a cruise missile carrier and, therefore, considered to be a heavy bomber. The same would be true for an airplane constructed to carry ASBMs. (Article VIII deals with the conversion of aircraft other than bombers to heavy bombers—including cruise missile or ASBM carriers—and with aircraft for flight-testing cruise missiles or ASBMs.)

The Second Agreed Statement to this paragraph provides that the Parties will notify each other in the Standing Consultative Commission of types of bombers to be included as heavy bombers pursuant to paragraph 3. They will also hold consultations on these matters, as appropriate, in the Standing Consultative Commission. However, neither side will be able to veto the construction and use by the other side of particular kinds of airplanes as cruise missile or ASBM carriers.

The Fourth Agreed Statement sets forth, as an aid to verification, the basic rule for determining which airplanes among those having the same basic airframe will not be considered subject to various Treaty limitations—the rule regarding functionally related observable differences (FRODs). Functionally related observable differences are defined in the First Common Understanding to paragraph 3, which states that FRODs are differences in the observable features of airplanes which indicate whether or not they

⁴Elsewhere in this document the term "long-range", as applied to cruise missiles, will be used to refer to such missiles which are capable of a range in excess of 600 kilometers.

can perform the relevant mission. The Common Understanding also provides that the existence of FRODs must be verifiable by national technical means and, as appropriate, the Parties may take cooperative measures which contribute to the effectiveness of verification by national technical means.

The Fourth Agreed Statement provides in subparagraph (a) that airplanes which otherwise would be bombers of a heavy bomber type (i.e., airplanes with the same basic airframe as a heavy bomber) will not be considered to be heavy bombers if they have functionally related observable differences which indicate that they cannot perform the mission of a heavy bomber. For example, in the case of bombers, the presence or absence of bomb-bay doors could be a FROD, and it is on this basis that the Bear reconnaissance variant (which has no bomb-bay doors) is excluded from the aggregate. In the case of cruise missile carriers, the presence or absence of a specialized door through which ALCMs are released could be an example of a FROD.

Subparagraph (b) of the Fourth Agreed Statement establishes a FROD rule for cruise missile carriers. If a cruise missile carrier should be developed on the basis of a wide-bodied transport airframe, for example, there would need to be FRODs to distinguish other aircraft with that airframe from cruise missile carriers. Likewise, if any Backfire or FB-111 bombers were to be equipped for long-range cruise missiles, all airplanes with the same basic airframe would be included under the 2400/2250 aggregate limitation and the 1,320 sublimit, unless there were FRODs indicating that some of those aircraft should not be counted because they could not function as cruise missile carriers. Subparagraph (c) sets forth the same FROD rule for ASBM carriers.

The Fourth Agreed Statement also provides, however, that airplanes of *current* heavy bomber types (i.e., B-52, B-1, Tu-95, Myasishchev) which are not equipped for long-range cruise

missiles may be distinguished from those that are so equipped on the basis of externally observable differences; FRODs, i.e., a functional relationship between the observable differences and the ability or inability to carry ALCMs, would not be necessary. (The same rule is set forth for airplanes of current heavy bomber types used as ASBM carriers.) Thus, B-52s which are not converted to cruise missile carriers will not be subject to the Article V limitations if they are observably different from the B-52s that are equipped for long-range cruise missiles. These observable differences must be externally observable design features. In this connection, it is the United States' intention that the operational B-52Gs to be equipped with long-range ALCMs will also be fitted with "strakelets" (aerodynamic fairings located where the front of the wing meets the fuselage) which will distinguish them from other B-52Gs. FRODs are required only for future types of heavy bombers, because the Parties did not judge it practical to apply this concept to existing heavy bombers.

The Fifth Agreed Statement deals with the Tupolev-142 airplane. This airplane is configured for antisubmarine warfare, but has the same basic airframe (Bear) as the Tu-95 heavy bomber. The Tu-142s have bomb bay doors and bomb bays, and therefore cannot be excluded from being considered bombers on the basis of FRODs. However, the U.S. has long regarded these airplanes as dedicated to anti-submarine, not heavy bomber missions, and there are observable features of these aircraft which distinguish them from Tupolev-95 heavy bombers: the dimensions of their fuselage, their chassis gondolas (landing gear housings), and their radome are all observably different. In exchange for a corresponding exemption from the FROD rule for B-52s equipped for long-range ALCMs (which exemption was subsequently broadened to include all current heavy bombers), the United States agreed

that Tu-142s in their current anti-submarine warfare configuration may be excluded from the aggregate on the basis of observable differences. The reference in this provision to "current configuration" is not intended to preclude improvement of these airplanes as an anti-submarine system, but would prohibit their being modified to carry out a heavy bomber mission if they are to remain excluded from the aggregate. Also, this exemption from the FROD rule for Tu-142s does not prejudice or set a precedent for the application of the FROD rule to future types of airplanes.

The Second Common Understanding requires, within six months after entry into force of the Treaty, that FRODs be given to all thirty-one Myasishchev (Bison) tanker airplanes which indicate that they cannot perform the mission of a heavy bomber. The United States insisted on this requirement because the Myasishchev heavy bombers and Myasishchev tankers are indistinguishable by national technical means. The United States was concerned that Myasishchev tankers could be rapidly converted for use as heavy bombers.

Finally, the Third Common Understanding associated with this paragraph correlates United States and Soviet terminology for heavy bombers. It states that the Soviet Tupolev-95 and the Myasishchev heavy bombers are known, respectively, as Bears and Bisons to the United States and that B-52 and B-1 bombers are known by the same designators to both Parties.

ASBMs. Paragraph 4 of Article II defines ASBMs as air-to-surface ballistic missiles capable of a range in excess of 600 kilometers installed in an aircraft or on its external mountings. ASBMs (not ASBM launchers) are included in the overall aggregate limitations of the Treaty. The actual counting of these missiles is done on an airplane-by-airplane basis, as explained in the discussion of Article III. Neither Party has any ASBMs at the present time.

Launchers of MIRVed ICBMs and MIRVed SLBMs. Paragraph 5 of Article II defines launchers of ICBMs and SLBMs equipped with multiple independently targetable reentry vehicles (MIRVs) as launchers of the types developed and tested for launching ICBMs or SLBMs equipped with MIRVs. As a result, all such launchers are included in the appropriate aggregate sublimits regardless of the missiles they actually contain.

This paragraph, along with the First Agreed Statement and First Common Understanding, establishes the MIRV launcher type rule, which is of great significance for MIRV verification. These provisions set forth a type rule for MIRV launchers similar to that in paragraph 1 of Article II for ICBM launchers.

- If any launcher of a given type has been developed and tested for launching an ICBM or an SLBM equipped with MIRVs, all launchers of that type shall be considered to be launchers of MIRVed missiles (First Agreed Statement). This is the MIRV launcher type rule.

- If a launcher contains or launches an ICBM or an SLBM equipped with MIRVs, that launcher shall be considered to have been developed and tested for launching ICBMs or SLBMs equipped with MIRVs (First Common Understanding). However, as the language indicates, the "contains or launches" criterion is not exclusive and other evidence, such as the presence of certain kinds of ground support equipment, could be used to establish that the launcher has been developed and tested for launching MIRVed ICBMs.

- As in the case of paragraph 1 of Article II, if a launcher has been developed and tested for launching an ICBM or SLBM equipped with MIRVs, all launchers of that type, except for test and training launchers (see the discussion of Article VII), shall be included in the appropriate sublimits specified in Article V (Second Common Understanding).

All ICBM launchers in the Derazhnya and Pervomaysk areas in the Soviet Union will count in the Article V sublimits, i.e., as MIRVed ICBM launchers, pursuant to the Fourth Common Understanding. Thus, all 180 launchers at the Soviet ICBM complexes at those two areas will be regarded as launchers of MIRVed ICBMs, even though at this time most of the 180 launchers are judged by the United States to contain the non-MIRVed SS-11 ICBM. (We expect that all these 180 launchers will eventually contain MIRVed ICBMs.) This understanding is an illustration of the launcher type rule: the launchers which contain MIRVed ICBMs are not externally distinguishable from those which contain missiles with single reentry vehicles, and the United States cannot be sure that all 180 are not capable of launching MIRVed missiles. Therefore, all of them must be counted as MIRV launchers.

The Fifth Common Understanding associated with paragraph 5 of Article II addresses the question of ICBM and SLBM launcher distinguishability in the future. If ICBM or SLBM launchers are converted, constructed or undergo significant changes to their principal observable structural design features after entry into force of the Treaty, any such launchers which are launchers of MIRVed missiles must be distinguishable on the basis of externally observable design features from launchers of missiles not equipped with MIRVs. Likewise, any such launchers which are converted or constructed, or undergo such changes, which are launchers of missiles not equipped with MIRVs shall be distinguishable from launchers of MIRVed missiles. Additionally, submarines with launchers of MIRVed SLBMs must themselves be distinguishable from submarines with launchers of non-MIRVed SLBMs, on the basis of externally observable design features of the submarines. Programs underway as of the date of signature of the Treaty (such as the Minuteman silo

hardness upgrade program) are expressly exempted from this requirement. There are no such Soviet programs which would be so exempted. The purpose of this provision is to ensure there will be no problems of launcher distinguishability, such as at Derazhnya and Pervomaysk, in the future.

The Soviets raised a question with regard to distinguishing between non-MIRVed Minuteman II and MIRVed Minuteman III ICBM launchers. This question was resolved on the basis of the following statement, which was made by the United States at the Vienna Summit:

The United States has 450 Minuteman II launchers and 550 Minuteman III launchers operationally deployed; there are no Minuteman III missiles in Minuteman II launchers; Minuteman II launchers are not capable of launching Minuteman III missiles, and if we convert Minuteman II launchers to give them a capability for launching Minuteman III missiles, they would have to have externally observable design features which would distinguish them from Minuteman II launchers.

The Second Agreed Statement associated with this paragraph sets forth the equally important missile type rule. The Parties agree that ICBMs and SLBMs equipped with MIRVs are ICBMs and SLBMs of the types which have been flight-tested with two or more independently targetable reentry vehicles, regardless of whether or not they have also been flight-tested with a single reentry vehicle or with multiple reentry vehicles which are not independently targetable (so-called MRVs). As of the date of signature of the Treaty, such ICBMs and SLBMs are: for the United States, Minuteman III ICBMs, and Poseidon C-3 and Trident C-4 SLBMs; and for the Soviet Union, RS-16 (SS-17), RS-18 (SS-19) and RS-20 (SS-18) ICBMs and RSM-50 (SS-N-18) SLBMs. The "RS" and "RSM" designators are the Soviet designators corresponding to the United States designators shown in parentheses.

The Third Common Understanding associated with the paragraph correlates the designations used by the United States and the Soviet Union for ICBMs and SLBMs equipped with MIRVs as indicated above. This Common Understanding also contains descriptive material for each missile and identifies the Soviet SS-19 as the heaviest of the light ICBMs in terms of launch-weight and throw-weight and the Soviet SS-18 as the heaviest of the heavy ICBMs in terms of launch-weight and throw-weight. Also, the Parties agree to update the list of deployed MIRVed ballistic missiles in the Standing Consultative Commission.

The Third Agreed Statement associated with paragraph 5 (which is repeated as the Second Agreed Statement associated with paragraph 6) defines independently targetable reentry vehicles, setting forth the distinction between missiles equipped with MIRVs and missiles equipped with multiple reentry vehicles that are not independently targetable (MRVs). It provides that reentry vehicles are independently targetable if, after separation from the booster, maneuvering and targeting of the reentry vehicles to separate aim points along trajectories which are unrelated to each other are accomplished by means of: (1) devices which are installed in a self-contained dispensing mechanism (post-boost vehicle or "bus") or on the reentry vehicles (e.g., maneuvering reentry vehicles, or MaRVs) and which are based on the use of electronic or other computers, in combination with devices using jet engines, including rocket engines, or aerodynamic systems; or (2) other devices which may be developed in the future. The key feature of this definition is the reference to "unrelated trajectories." In the case of MRVs, the trajectories are in a constrained pattern, thereby precluding the flexibility in targeting which gives MIRVs their effectiveness against multiple targets.

MIRVed ASBMs. Paragraph 6 of

Article II defines ASBMs equipped with MIRVs as ASBMs of the types which have been flight-tested with MIRVs. The missile type rule for such air-to-surface ballistic missiles equipped with MIRVs is set forth in the First Agreed Statement to this paragraph. This Statement provides that ASBMs of the types which have been flight-tested with MIRVs are all ASBMs of the types which have been flight-tested with two or more independently targetable reentry vehicles regardless of whether they have also been flight-tested with a single reentry vehicle or multiple reentry vehicles which are not independently targetable. This provision is the counterpart for ASBMs of the MIRVed missile type rule for ICBMs and SLBMs contained in the Second Agreed Statement to Paragraph 5.

Heavy ICBMs. Paragraph 7 of Article II contains the definition of heavy ICBMs. This definition in effect sets the upper limit on the launch-weight and throw-weight of light ICBMs, because it defines heavy ICBMs as those ICBMs having a launch-weight or throw-weight greater than that of the heaviest of the light ICBMs deployed by either Party as of the date of signature of the Treaty. By establishing a clear demarcation between light and heavy missiles, this definition is central to the effectiveness of the following provisions of the Treaty: (a) the freeze on the numbers of fixed launchers of modern heavy ICBMs (paragraphs 1 and 3 of Article IV); (b) the obligation that the one permitted new type of ICBM be a light ICBM (paragraph 9 of Article IV); and (c) the ban on mobile launchers of heavy ICBMs, on heavy SLBMs and their launchers, and on heavy ASBMs (Article IX).

As indicated in the Third Common Understanding to paragraph 5 of Article II, the Soviet SS-19 is the heaviest of the deployed light ICBMs in terms of both launch-weight and throw-weight. Therefore, the upper limits on launch-weight and throw-weight for all light ICBMs are those of the Soviet SS-19 ICBM.

On August 16, 1977, in a plenary statement, the United States informed the Soviet Union that "... for planning purposes, with respect to ICBMs it might develop, test or deploy in the future, the United States considers the launch-weight limit on light ICBMs to be 90,000 kilograms and the throw-weight limit to be 3,600 kilograms." These figures are based on our estimates for the SS-19. The Soviet Union did not respond to this statement. The United States will regard these figures as the limits for the one new type of light ICBM permitted to the United States under Paragraph 9 of Article IV.

The Agreed Statements associated with paragraph 7 define launch-weight and throw-weight.

- The launch-weight of an ICBM is the weight of the fully loaded missile itself at the time of launch (First Agreed Statement). It does not include the weight of any supporting equipment, such as a separate launch-assist device which might be used to eject the missile from the launcher.

- The throw-weight of an ICBM is the sum of the weight of: (a) its reentry vehicle or vehicles; (b) any post-boost vehicles or any other devices for targeting, releasing, or dispensing reentry vehicles; and (c) its penetration aids, including devices for their release (Second Agreed Statement).

An associated Common Understanding provides that the term "other appropriate devices", which is used in the definition of throw-weight of an ICBM, means: (1) any devices for dispensing and targeting two or more reentry vehicles; and (2) any devices for releasing two or more reentry vehicles or for targeting one reentry vehicle that cannot provide their reentry vehicle(s) with additional velocity of more than 1,000 meters per second. The purpose of this understanding is twofold. The first part ensures that any devices for *dispensing and targeting* (a MIRV function; see below) two or more reentry vehicles are included in throw-weight. Thus, for example, if a

final boost stage itself carried out that function, it would be included in throw-weight. The second part deals with the case of a device which may release two or more *MIRVs* or target a *single reentry vehicle*. It serves to distinguish between a post-boost vehicle and the final boost stage of a missile, since the latter device might provide some guidance to reentry vehicles on a non-MIRVed missile. If the device cannot provide additional velocity of more than 1,000 meters per second to a reentry vehicle, it is considered comparable to a post-boost vehicle and included in throw-weight. If it can so provide, it is considered to be a final boost stage and is not included in throw-weight.

These Agreed Statements and Common Understanding are repeated in association with paragraph 7 of Article IV, which imposes the upper limit on heavy ICBM launch-weight and throw-weight.

The terms "targeting", "releasing", and "dispensing and targeting" have particular meanings in the context of the definition of throw-weight. These are made clear in the negotiating record associated with the definition of throw-weight, which contains additional explanations for the purpose of ensuring that the technical terms used are mutually understood. On October 29, 1976, the United States and the Soviet Union Delegations made identical statements in a plenary session as follows:

The [United States] [Soviet] Delegation understands that, with respect to the Agreed Statement defining the throw-weight of an ICBM and to the associated Common Understanding, the term "targeting" applies to one reentry vehicle; the term "releasing" applies to multiple reentry vehicles which are not independently targetable; and the term "dispensing and targeting" applies to multiple independently targetable reentry vehicles. "Other appropriate devices . . . for dispensing and targeting two or more reentry vehicles" perform the same function as "self-contained dispensing mechanisms" and are included in the throw-weight of an ICBM irrespective of the additional velocity which they can provide the reentry vehicles.

The relationship between the terminology used in defining throw-weight and terminology used in the United States is as follows:

- "Other appropriate devices for targeting one reentry vehicle" included what are called "post-boost vehicles" in the United States. The velocity criterion in the Common Understanding serves to separate such devices from final boost stages.

- "Other appropriate devices . . . for releasing two or more reentry vehicles" can be devices of various complexity, including what are called "post-boost vehicles" in the United States. The velocity criterion in the Common Understanding serves to separate such devices from final boost stages.

- "Other appropriate devices for dispensing and targeting two or more re-entry vehicles" perform the same function as self-contained dispensing mechanisms, which are also called "buses" or "post-boost vehicles" in the United States.

Cruise Missiles. Paragraph 8 of Article II defines cruise missiles for purposes of the Treaty. Cruise missiles are defined as unmanned, self-propelled, guided, weapon-delivery vehicles (for nuclear or non-nuclear weapons) which sustain flight through the use of aerodynamic lift over most of their flight path, and which are either (1) flight-tested from or deployed on aircraft (air-launched cruise missiles), or (2) for use in underwater launchers of certain types referred to in Article IX. The definition of cruise missiles in the Treaty does not apply to ground-launched or sea-launched cruise missiles. Limitations on these latter systems are contained only in the Protocol, and ground-launched and sea-launched cruise missiles are defined separately therein.

There are a number of agreed Statements and Common Understandings associated with the treaty paragraph defining cruise missiles.

There is a type rule for distinguishing between cruise missiles and pilot-

less guided vehicles which also sustain flight through aerodynamic lift. If an unmanned aerodynamic vehicle has been flight-tested or deployed for weapon delivery, all vehicles of that type will be considered weapon-delivery vehicles, i.e., cruise missiles (Third Agreed Statement). Cruise missiles must be distinguishable from unarmed pilotless guided vehicles on the basis of differences in externally observable design features (Third Common Understanding). These differences could be in the basic engineering design of the vehicle or they could be observable difference in certain dimensions. The differences need not be functionally related.

In addition, neither Party will convert unarmed pilotless guided vehicles into cruise missiles capable of a range in excess of 600 kilometers, nor will either Party make the reverse conversion (Fourth Common Understanding).

The Parties have also stated that they have no plans during the period of the Treaty to flight-test from or deploy on aircraft unarmed, pilotless, guided vehicles capable of a range in excess of 600 kilometers. However, such flight-testing and deployment is not prohibited. In the event such plans change in the future, the Parties will notify each other prior to flight-testing or deploying such vehicles. This statement of current planning and the obligation to provide such notification does not apply to target drones (Fifth Common Understanding).

There is a definition of cruise missile range capability. The range capability of a cruise missile is defined as the maximum distance which can be covered by the missile in its standard design mode flying until fuel exhaustion, determined by projecting its flight path onto the earth's sphere from the point of launch to the point of impact (Second Agreed Statement). The key features of this definition are as follows:

- Standard design mode. The missile is assumed to fly its design operational profile (speed and altitude).

- Fuel exhaustion. The total store of fuel is assumed to be burned. No fuel reserve is held back.

- Projecting its flight path onto the earth's sphere. The distance measured would be that measured by the odometer of an automobile driven beneath the missile on a smooth model of the earth.

During the negotiations, the United States advised the Soviet Union that an appropriate approach for calculating the maximum range which a cruise missile can cover in its standard design mode flying until fuel exhaustion, in those cases where the cruise missile flying a standard profile has not exhausted its fuel, is to assume that the remaining fuel will be used by continuing to fly at the same altitude and speed at which the cruise missile was flying in the last segment of its flight. The Soviets responded that the definition of cruise missile range had already been agreed, that no additional clarifications were needed, and that any specific questions arising in the future could be dealt with on a case-by-case basis.

A second cruise missile type rule distinguishes between cruise missiles that are capable of a range in excess of 600 kilometers and those that are not; if any cruise missile is capable of a range in excess of 600 kilometers, all cruise missiles of that type shall be considered capable of a range in excess of 600 kilometers (First Agreed Statement). Cruise missiles not capable of a range in excess of 600 kilometers must be distinguishable on the basis of externally observable design features from those of greater range capability (Second Common Understanding).

If a cruise missile has been flight-tested to a distance in excess of 600 kilometers, regardless of the flight profile, it will be considered to be capable of a range in excess 600 kilometers (First Common Understanding).

Article III—Overall Aggregate Limitations

Article III sets forth the initial overall aggregate limitation established by

the Treaty (which will require initial Soviet reductions), as well as the aggregate limitation to become effective subsequently (which will require additional Soviet reductions). Current operational deployments by the United States are below the specified levels, and we will only be required to dismantle or destroy approximately thirty strategic systems (probably to be chosen from among mothballed B-52 heavy bombers which have already been heavily cannibalized for parts).

Paragraph 1 of Article III requires each Party, upon entry into force of the Treaty, to limit ICBM launchers, SLBM launchers, heavy bombers, and ASBMs to an aggregate number not to exceed 2,400.

Paragraph 2 provides that from January 1, 1981, the aggregate limit on strategic offensive arms will be reduced to 2,250 and that reductions will be initiated for arms which, as of that date, would be in excess of this aggregate number. Article XI requires that these additional reductions be completed by December 31, 1981.

Paragraph 3 of Article III establishes the principle of freedom to mix types of strategic systems within the overall aggregate limitations. This paragraph provides that, within the aggregate limits set forth in paragraphs 1 and 2 and subject to any other applicable Treaty provisions, each Party has the right to determine the composition of its strategic forces, that is, the number of its ICBM launchers, SLBM launchers, heavy bombers and ASBMs.

Paragraph 4 of Article III sets forth the method for counting ASBMs on a bomber. It provides that the aggregate numbers set forth in paragraphs 1 and 2 shall include for each bomber of a type equipped for ASBMs the maximum number of ASBMs for which any bomber of that type is equipped for one operational mission.

Paragraph 5 of Article III provides that if a heavy bomber is equipped *only* for ASBMs, that bomber shall not itself be included in the aggregate limi-

tations. In that case only the ASBMs for which it is equipped will count in the aggregate. Should a heavy bomber equipped for ASBMs also be equipped for bombs, for example, then both the bomber and the ASBMs would be included in the aggregate.

Paragraph 6 of Article III provides that reductions necessary to reach the limitations set forth in paragraphs 1 and 2 of Article III shall be carried out as provided in Article XI of the Treaty.

Article IV—Special ICBM and Related Limitations

This Article establishes several restrictions on ICBM launcher construction and modification as well as other qualitative limitations on ICBMs, ICBM launchers, SLBMs, ASBMs, and ALCMs. Several of its ICBM provisions re-establish obligations contained in the 1972 SALT I Interim Agreement, some refine obligations in that Agreement, and others create new restrictions.

Paragraph 1 of Article IV obligates the Parties not to start construction of additional fixed ICBM launchers. Thus, the freeze on new construction of fixed ICBM launchers, established in the Interim Agreement, is continued in the Treaty, as agreed at Vladivostok.

Paragraph 2 of this Article obligates the Parties not to relocate fixed ICBM launchers. This obligation makes it clear that the freeze on fixed ICBM launcher construction applies to all such construction, not only to construction which would add to the deployed totals.

Paragraph 3 of Article IV restates the obligation, also contained in the Interim Agreement, not to convert launchers of light ICBMs, or of ICBMs of older types deployed prior to 1964, into launchers of modern heavy ICBMs (e.g., Soviet SS-9 and SS-18).⁵ (The older types of ICBMs re-

ferred to in this paragraph are Titan II for the United States and SS-7 and SS-8 for the Soviet Union. All of the launchers for the SS-7 and SS-8 have now been dismantled, for the most part to be replaced by new Soviet SLBM launchers, under the Interim Agreement.)

Paragraph 4 of Article IV is based on the limitation on increases in silo dimensions contained in the Interim Agreement. This paragraph provides that in the process of modernization and replacement of ICBM silo launchers the original internal volume of an ICBM silo launcher shall not be increased by more than thirty-two percent. Within this limit, each Party has the right to determine whether to make such an increase through an increase in the original internal diameter or in the original internal depth of an ICBM silo launcher, or in both of these dimensions.

The Agreed Statement associated with this paragraph explains that the word "original" refers to the internal dimensions of an ICBM silo launcher, including its internal volume, as of May 26, 1972, or as of the date on which such launcher became operational, whichever was later.

An associated Common Understanding provides that the diameter or depth of a launcher may not be increased by an amount greater than that which would result in a thirty-two percent internal volume increase if the other dimension were not changed. The effect of this understanding is to place an upper limit on permitted increases in diameter (fifteen percent) or depth (thirty-two percent) in cases where the other dimension is reduced in the course of modernization and replacement. (A fifteen percent increase in diameter alone would result in a thirty-two percent increase in volume.)

Paragraph 5(c) of this Article prohibits the development, testing, and deployment of systems for rapid reload of ICBM launchers. As reinforcing commitments, the Parties undertake in subparagraphs 5(a) and

⁵The definition of heavy ICBMs is contained in paragraph 7 of Article II, discussed above.

(b), respectively, not to supply ICBM deployment areas with ICBMs in excess of a number consistent with normal deployment, maintenance, training, and replacement requirements, and not to provide storage facilities for or to store ICBMs in excess of "normal deployment requirements" at launch sites. The associated Agreed Statement defines "normal deployment requirements" as the deployment of one missile at each ICBM launcher.

Paragraph 6 of Article IV requires the Parties not to have under construction at any time strategic offensive arms (ICBM launchers, SLBM launchers, heavy bombers and ASBMs) in excess of numbers consistent with a normal construction schedule. The associated Common Understanding declares that a normal construction schedule is one consistent with the past or present construction practices of each Party.

The purpose of this provision is to prohibit a Party from constructing large numbers of strategic offensive arms (e.g., SLBM launchers) to a stage short of the final stage of construction, as defined in Article VI, thereby avoiding having them counted in the aggregate limitations. Such a practice could afford that Party a "breakout" potential.

Paragraph 7 sets the upper limits for launch-weight and throw-weight of heavy ICBMs. The Parties undertake not to develop, test, or deploy ICBMs which have a launch-weight greater or a throw-weight greater than that of the heaviest, in terms of either launch-weight or throw-weight, respectively, of the heavy ICBMs deployed by either Party as of the date of signature of the Treaty. The Third Common Understanding associated with paragraph 5 of Article II states that the Soviet SS-18 is the heaviest in terms of launch-weight and throw-weight of heavy ICBMs. Thus, paragraph 7 of Article IV prevents the Soviet Union during the period of the Treaty from developing, testing or deploying an

ICBM with a launch-weight or throw-weight greater than that of the SS-18. The First and Second Agreed Statements associated with Paragraph 7 of Article II, which define launch-weight and throw-weight, apply also to this provision, as does the Common Understanding to paragraph 7 of Article II.

The eighth paragraph of Article IV prohibits conversion of land-based launchers of ballistic missiles which are not ICBMs into launchers of ICBMs, and testing them for this purpose. Thus, the conversion of an intermediate range ballistic missile (IRBM) launcher into an ICBM launcher would violate the Treaty. (Note that a "dual-capable" launcher, e.g., a launcher which could, without conversion, launch either an IRBM or an ICBM, would be handled differently. Such a launcher would in fact *be* an ICBM launcher; therefore, it and all launchers of its type would be counted as ICBM launchers, pursuant to the launcher definition and type rule in paragraph 1 of Article II.)

In the associated Common Understanding the Soviet Union undertakes, for the period of the Treaty, not to produce, test, or deploy ICBMs of the SS-16 type, and not to produce the unique components of the missile, that is, its third stage, its reentry vehicle, or its appropriate device (post-boost vehicle) for targeting the missile's single reentry vehicle. This obligation is important because of the apparent commonality of the first two stages of that missile and the booster of the SS-20 missile, which is a two-stage IRBM deployed on a land-mobile launcher. This apparent commonality was a cause for U.S. concern that the SS-20 launcher could launch SS-16 ICBMs with little or no change, and thus not only raise verification questions but also give the Soviet Union a mobile ICBM "break-out" potential.

In paragraph 9, each Party undertakes not to flight-test or deploy "new types" of ICBMs with the exception of one new type of ICBM for each Party, which must be a "light" ICBM.

ICBMs of a type which have been flight-tested as of May 1, 1979, are not considered to be of a new type. The one exception to the prohibition on new types of ICBMs may be either MIRVed or non-MIRVed.

This provision will permit the United States to flight-test and deploy the one new type of ICBM that we currently have under development, the MX. The Soviet Union will also be limited to only one new type of light ICBM. They must choose, for example, between: (1) replacing the multiple reentry vehicle (RV) SS-17 (4-RVs) and SS-19 (6-RVs) with a 10-RV light ICBM; and (2) replacing their SS-11 with a single-warhead light ICBM that differs substantially from the SS-11. They cannot do both.

The Agreed Statements and Common Understandings to paragraph 9 define a new type and at the same time limit the degree of permitted changes to existing types of ICBMs. An ICBM of a new type is defined to be an ICBM which is different from all ICBMs flight-tested as of May 1, 1979 with respect to: the number of stages of the missile; *or* the type of propellant (liquid or solid) of any of its stages; *or* differences of more than five percent (plus or minus) in the length, the largest diameter, the launch-weight, *or* the throw-weight of the missile (First Agreed Statement and First Common Understanding).

The five percent limit on reductions in launch-weight and throw-weight may be exceeded if the additional reduction in excess of five percent is due solely to reducing the number of reentry vehicles or penetration aids or both. (This allows a Party, for example, to extend the range of an ICBM by decreasing the number of its reentry vehicles.) In cases where the quantity of propellant carried by the missile is reduced, these five percent reduction limits may also be exceeded, provided that the number of reentry vehicles or penetration aids or both is also reduced and that the entire reduction in throw-weight and launch-weight is due solely to reducing the

quantity of propellant and the number of reentry vehicles or penetration aids or both (Third Common Understanding). (For example, in this latter case the weight of the missile structure could *not* be reduced.)

With respect to the one new type of light ICBM permitted to a Party, each ICBM of that type must have the same number of stages and the same type of propellant (liquid or solid) of each stage as the first ICBM of that type launched by that Party. The baseline values of the length, the diameter, the launch-weight, and the throw-weight are established as of the twenty-fifth launch or final launch before deployment, whichever occurs earlier. The values of these parameters may not differ in subsequent tests by more than five percent from the baseline values (Second Agreed Statement and Second Common Understanding). Here, too, the five percent limit on reductions in launch-weight and throw-weight may be exceeded for the purpose of reducing the number of reentry vehicles or penetration aids, and, additionally, propellant (Fourth Common Understanding).

As a further constraint on the flight-testing of the one permitted new type of ICBM, the values of the length, the diameter, the launch-weight, and the throw-weight of the missile may not differ by more than ten percent during the last twelve launches before the twenty-fifth launch or the final launch before deployment, whichever occurs earlier (Second Common Understanding). This inhibits a Party from actually testing more than one new type of ICBM under the guise of a test program for a single new type. Significant inconsistencies between the values demonstrated in these last twelve launches and the previous launches of the missile could be a subject for discussion in the Standing Consultative Commission.

The Second Agreed Statement further provides that a Party which launches an ICBM of the one permitted new type shall promptly notify the other Party: (1) of the date of the first

launch; and (2) of the date of either the twenty-fifth launch or the last launch before deployment, whichever occurs earlier. This requirement will increase confidence in verification of compliance with the new-type limitations.

In paragraph 10 of Article IV, the Parties agree not to flight-test or deploy an ICBM of an existing type with more reentry vehicles than the maximum number that had been flight-tested on that type of ICBM (MIRVed or non-MIRVed) as of May 1, 1979.

The First Agreed Statement associated with this paragraph (and with paragraph 12, which deals with SLBM fractionation) records the agreement on the maximum number of reentry vehicles that have been flight-tested on existing types of MIRVed ICBMs: seven for the Minuteman-III, four for the SS-17, six for the SS-19, and ten for the SS-18—and MIRVed SLBMs: fourteen for the Poseidon C-3, seven for the Trident C-4,⁶ and seven for the SS-N-18.

Although Minuteman III has previously been flight-tested with up to seven re-entry vehicles, it has never been deployed with more than three. The United States has agreed that, consistent with its plans during the term of the Treaty, it will not flight-test or deploy Minuteman III with more than three reentry vehicles (Common Understanding).

The Second Agreed Statement makes clear what is considered and counted as a flight-test of a reentry vehicle, whether from ICBMs, SLBMs, or ASBMs. After May 1, 1979, a flight-test of a reentry vehicle includes procedures for the actual or the simulated releasing or dispensing

of reentry vehicles. Such procedures mean maneuvers of a missile associated with targeting and releasing or dispensing reentry vehicles whether or not a reentry vehicle is actually released or dispensed.

The United States stated its understanding that such missile maneuvers include changes in orientation as well as changes in position and velocity and that in the event a question arises concerning procedures for targeting and releasing reentry vehicles which do not involve such changes, this could be a subject for discussion in the Standing Consultative Commission. The Soviet Union did not respond.

The purpose of the Second Agreed Statement is to prevent a Party from evading the fractionation restrictions through simulations. However, the Parties may test procedures for releasing antimissile defense penetration aids during the flight-test of a missile without such a test being considered as a flight-test of a reentry vehicle, provided that the procedures for releasing them are different from the procedures for releasing or dispensing reentry vehicles.

In addition, each Party undertakes not to flight-test or deploy: (a) a multiple-reentry vehicle ICBM (MIRVed or non-MIRVed) of an existing type, with a reentry vehicle that is lighter than the lightest reentry vehicle flight-tested on that type of ICBM as of May 1, 1979; (b) a single-reentry vehicle ICBM of an existing type that does not have an appropriate device for targeting a reentry vehicle (e.g., a post-boost vehicle), with a reentry vehicle that is lighter than the lightest reentry vehicle flight-tested on an existing type of MIRVed ICBM by that Party as of May 1, 1979; and (c) a single-reentry vehicle ICBM of an existing type that has such an appropriate device, with a reentry vehicle that weighs less than fifty percent of the throw-weight of that ICBM (Third Agreed Statement). These provisions are intended to inhibit a Party from quickly deploying, at a later date, more reentry vehicles than the number to which existing

⁶The figure of seven reentry vehicles for the Trident C-4 is based on the maximum number of reentry vehicles actually released during flight-tests of the missile as of May 1, 1979. If simulated releases of reentry vehicles had been counted as flight-tests of reentry vehicles, as is the case for simulations occurring after May 1, 1979, the figure for the C-4 would have been eight, which is the largest number of reentry vehicles for which the missile is designed and with which it will be deployed.

types of ICBMs are limited by paragraph 10 of Article IV.

In paragraph 11, the Parties undertake not to flight-test or deploy ICBMs of the one permitted new type with more than ten reentry vehicles, which is the maximum number of reentry vehicles with which an ICBM of either Party has been flight-tested as of May 1, 1979. Further, a Party may not flight-test or deploy ICBMs of the one new type with more reentry vehicles than the maximum number flight-tested on this type as of the twenty-fifth launch or the last launch before deployment begins, whichever occurs earlier (First Agreed Statement). The provision related to paragraph 10 for simulated release of reentry vehicles on flight-tests after May 1, 1979, is carried over and repeated (Second Agreed Statement).

There is no lower limit on the weight of individual reentry vehicles on the permitted new type of ICBM. (As noted above, there are such limits for existing types of ICBMs). However, a concern could arise were a side to flight-test a reentry vehicle on the permitted new type of ICBM for which the total weight of ten such reentry vehicles was a relatively small fraction, e.g., forty percent, of the missile's throw-weight. Such a practice would raise serious questions as to whether the missile were really designed to be one for which the payload would not exceed 10 reentry vehicles. In light of such a possibility we stated to the Soviets that, if such a problem arose in the future, it would be an issue for discussion and resolution in the Standing Consultative Commission. The Soviets made no response.

In paragraph 12, the Parties undertake not to flight-test or deploy SLBMs with more than fourteen reentry vehicles, which is the maximum number of reentry vehicles with which an SLBM of either Party has been flight-tested as of May 1, 1979. This limit applies to all SLBMs, both existing and future. As noted earlier, the First Agreed Statement to para-

graph 10 of Article IV specifies the number of reentry vehicles with which MIRVed ICBMs and SLBMs of existing types have been flight-tested, and that Statement is repeated for paragraph 12 (First Agreed Statement). The provision for simulated release of reentry vehicles on flight-tests after May 1, 1979, is again repeated (Second Agreed Statement).

In paragraph 13, the Parties undertake not to flight-test or deploy ASBMs with more than ten reentry vehicles, which is the maximum number of reentry vehicles with which an ICBM of either Party has been flight-tested as of May 1, 1979. The simulation provision for reentry vehicle tests after May 1, 1979, again applies (Agreed Statement).

Paragraph 14 of Article IV establishes an undertaking by the Parties not to deploy on heavy bombers equipped for long-range cruise missiles at any one time a number of such cruise missiles in excess of an average of twenty-eight per bomber so equipped. This sets no limit on the number of ALCMs that can be placed on a given bomber, so long as the average over the whole force of bombers equipped for ALCMs does not exceed twenty-eight. The First Agreed Statement provides that for the purposes of this limitation there shall be considered to be deployed on each heavy bomber of a given type, the maximum number of long-range cruise missiles for which any bomber of that type is equipped for one operational mission. This Agreed Statement is similar to the language of paragraph 4 of Article III, which establishes an ASBM carrier counting rule.

In the Second Agreed Statement, the Parties state that they will not equip any heavy bomber of existing types (B-52 and B-1 bombers for the United States and Tupolev-95 and Myasishchev bombers for the Soviet Union) for more than 20 long-range cruise missiles. This would not affect current U.S. plans for deployment of

long-range cruise missiles on B-52s. During the Vienna summit, the two Parties made parallel statements to the effect that neither has plans to deploy during the period of the Treaty new types of aircraft equipped with more than twenty long-range cruise missiles. However, such deployment is not prohibited under the provisions of the Treaty.

Article V—MIRV Limitations

This Article sets a sublimit on MIRVed systems and heavy bombers equipped for cruise missiles under the overall aggregate limitations contained in paragraphs 1 and 2 of Article III.

Paragraph 1 of Article V provides that within the overall aggregate numbers, each Party undertakes to limit launchers of ICBMs and SLBMs equipped with MIRVs, ASBMs equipped with MIRVs, and heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers to an aggregate number not to exceed 1,320.

Paragraph 2 provides that within the aggregate number set forth in paragraph 1 of this Article (1320), each Party undertakes to limit launchers of ICBMs and SLBMs equipped with MIRVs, and ASBMs equipped with MIRVs, to an aggregate number not to exceed 1,200. Thus, of the 1320 aggregate, only 1200 can be used for MIRVed systems. The remaining 120 can be used only for heavy bombers equipped for long-range cruise missiles. A Party may, however, have more than 120 such bombers, if it has correspondingly fewer MIRVed systems, thereby complying with the 1320 aggregate.

Paragraph 3 provides that, within the aggregate number set forth in paragraph 2 of this Article (1200), each Party undertakes to limit launchers of ICBMs equipped with MIRVs to an aggregate number not to exceed 820. As noted in the discussion of paragraph 5 of Article II, all of the Soviet

ICBM launchers at the deployment areas near Derazhnya and Pervomaysk are included in the 820 limit.

Paragraph 4 establishes the method for counting MIRVed ASBMs under the 1320 and 1200 aggregates. It provides that the aggregate numbers set forth in paragraphs 1 and 2 shall include for each bomber of a type equipped for MIRVed ASBMs the maximum number of ASBMs for which a bomber of that type is equipped for one operational mission. The method is analogous to that established in Article III for counting ASBMs under the overall aggregate limitation. An associated type rule provides that if a bomber is equipped for MIRVed ASBMs, all bombers of that type will be considered to be bombers equipped for MIRVed ASBMs (Agreed Statement).

Finally, paragraph 5 provides that within the aggregate numbers provided for in paragraphs 1, 2, and 3 of this Article and subject to the other provisions of the Treaty, each Party has the right to determine the composition of these aggregates, thereby adopting the same principle of freedom to mix for MIRVed systems as for strategic offensive arms generally.

Article VI—Rules for Inclusion of Arms in the Aggregates

Paragraph 1 of this Article is patterned on paragraph 2 of Article II of the ABM Treaty.⁷ It provides that the Treaty limitations apply to all strategic offensive arms which are: (a) operational; (b) in the final stage of construction; (c) in reserve, in storage, or mothballed; and (d) undergoing overhaul, repair, modernization, or conversion. Its purpose is to ensure that strategic offensive arms begin to count in the aggregate limitations when they enter the final stage of construction,

⁷Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, signed at Moscow, May 26, 1972, 23 UST 3435, TIAS 7503.

and that they continue to be included regardless of changes in status until removed under agreed procedures. For example, under subparagraph (d), an ICBM launcher remains subject to the aggregate limitations even while undergoing modernization or conversion, and a heavy bomber remains subject to such limitations, even if placed in storage or mothballed (such as certain United States B-52s).

Paragraph 2 defines the term "final stage of construction". For SLBM launchers, this stage begins when the submarine on which such launchers are deployed begins sea trials (the same criterion as used under the Interim Agreement). ASBMs enter the final stage of construction after a bomber equipped for such missiles has been brought out of the shop, plant, or other facility where its final assembly or conversion for the purpose of equipping it for such missiles has been performed. Other strategic offensive arms which are finally assembled in a shop, plant, or other facility, are likewise in the final stage of construction after they come out of the shop, plant, or other facility where their final assembly has been performed. This provision will apply to heavy bombers and to mobile ICBM launchers.

Paragraph 3 provides rules as to when existing ICBM and SLBM non-MIRV launchers which are converted to MIRV launchers become subject to the limits of Article V. ICBM launchers undergoing conversion for MIRVs become subject to Article V when work on their conversion reaches the stage which first definitely indicates that they are being so converted, *i.e.*, when work has advanced to a stage that permits verification by national technical means that conversion, as opposed to other work such as silo hardening, is taking place. SLBM launchers which are being converted to accept MIRVed SLBMs become subject to Article V when the submarine on which such launchers are deployed first goes to sea after conversion has been performed.

An associated Agreed Statement states that procedures for determining when mobile launchers of non-MIRVed ICBMs being converted to launchers of MIRVed ICBMs become subject to Article V will be developed in the Standing Consultative Commission (pursuant to paragraph 7 of this Article), unless the Parties agree that such launchers shall not be deployed after expiration of the Protocol.

Paragraph 4 provides that ASBMs on a bomber which is being converted from one equipped for non-MIRVed ASBMs to one equipped for MIRVed ASBMs become subject to the MIRV limitation of Article V when such a bomber is brought out of the shop, plant, or other facility where the conversion of the bomber has been performed.

Paragraph 5 provides for the inclusion under the 1,320 limitation contained in paragraph 1 of Article V of types of bombers being converted to a bomber of a type equipped for long-range cruise missiles. A heavy bomber so converted becomes subject to such limitation when it is first brought out of the conversion facility. Likewise, airplanes other than heavy bombers become subject to both the Article III and Article V aggregate limitations when they are first brought out of the facility where they have been equipped for long-range cruise missiles.

Paragraph 6 contains the rule as to when strategic offensive arms will cease to count under the Treaty limitations. It provides that the arms subject to the limitations provided for in the Treaty shall remain subject to these limitations until they are dismantled, are destroyed, or otherwise cease to be subject to these limitations under procedures to be agreed upon in the Standing Consultative Commission. The last phrase covers cases in which a strategic delivery vehicle is lost by an accident such as a submarine sinking or a bomber crash. In addition, the associated Agreed Statement makes clear that procedures for arms ceasing

to be subject to the Treaty limitations shall include procedures for removal from the limits of Article V if such launchers should be converted from launchers of MIRVed missiles to launchers of non-MIRVed missiles. Also to be included are procedures for converting bombers to remove them from the overall aggregate limitation of Article III as well as the Article V limitation as appropriate. The Common Understanding to paragraph 6 provides that procedures to be developed for removal of converted bombers from the aggregate limitations must be based on the existence of functionally related observable differences.

Paragraph 7 states that, in accordance with the provisions of Article XVII, the Parties shall agree in the Standing Consultative Commission upon procedures to implement the provisions of Article VI.

Article VII—Test and Training Launchers

Paragraph 1 of Article VII provides that the aggregate numerical limitations of Article III of the Treaty (as well as the sublimits set forth in Article V) do not apply to ICBM and SLBM test and training launchers or to space vehicle launchers for exploration and use of outer space. ICBM and SLBM test and training launchers are defined as ICBM and SLBM launchers used only for testing and training. Thus, operational launchers cannot be removed from the aggregate limitations by virtue of their being used also as test and training launchers. No exemption exists for heavy bombers used for purposes of testing or training except for the special provision for cruise missile and ASBM test aircraft associated with Article VIII. The Common Understanding associated with this paragraph states that the term "testing" as used in Article VII includes research and development activities.

In paragraph 2 of Article VII the Parties agree on certain specific limita-

tions on ICBM and SLBM test and training launchers which are not otherwise limited by the Treaty. These limitations resemble limitations in the SALT I Interim Agreement, although they are made more precise in this Treaty. Paragraph 2 prohibits any significant increase in the number of ICBM or SLBM test and training launchers, or in the number of such launchers of heavy ICBMs.

The First Agreed Statement defines "significant increase" as an increase of 15 percent or more. In a meeting between the Chiefs of Delegations on May 5, 1976, the United States and the Soviet Union agreed that the number of test and training launchers in existence on the date of entry into force of the Treaty would be the base for counting increases in the numbers of test and training launchers. The First Agreed Statement also provides that any new ICBM test and training launchers which replace launchers at test ranges must be located at test ranges. As a result, except for the permitted increase (up to 15 percent), a Party could not locate new test and training launchers at an operational complex.

Paragraph 2 further provides, as did the Interim Agreement, that construction or conversion of ICBM launchers at test ranges shall be undertaken only for purposes of testing and training. The Second Agreed Statement specifies the locations of current ICBM test ranges: for the United States, near Santa Maria, California, and at Cape Canaveral, Florida; and for the Soviet Union, in the areas of Tyura-Tam and Plesetskaya. The Statement also obligates the Parties to give notification in the Standing Consultative Commission of the location of any additional test range used to flight-test ICBMs.

The First Common Understanding states that other arms may also be tested at ICBM test ranges.

The Second Common Understanding deals with the disposition of eighteen Soviet launchers located at the Tyura-Tam test range, which the So-

viet Union stated were test and training launchers associated with fractional orbital missiles, but which the United States assessed to be part of the operational SS-9 missile force. Twelve of these launchers will be dismantled or destroyed within eight months after the entry into force of the Treaty. Dismantling or destruction must begin upon entry into force of the Treaty and follow procedures to be agreed upon in the Standing Consultative Commission. These twelve launchers, unlike test and training launchers which are dealt with elsewhere in Article VII, may not be replaced. The remaining six launchers may be converted to launchers for testing missiles undergoing modernization and will be included in the base from which the permitted increase will be measured. After entry into force of the Treaty, the missiles they now contain will be removed and destroyed pursuant to Articles IX and XI, and may not be replaced by other missiles unless the launchers are converted. Prior to such conversion, any activities associated with the launchers must be limited to normal maintenance requirements for launchers in which missiles are not deployed. The six launchers will be subject to the provisions of Article VII and, if converted, must be distinguishable as launchers of MIRVed missiles or launchers of non-MIRVed missiles on the basis of externally observable design features, pursuant to paragraph 5 of Article II of the Treaty.

Finally, paragraph 2 includes a prohibition on conversion of test and training launchers or of space vehicle launchers into ICBM launchers subject to the limitations in Article III (and Article V).

Article VIII—Limitations on Aircraft Other than Heavy Bombers^a

^aNote that the Treaty makes a distinction between the term "airplane" (a vehicle which sustains flight by use of fixed or variable-geometry wings) and the term "aircraft" (which also includes vehicles such as helicopters and dirigibles).

Under paragraph 1 of this article, the Parties undertake not to flight-test long-range cruise missiles or ASBMs from aircraft other than bombers, or convert such aircraft into aircraft equipped for such missiles.

The associated Agreed Statement excepts up to sixteen test airplanes from the Article III aggregate limitation (and the 1,320 sublimit), so long as these airplanes are used only for test purposes. These test airplanes must be distinguishable by functionally related observable differences (FRODs) from airplanes otherwise of the same type that are not equipped for long-range ALCMs or ASBMs (with the exception noted below). These airplanes may either be initially constructed or converted for this purpose, notwithstanding the conversion ban of paragraph 1 of Article VIII. Airplanes which would be considered to be heavy bombers even if not equipped for long-range ALCMs or for ASBMs may not be included among those sixteen test airplanes.

The exception to the FROD requirement noted above is limited to airplanes other than heavy bombers which were used for testing long-range cruise missiles prior to March 7, 1979. These airplanes will not be used for such testing after six months after entry into force of the Treaty unless they are made distinguishable from other airplanes with the same basic airframe on the basis of FRODs. The United States proposed this exception to cover two existing U.S. A-6 bombers which were in use as cruise missile test airplanes and which are not distinguishable from other A-6s.

The First Common Understanding makes clear that the term "testing" includes research and development. The Second Common Understanding provides for notification in the Standing Consultative Commission of exempted test airplanes. The Third Common Understanding provides that none of the sixteen test airplanes may be replaced except in the case of its dismantling or destruction. The Stand-

ing Consultative Commission will develop procedures to cover this situation as well as to provide for conversion of such airplanes from the ALCM or ASBM test function.

A principal effect of paragraph 1 of this Article is to prohibit the conversion of previously constructed airplanes, other than bombers, e.g., existing transport airplanes, for use as operational cruise missile carriers or ASBM carriers, with the exceptions mentioned above. Existing bombers which are not heavy bombers, such as the Backfire or the FB-111, may be converted to cruise missile or ASBM carriers. However, if they are so converted, they will be included as heavy bombers in the Article III aggregate limitations and in the 1320 Article V limitation. Furthermore, all other bombers with the same basic airframe would also be included, unless they have FRODs indicating they could not be used as long-range cruise missile or ASBM carriers.

Paragraph 2 of the Article prohibits the conversion of aircraft other than bombers into aircraft which can carry out the mission of a heavy bomber in a manner similar to or superior to that of current types of heavy bombers, i.e., the B-52, B-1, Tupolev-95; and Myasishchev types.

Article IX—Special Prohibitions on Weapon Systems

This article prohibits or restricts certain types of weapon systems.

Subparagraph 1(a) prohibits the development, testing, and deployment of ballistic missiles capable of a range in excess of 600 kilometers for installation on waterborne vehicles other than submarines, and of launchers of such missiles. This provision prohibits the development of a long-range ballistic missile system for surface ships. The United States has no plans for such a system. An associated Common Understanding declares that this prohibition does not affect current practices for transporting ballistic missiles, such

as would be used in supplying missiles to operating bases.

Subparagraph (b) of paragraph 1 of Article IX prohibits the development, testing, and deployment of fixed ballistic or cruise missile launchers for emplacement on the seabed or on the beds of internal waters, or mobile launchers of such missiles which move only in contact with the beds of such waters, as well as missiles for such launchers. The effect of this provision is: (a) to extend the prohibitions of the Seabed Arms Control Treaty⁹ to the entire territorial waters and internal waters of the Parties; and (b) to extend its obligations to include development and testing in addition to deployment. The Seabed Arms Control Treaty essentially prohibits Parties from emplacing nuclear weapons or other weapons of mass destruction as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons, on the seabed and the ocean floor (or its subsoil) beyond a 12-mile coastal "seabed zone" measured from the baseline of the territorial sea. An associated Agreed Statement makes clear that the obligation contained in this subparagraph applies, *inter alia*, to all areas covered by the Seabed Arms Control Treaty.

The prohibition on mobile launchers which can move only in contact with the seabed does not include launchers on submarines, as submarines need not be in contact with the seabed in order to move.

Subparagraph 1(c) of Article IX prohibits the development, testing and deployment of systems for placing into earth orbit nuclear weapons or any other kind of weapons of mass destruction, including fractional orbital mis-

⁹The Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof, signed at Washington, London and Moscow February 11, 1971, 23 UST 701, TIAS 7337. The United States and Soviet Union are both Parties to this Treaty.

siles. This subparagraph expands the obligations of the Outer Space Treaty,¹⁰ in that the Outer Space Treaty prohibits only the actual placement in space of weapons of mass destruction, and does not cover fractional orbital missiles.

An associated Common Understanding states that the prohibition on fractional orbital missiles does not require dismantling or destruction of existing launchers of either Party. However, under the Second Common Understanding to paragraph 2 of Article VII the Soviets have agreed to dismantle or destroy twelve SS-9 launchers at the Tyura-Tam test range which have been used to test a fractional orbital bombardment system (FOBS) several times in the past. Moreover, any fractional orbital missiles in existence must be dismantled or destroyed pursuant to the obligation of paragraph 4 of Article XI, and such missiles cannot be developed in the future.

Subparagraph (d) of paragraph 1 prohibits the development, testing, and deployment of mobile launchers of heavy ICBMs. This obligation complements what is in effect a ban on additional fixed launchers of modern heavy ICBMs contained in Article IV. Heavy ICBMs are defined in paragraph 7 of Article II.

Subparagraphs (e) and (f) prohibit heavy SLBMs and their launchers and heavy ASBMs. These subparagraphs in effect define heavy SLBMs and heavy ASBMs in language parallel to that for the definition of heavy ICBMs in paragraph 7 of Article II. A heavy SLBM or ASBM is one with a launch-weight or throw-weight heavier than that of the Soviet SS-19 ICBM. The First and Second Agreed Statements defining launch-weight and throw-weight and the Common Understand-

ing concerning "other appropriate devices" for SLBMs and ASBMs also parallel those under paragraph 7 of Article II. The mutual understanding of the Parties on the terminology related to the definition of throw-weight set forth in the plenary statements by both Parties on October 29, 1976 (stated above), applies here as well.plies here as well.

The second paragraph of this Article prohibits the flight-testing and deployment on heavy bombers of long-range cruise missiles equipped with multiple independently targetable warheads. An Agreed Statement to paragraph 2 defines "independently targetable" warheads of cruise missiles. This definition is similar to that of MIRVs, which are defined under paragraph 5 of Article II. This definition does not include cruise missiles equipped with "cluster warheads"; nor does it include a recoverable, single-warhead cruise missile which can attack independent targets on separate flights.

Article X—Modernization and Replacement

This Article, like Article IV of the Interim Agreement, provides explicitly that the Parties may modernize and replace strategic offensive arms, subject to the provisions of the Treaty. Examples of Treaty provisions that restrict this right include: the prohibition on the conversion of launchers of light and older heavy ICBMs to launchers of modern heavy ICBMs; the establishment of an upper limit on the launch-weight and throw-weight of light and heavy ICBMs; the prohibitions on mobile launchers of heavy ICBMs, heavy SLBMs and their launchers, and heavy ASBMs; the ban on ICBM rapid-reload systems; the limitations on the flight-testing and deployment of new types of ICBMs; the fractionation limits on ICBMs, SLBMs, and ASBMs; and the various aggregate limits and sublimits.

¹⁰Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, signed at Washington, London and Moscow January 27, 1967, 18 UST 2410, TIAS 6347. The United States and Soviet Union are both Parties to this Treaty.

Article XI—Dismantling and Destruction of Excess and Prohibited Arms

Paragraph 1 of this Article provides that strategic offensive arms in excess of the numbers specified in the Treaty, as well as those which are prohibited by the Treaty, shall be dismantled or destroyed under procedures to be agreed upon in the Standing Consultative Commission. This paragraph is similar to Article VIII of the ABM Treaty.

Paragraph 2 provides that the dismantling or destruction of strategic offensive arms which would be in excess of the 2,400 ceiling specified in paragraph 1 of Article III shall begin on the date of the entry into force of the Treaty and shall be completed within four months for ICBM launchers, six months for SLBM launchers, and three months for heavy bombers. The time periods specified for ICBM launchers and SLBM launchers are derived from procedures agreed upon in the Standing Consultative Commission pursuant to the Interim Agreement. The concept of dismantling or destroying excess systems includes the possibility of converting excess systems to a non-limited status. For example, the Soviets have stated their intention of converting their Myasishchev (Bison) heavy bombers into tankers or for other purposes. In so doing, they would be given features indicating that they cannot be used as heavy bombers.

Paragraph 3 provides that dismantling or destruction of strategic offensive arms which would be in excess of the 2,250 ceiling provided for in paragraph 2 of Article III shall be initiated by January 1, 1981 and completed no later than December 31, 1981. Reductions pursuant to this paragraph shall be carried out throughout the prescribed period.

Paragraph 4 of this Article provides that dismantling or destruction of strategic offensive arms of types which are prohibited by the Treaty must be completed no later than six months

after entry into force. As of the date of signature, the only strategic offensive arms of these types are the fractional orbital missiles of the Soviet Union, as noted above.

Article XII—Non-Circumvention

Article XII contains an undertaking by the Parties that they will not circumvent the provisions of this Treaty, through a third state or states, or in any other manner. This provision simply makes explicit the inherent obligation any state assumes when party to an international agreement not to circumvent the provisions of that agreement. The provision does not impose any additional obligation, nor does it broaden the interpretation of the other obligations in the Treaty. It will not affect existing patterns of collaboration and cooperation with our Allies, nor will it preclude cooperation in modernization.

Article XIII—Prohibition of Conflicting Obligations

Article XIII provides that, during the term of the Treaty, neither Party will assume any international obligations which would be in conflict with this Treaty. The Article refers only to the assumption of obligations in the future, and existing agreements are therefore not affected. The article is identical to Article X of the ABM Treaty.

Article XIV—Future Negotiations

In this Article the Parties undertake to begin the next phase of the SALT negotiations promptly after the entry into force of this Treaty. Such negotiations are described in this Article as negotiations on further measures for the limitation and reduction of strategic arms. These negotiations are also the subject of the Joint Statement of Principles.

The Parties also state in this Article their intention to conclude a successor agreement to this Treaty well in advance of its expiration in 1985.

Article XV—Verification

Paragraphs 1 and 2 of this Article are adopted verbatim from the first two paragraphs of Article XII of the ABM Treaty and Article V of the Interim Agreement. In the first paragraph, the Parties agree that, for providing assurance of compliance with the Treaty, they will utilize the national technical means of verification at their disposal in a manner consistent with accepted principles of international law.

National technical means include a broad range of systems for collecting intelligence. Such systems include, *inter alia*, photo-reconnaissance satellites, the ships and aircraft which are used to monitor Soviet missile tests, and ground stations, such as the large U.S. radar on Shemya Island in Alaska.

In the second paragraph, the Parties state their commitment not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article. For example, this provision prohibits use of anti-satellite systems against satellites of the other Party that are used for Treaty verification.

The third paragraph of this Article prohibits deliberate concealment measures which impede verification by national technical means of compliance with the Treaty. This obligation does not require changes in current construction, assembly, conversion, and overhaul practices. This provision repeats paragraph 3 of Article XII of the ABM Treaty and Article V of the Interim Agreement. However, two Agreed Statements and two Common Understandings further elaborate its meaning, and a third Common Understanding broadens its scope in one area.

Deliberate concealment measures are measures carried out deliberately to hinder or deliberately to impede verification by national technical means (First Agreed Statement). The purpose of this understanding is to

indicate that the concept of deliberate concealment measures includes means of impeding verification other than physical concealment—for example, measures such as camouflage, decoys, or encryption of telemetry (discussed below).

The prohibition on deliberate concealment measures does not preclude the testing of anti-missile defense penetration aids, even though penetration aids may have as their purpose the concealment or imitation of reentry vehicles (Second Agreed Statement).

The ban on deliberate concealment in paragraph 3 and the definition of deliberate concealment in the First Agreed Statement apply to all provisions of the Treaty, including provisions associated with testing (First Common Understanding). This Common Understanding further notes that the prohibition on deliberate concealment measures includes measures associated with testing. Thus testing practices, such as the encryption of telemetry, are covered. Also, the Common Understanding notes that the prohibition includes measures intended to conceal the association between ICBMs and their launchers during testing. For example, this would prohibit the kinds of covered facilities employed at a Soviet test range several years ago which impeded our ability to associate the SS-16 ICBM with its launcher.

The question of deliberate denial of telemetric information is explicitly addressed. Although each Party is free to use various methods of transmitting telemetric information, including its encryption, the deliberate denial of telemetric information by any means, such as by encryption, is prohibited whenever such denial impedes verification of compliance with the provisions of the Treaty (Second Common Understanding). Because the *only* purpose of encryption is to conceal information from other than the intended recipient, any encryption of telemetry is a deliberate denial of telemetric information; therefore, any encryption

of telemetry that impedes verification of compliance with the provisions of the Treaty is prohibited.

In further discussions of the telemetry encryption issue at the Vienna summit the Soviets stated that there must be no encryption of information involving parameters covered by the Treaty, that there was an understanding between the Parties on this issue and that if any misunderstandings arose, they could be considered in the Standing Consultative Commission.

The use over ICBM silo launchers of shelters, such as environmental shelters, which impede verification by national technical means is prohibited (Third Common Understanding). This prohibition applies whether or not the use of such shelters is deliberately designed to impede verification. The language of this Common Understanding refers only to ICBM *silo* launchers, which are fixed launchers of ICBMs; thus it does not apply to mobile ICBM launchers.

Article XVI—Advance Notification of ICBM Launches

The first paragraph of Article XVI provides that before conducting each planned ICBM launch, each Party will notify the other well in advance that such a launch will occur. An exception is provided for single ICBM launches, whether from test ranges or launcher deployment areas, which are not planned to extend beyond the launching Party's national territory. Thus, the Treaty requires advance notification of all planned multiple ICBM launches, and of all single ICBM launchers that are planned to extend beyond the launching side's national territory.

This provision will require notification of all Soviet multiple ICBM launches (more than one missile in flight at once), from both test ranges and ICBM launcher deployment areas, as well as all Soviet ICBM launchers which are planned to extend beyond Soviet national territory.

All United States ICBM launches are planned to extend beyond its national territory, so advance notice will be required of all United States ICBM launches. Since all U.S. ICBM launches extend over the high seas, the United States already gives notice of all its ICBM launches under the Incidents at Sea Agreement,¹¹ by means of a general notice to mariners.

The Soviets also already give such a general notice of their extra-territorial ICBM launches under the Incidents at Sea Agreement. However, under paragraph 1 of Article XVI of the Treaty they will now be required to give notice to the United States of each such planned launch (as opposed to a general notice of possible launches during some period of time), and also of each intra-territorial launch for which two or more ICBMs are planned to be in flight at one time (for which no notice is now required).

The word "launch" as used in Article XVI does not cover so-called pop-up tests. (In a pop-up test, a missile is ejected from a silo by compressed air or some other device, but its fuel is either not ignited or only burns for a very short time.)

The First Common Understanding associated with this Article declares that the obligations of Article XVI include those ICBM launches for which advance notification is already required pursuant to the Accidents Measures Agreement¹² and the Incidents at Sea Agreement. In addition, the Parties also agree in this Understanding that nothing in Article XVI is intended to inhibit advance notification on a voluntary basis of ICBM launches not covered by the obligations of the Article in cases when, in

¹¹Agreement Between the United States of America and the Union of Soviet Socialist Republics on the Prevention of Incidents On and Over the High Seas, signed at Moscow, May 25, 1972, 23 UST 1168, TIAS 7379.

¹²Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War Between the United States and the Soviet Union, signed at Washington September 30, 1971, 11 UST 1590, TIAS 7186.

the judgment of the conducting Party, notification would enhance confidence between the Parties. The Second Common Understanding defines a multiple launch as one which would result in two or more ICBMs of a Party being in flight at the same time. The Third Common Understanding provides that the ICBM test ranges referred to in this Article are those designated pursuant to the Second Agreed Statement to paragraph 2 of Article VII.

Paragraph 2 indicates that procedures will be agreed upon in the Standing Consultative Commission to implement the provisions of this Article.

Article XVII—Standing Consultative Commission

Article XVII is based in part on Article XIII of the ABM Treaty¹³ and includes a number of provisions contained in that Article. This Article also includes significant new provisions, such as the provision for the maintenance of an agreed data base.

Paragraph 1 of Article XVII states that the Parties, in order to promote the objectives and implementation of the Treaty, shall use the Standing Consultative Commission established, pursuant to Article XIII of the ABM Treaty, by a bilateral Memorandum of Understanding.¹⁴

Paragraph 2 sets forth the functions of the Standing Consultative Commission with respect to this Treaty, which are based in large part on Article XIII of the ABM Treaty. Subparagraph (a) authorizes the Commission to consider questions concerning compliance with the obligations assumed under the

Treaty and related situations which may be considered ambiguous. This provision establishes a broad authority for the Commission.

Subparagraph (b) states that each Party will provide on a voluntary basis such information as it considers necessary to assure confidence in compliance with the obligations assumed.

Subparagraph (c) states the Commission's authority, as under the ABM Treaty, to consider questions involving unintended interference with national technical means of verification, and adds to this the authority to consider questions involving unintended impeding of verification by national technical means of compliance with the provisions of the Treaty. The latter authority was added as a result of the Parties' discussions associated with the negotiation of paragraph 3 of Article XV and the meaning of deliberate concealment measures which impede verification. This additional provision specifically authorizes the Parties to consider questions such as unintentional concealment which results in the impeding of verification by national technical means.

Subparagraph (d) states the Commission's authority to consider possible changes in the strategic situation which have a bearing on the provisions of the Treaty.

Subparagraph (e) provides that the Parties will agree on procedures for replacement, conversion and dismantling or destruction of strategic offensive arms as provided by the provisions of the Treaty (most notably Articles VI and XI), and also upon procedures for removal of such arms from the aggregate numbers when they otherwise cease to be subject to the limitations provided for in the Treaty (as specified in Article VI).

This subparagraph also requires notification at regular sessions of the Commission, in accordance with the aforementioned procedures, of actions completed and those in process. Such notifications shall occur at least two times a year. This carries over into the Treaty the concept of procedures and

¹³The Interim Agreement also stated that the Parties would use the Standing Consultative Commission to promote the objectives and implementation of the provisions of that agreement.

¹⁴Memorandum of Understanding between the United States and the Soviet Union Regarding the Establishment of a Standing Consultative Commission, signed at Geneva December 21, 1972, 24 UST 238, TIAS 7545.

notification developed in the course of implementing the Interim Agreement. It should be noted that under the Interim Agreement the Parties successfully negotiated in the Commission detailed procedures for dismantling, destruction, replacement, and notification for ICBM and SLBM launchers.

Subparagraph (f) states the Commission's authority to consider proposals to increase the viability of the Treaty, including proposals for amendment, as well as proposals for additional measures limiting strategic offensive arms.

In paragraph 3, the Parties agree that in the Commission they will maintain, by category, the agreed data base on the numbers of strategic offensive arms established by the Memorandum of Understanding of June 18, 1979 (discussed below). The Agreed Statement to this paragraph provides that, in order to maintain the agreed data base, the Parties agree to notify each other of and consider at each regular session of the Commission (at least twice yearly) any changes in the agreed numbers for each of the categories listed.

Article XVIII—Amendments

Article XVIII states that each Party may propose amendments to this Treaty and that any amendments shall enter into force in accordance with the same procedures as those governing the entry into force of the Treaty.

Article XIX—Entry Into Force and Duration

Paragraph 1 of Article XIX provides that the Treaty shall be subject to ratification in accordance with the constitutional procedures of each Party and shall enter into force on the day of the exchange of instruments of ratification. This Treaty is of limited duration and shall remain in force through December 31, 1985, unless replaced earlier by an agreement further limiting strategic offensive arms.

Paragraph 2 of this Article states that the Treaty shall be registered with

the United Nations pursuant to Article 102 of the United Nations Charter.¹⁵

Paragraph 3 of this Article contains the "supreme national interests" withdrawal clause which has been a standard provision in most modern arms control agreements. It provides for the right of a Party to withdraw from the Treaty if extraordinary events related to the subject matter of the Treaty have jeopardized its supreme interests. Withdrawal under this provision requires a six-month advance notification.

THE PROTOCOL

The Protocol is an integral part of the Treaty. It sets forth limitations of shorter duration on certain systems, which limitations will remain in force until December 31, 1981. The Protocol consists of a preamble and four Articles. The limitations in the Protocol will not serve as a precedent for any limitations which may be addressed in future negotiations.

Preamble

In the preamble, the Parties state that, having agreed on limitations on strategic offensive arms in the Treaty, they have agreed on additional limitations for the period of the Protocol.

Article I—Mobile ICBM Launchers

In this Article, the Parties undertake, for the period of the Protocol, not to deploy mobile ICBM launchers or to flight-test ICBMs from such launchers. This Article will permit the development, construction and testing of mobile ICBM launchers, provided that the testing does not involve ICBM flight-testing from such launchers during the period of the Protocol. The MX missile will not be ready for

¹⁵ Article 102 of the U.N. Charter provides that every treaty and international agreement entered into by any U.N. Member shall as soon as possible be registered with the Secretariat and published by it.

flight-testing prior to the expiration of the Protocol, and this Article will therefore not affect the development of a mobile-based MX missile.

Article II—Sea-Launched and Ground-Launched Cruise Missiles

In paragraph 1 of this Article the Parties, for the period of the Protocol, undertake not to deploy long-range cruise missiles on sea-based launchers or land-based launchers. This Article does not limit the range capability of cruise missiles flight-tested from sea-based or land-based launchers or the range of such tests. (It should also be noted that there is no upper range limit, either in the Treaty or in the Protocol, on cruise missiles flight-tested from or deployed on heavy bombers.)

After the expiration of the Protocol, no limits are provided for either flight-testing or deployment of sea-launched cruise missiles (SLCMs) or ground-launched cruise missiles (GLCMs), since no such limits are contained in the Treaty.

This Article will not affect United States plans for testing or deploying ground-launched and sea-launched cruise missiles, which will not be ready for deployment prior to expiration of the Protocol.

Paragraph 2 of Article II of the Protocol prohibits the flight-testing of long-range cruise missiles equipped with multiple independently targetable warheads from sea-based or land-based launchers. An Agreed Statement to paragraph 2 defines "independently targetable" warheads. The definition is the same as that used in Article IX of the Treaty for independently targetable warheads of long-range cruise missiles on aircraft.

Paragraph 3 of Article II provides a definition of sea-launched cruise missiles and ground-launched cruise missiles. For the purposes of the Protocol, cruise missiles are defined as unmanned, self-propelled, guided, weapon-delivery vehicles which sustain flight through the use of aerody-

namic lift over most of their flight path and which are flight-tested from or deployed on sea-based or land-based launchers, that is, sea-launched cruise missiles (SLCMs) and ground-launched cruise missiles (GLCMs), respectively. The Agreed Statements and Common Understandings associated with this paragraph for SLCMs and GLCMs parallel those for ALCMs under paragraph 8 of Article II of the Treaty.

The purpose of carefully limiting the cruise missile definition and its associated provisions in the Treaty to those cruise missiles covered by the Treaty, and likewise limiting the definition in the Protocol, is to reinforce the concept that the definition of cruise missiles in the Protocol applicable to sea-launched and ground-launched cruise missiles expires with the Protocol. As the U.S. has made clear in the negotiating record, this definition sets no precedent for future limits, if any, on weapon systems covered by Article II of the Protocol.

Article III—ASBMs

Article III prohibits for the period of the Protocol the flight-testing and deployment of ASBMs.

Article IV—Entry Into Force and Duration

Article IV of the Protocol states that the Protocol is an integral part of the Treaty and shall enter into force on the date of the entry into force of the Treaty, and remain in force until December 31, 1981, unless replaced earlier by an agreement on further measures limiting strategic offensive arms.

JOINT STATEMENT OF PRINCIPLES AND BASIC GUIDELINES FOR SUBSEQUENT NEGOTIATIONS ON THE LIMITATION OF STRATEGIC ARMS

The Joint Statement of Principles, also signed on June 18, 1979, sets forth

the intent of the Parties concerning subsequent negotiations on strategic arms limitations. In Article XIV of the Treaty the Parties have agreed to begin these negotiations promptly after the entry into force of the Treaty. The Joint Statement consists of three preambular paragraphs and four sections.

Preamble

In the first paragraph, the Parties state that they have concluded the Treaty on the Limitation of Strategic Offensive Arms.

In the second paragraph, the Parties reaffirm that the strengthening of strategic stability meets the interests of the Parties and the interests of international security.

In the third paragraph, the Parties state their belief that early agreement on the further limitation and reduction of strategic arms will serve to strengthen international peace and security and to reduce the risk of outbreak of nuclear war.

First Section

In the first section, the Parties state that they will continue negotiations, in accordance with the principle of equality and equal security, on measures for the further limitation and reduction in the numbers of strategic arms, and for further qualitative limitation of such arms. The Parties, in furtherance of existing agreements on the limitation and reduction of strategic arms, and in order to reduce the risk of nuclear war, will continue to seek measures to strengthen strategic stability by, among other things, negotiating limitations on those strategic offensive arms most destabilizing to the strategic balance and by measures to reduce and to avert the risk of surprise attack.

Second Section

The second section addresses the question of verification of compliance with limitations to be agreed upon. It

states that further limitations and reductions of strategic arms must be subject to adequate verification by national technical means, using additionally, as appropriate, cooperative measures contributing to the effectiveness of verification by national technical means. The United States stated to the Soviets that this section recognizes that future negotiations may involve more complicated qualitative limitations with a resultant need for additional cooperative measures which go beyond national technical means alone as a method of verification. The Soviets did not disagree. The section also states that the Parties will seek to strengthen verification and to perfect the operation of the Standing Consultative Commission in order to promote assurance of compliance with Treaty obligations.

Third Section

The third section sets forth shared objectives of the Parties in these negotiations. The Parties state that they will pursue significant and substantial reductions in the numbers of strategic offensive arms, e.g., reduction in strategic nuclear delivery vehicles significantly below the overall aggregate limitation provided for in Article III of the SALT II Treaty. They also state that they will negotiate on further qualitative limitations on strategic offensive arms, including restrictions on new types of strategic offensive arms and on the modernization of existing arms. In addition, the Parties state that they will seek resolution of the issues addressed in the Protocol in the context of implementing the other agreed joint principles.

Fourth Section

In the fourth section, the Parties declare that they will consider other steps to enhance strategic stability, to ensure the equality and equal security of the Parties, and to implement the aforementioned principles and objectives. They also state that they will

consider further joint measures, as appropriate, to strengthen international peace and security and to reduce the risk of outbreak of nuclear war. It is stated that either Party will be free to raise any issue relative to the further limitation of strategic arms during the next phase of the SALT negotiations. This could include the limitation of strategic defenses, as well as the limitation of strategic offensive arms.

MEMORANDUM OF UNDERSTANDING

On June 18, 1979, Ambassadors Earle and Karpov (Chiefs of the United States and Soviet SALT Delegations) signed a Memorandum of Understanding Regarding the Establishment of a Data Base on the Numbers of Strategic Offensive Arms. On the same date they signed and exchanged Statements of Data updating the agreed numbers for each side as of the date of signature of the Treaty. These steps were taken in connection with paragraph 3 of Article XVII of the Treaty, under which the Parties are required to maintain an agreed data base consisting of the numbers of strategic offensive arms of each Party by specific categories.

The Memorandum of Understanding establishes such an agreed data base and states that the Parties have, for the purposes of the Treaty, agreed on the number of arms in each category for each Party as of November 1, 1978. The numbers are stated for each Party in the following categories:

Launchers of ICBMs

Fixed launchers of ICBMs

Launchers of ICBMs equipped with MIRVs

Launchers of SLBMs

Launchers of SLBMs equipped with MIRVs

Heavy bombers

Heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers

Heavy bombers equipped only for ASBMs

ASBMs

ASBMs equipped with MIRVs

The Memorandum further states that the Parties will update the agreed data, in the categories listed, at the time of entry into force of the Treaty.

In each of the two Statements of Data the Party in question declares that it possesses the stated numbers of strategic offensive arms in the categories listed above as of the date of signature of the Treaty.

The exchange of data accomplished by these documents (and the semi-annual update of data which will take place within the Standing Consultative Commission pursuant to paragraph 3 of Article XVII of the Treaty) is an important step in ensuring that the Parties have the same interpretation of Treaty obligations, and in providing a base against which to assist verification.

BACKFIRE

At the Vienna Summit, President Brezhnev handed President Carter a written statement in which the Soviet Union informed the United States that it did not intend to give the Backfire bomber the capability of operating at intercontinental distances, and would not increase the production rate of this airplane over the current rate nor increase the radius of action of the Backfire in such way as to enable it to strike targets on the territory of the United States.

President Brezhnev confirmed that the Backfire production rate would not exceed thirty per year.

President Carter affirmed that the United States has the right to an aircraft comparable to Backfire.

President Carter stated that the United States enters into the SALT II Agreement on the basis of the commitments contained in the Soviet statement and that it considers the carrying out of these commitments to be essential to the obligations under the Treaty.

SALT II Agreement

Vienna, June 18, 1979

United States Department of State
Bureau of Public Affairs

Washington, D.C.

TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON THE LIMITATION OF STRATEGIC OFFENSIVE ARMS

—Signed at Vienna, Austria, on June 18, 1979

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Conscious that nuclear war would have devastating consequences for all mankind,

Proceeding from the Basic Principles of Relations Between the United States of America and the Union of Soviet Socialist Republics of May 29, 1972,

Attaching particular significance to the limitation of strategic arms and determined to continue their efforts begun with the Treaty on the Limitation of Anti-Ballistic Missile Systems and the Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Offensive Arms, of May 26, 1972,

Convinced that the additional measures limiting strategic offensive arms provided for in this Treaty will contribute to the improvement of relations between the Parties, help to reduce the risk of outbreak of nuclear war and strengthen international peace and security,

NOTE: *The text of the SALT II Treaty and Protocol, as signed in Vienna, is accompanied by a set of Agreed Statements and Common Understandings, which is prefaced as follows.*

"In connection with the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms, the Parties have agreed on the following Agreed Statements and Common Understandings undertaken on behalf of the Government of the United States of America and the Government of the Union of Soviet Socialist Republics."

As an aid to the reader, the Agreed Statements and Common Understandings are presented in this edition to the right of each paragraph of the Treaty or Protocol to which they relate.

Mindful of their obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons,

Guided by the principle of equality and equal security,

Recognizing that the strengthening of strategic stability meets the interests of the Parties and the interests of international security,

Reaffirming their desire to take measures for the further limitation and for the further reduction of strategic arms, having in mind the goal of achieving general and complete disarmament,

Declaring their intention to undertake in the near future negotiations further to limit and further to reduce strategic offensive arms,

Have agreed as follows:

Article I

Each Party undertakes, in accordance with the provisions of this Treaty, to limit strategic offensive arms quantitatively and qualitatively, to exercise restraint in the development of new types of strategic offensive arms, and to adopt other measures provided for in this Treaty.

Article II

For the purposes of this Treaty:

1. Intercontinental ballistic missile (ICBM) launchers are land-based launchers of ballistic missiles capable of a range in excess of the shortest distance between the northeastern border of the continental part of the territory of the United States of America and the northwestern border of the continental part of the territory of the Union of Soviet Socialist Republics, that is, a range in excess of 5,500 kilometers.

2. Submarine-launched ballistic missile (SLBM) launchers are launchers of ballistic missiles installed on any nuclear-powered submarine or launchers of modern ballistic missiles installed on any submarine, regardless of its type.

3. Heavy bombers are considered to be:

First Agreed Statement. The term "intercontinental ballistic missile launchers," as defined in paragraph 1 of Article II of the Treaty, includes all launchers which have been developed and tested for launching ICBMs. If a launcher has been developed and tested for launching an ICBM, all launchers of that type shall be considered to have been developed and tested for launching ICBMs.

First Common Understanding. If a launcher contains or launches an ICBM, that launcher shall be considered to have been developed and tested for launching ICBMs.

Second Common Understanding. If a launcher has been developed and tested for launching an ICBM, all launchers of that type, except for ICBM test and training launchers, shall be included in the aggregate numbers of strategic offensive arms provided for in Article III of the Treaty, pursuant to the provisions of Article VI of the Treaty.

Third Common Understanding. The one hundred and seventy-seven former Atlas and Titan I ICBM launchers of the United States of America, which are no longer operational and are partially dismantled, shall not be considered as subject to the limitations provided for in the Treaty.

Second Agreed Statement. After the date on which the Protocol ceases to be in force, mobile ICBM launchers shall be subject to the relevant limitations provided for in the Treaty which are applicable to ICBM launchers, unless the Parties agree that mobile ICBM launchers shall not be deployed after that date.

Agreed Statement. Modern submarine-launched ballistic missiles are: for the United States of America, missiles installed in all nuclear-powered submarines; for the Union of Soviet Socialist Republics, missiles of the type installed in nuclear-powered submarines made operational since 1965; and for both Parties, submarine-launched ballistic missiles first flight-tested since 1965 and installed in any submarine, regardless of its type.

First Agreed Statement. The term "bombers," as used in paragraph 3 of Article II and other provisions of the Treaty, means airplanes of types initially constructed to be equipped for bombs or missiles.

(a) currently, for the United States of America, bombers of the B-52 and B-1 types, and for the Union of Soviet Socialist Republics, bombers of the Tupolev-95 and Myasishchev types;

(b) in the future, types of bombers which can carry out the mission of a heavy bomber in a manner similar or superior to that of bombers listed in subparagraph (a) above;

(c) types of bombers equipped for cruise missiles capable of a range in excess of 600 kilometers; and

(d) types of bombers equipped for ASBMs.

Second Agreed Statement. The Parties shall notify each other on a case-by-case basis in the Standing Consultative Commission of inclusion of types of bombers as heavy bombers pursuant to the provisions of paragraph 3 of Article II of the Treaty; in this connection the Parties shall hold consultations, as appropriate, consistent with the provisions of paragraph 2 of Article XVII of the Treaty.

Third Agreed Statement. The criteria the Parties shall use to make case-by-case determinations of which types of bombers in the future can carry out the mission of a heavy bomber in a manner similar or superior to that of current heavy bombers, as referred to in subparagraph 3(b) of Article II of the Treaty, shall be agreed upon in the Standing Consultative Commission.

Fourth Agreed Statement. Having agreed that every bomber of a type included in paragraph 3 of Article II of the Treaty is to be considered a heavy bomber, the Parties further agree that:

(a) airplanes which otherwise would be bombers of a heavy bomber type shall not be considered to be bombers of a heavy bomber type if they have functionally related observable differences which indicate that they cannot perform the mission of a heavy bomber;

(b) airplanes which otherwise would be bombers of a type equipped for cruise missiles capable of a range in excess of 600 kilometers shall not be considered to be bombers of a type equipped for cruise missiles capable of a range in excess of 600 kilometers if they have functionally related observable differences which indicate that they cannot perform the mission of a bomber equipped for cruise missiles capable of a range in excess of 600 kilometers, except that heavy bombers of current types, as designated in subparagraph 3(a) of Article II of the Treaty, which otherwise would be of a type equipped for cruise missiles capable of a range in excess of 600 kilometers shall not be considered to be heavy bombers of a type equipped for cruise missiles capable of a range in excess of 600 kilometers if they are distinguishable on the basis of externally observable differences from heavy bombers of a type equipped for cruise missiles capable of a range in excess of 600 kilometers; and

(c) airplanes which otherwise would be bombers of a type equipped for ASBMs shall not be considered to be bombers of a type equipped for ASBMs if they have functionally related observable differences which indicate that they cannot perform the mission of a bomber equipped for ASBMs, except that heavy bombers of current types, as designated in subparagraph 3(a) of Article II of the Treaty, which otherwise would be of a type equipped for ASBMs shall not be considered to be heavy bombers of a type equipped for ASBMs if they are distinguishable on the basis of externally observable differences from heavy bombers of a type equipped for ASBMs.

First Common Understanding. Functionally related observable differences are differences in the observable features of airplanes which indicate whether or not these airplanes can perform the mission of a heavy bomber, or whether or not they can perform the mission of a bomber equipped for cruise missiles capable of a range in excess of 600 kilometers or whether or not they can perform the mission of a bomber equipped for ASBMs. Functionally related observable differences shall be verifiable by national technical means. To this end, the Parties may take, as appropriate, cooperative measures contributing to the effectiveness of verification by national technical means.

Fifth Agreed Statement. Tupolev-142 airplanes in their current configuration, that is, in the configuration for anti-submarine warfare, are considered to be airplanes of a type different from types of heavy bombers referred to in subparagraph 3(a) of Article II of the Treaty and not subject to the Fourth Agreed Statement to paragraph 3 of Article II of the Treaty. This Agreed Statement does not preclude improvement of Tupolev-142 airplanes as an anti-submarine system, and does not prejudice or set a precedent for designation in the future of types of airplanes as heavy bombers pursuant to subparagraph 3(b) of Article II of the Treaty or for application of the Fourth Agreed Statement to paragraph 3 of Article II of the Treaty to such airplanes.

Second Common Understanding. Not later than six months after entry into force of the Treaty the Union of Soviet Socialist Republics will give its thirty-one Myasishchev airplanes used as tankers in existence as of the date of signature of the Treaty functionally related observable differences which indicate that they cannot perform the mission of a heavy bomber.

Third Common Understanding. The designations by the United States of America and by the Union of Soviet Socialist Republics for heavy bombers referred to in subparagraph 3(a) of Article II of the Treaty correspond in the following manner:

Heavy bombers of the types designated by the United States of America as the B-52 and the B-1 are known to the Union of Soviet Socialist Republics by the same designations;

Heavy bombers of the type designated by the Union of Soviet Socialist Republics as the Tupolev-95 are known to the United States of America as heavy bombers of the Bear type; and

Heavy bombers of the type designated by the Union of Soviet Socialist Republics as the Myasishchev are known to the United States of America as heavy bombers of the Bison type.

4. Air-to-surface ballistic missiles (ASBMs) are any such missiles capable of a range in excess of 600 kilometers and installed in an aircraft or on its external mountings.

5. Launchers of ICBMs and SLBMs equipped with multiple independently targetable reentry vehicles (MIRVs) are launchers of the types developed and tested for launching ICBMs or SLBMs equipped with MIRVs.

First Agreed Statement. If a launcher has been developed and tested for launching an ICBM or an SLBM equipped with MIRVs, all launchers of that type shall be considered to have been developed and tested for launching ICBMs or SLBMs equipped with MIRVs.

First Common Understanding. If a launcher contains or launches an ICBM or an SLBM equipped with MIRVs, that launcher shall be considered to have been developed and tested for launching ICBMs or SLBMs equipped with MIRVs.

Second Common Understanding. If a launcher has been developed and tested for launching an ICBM or an SLBM equipped with MIRVs, all launchers of that type, except for ICBM and SLBM test and training launchers, shall be included in the corresponding aggregate numbers provided for in Article V of the Treaty, pursuant to the provisions of Article VI of the Treaty.

Second Agreed Statement. ICBMs and SLBMs equipped with MIRVs are ICBMs and SLBMs of the types which have been flight-tested with two or more independently targetable reentry vehicles, regardless of whether or not they have also been flight-tested with a single reentry vehicle or with multiple reentry vehicles which are not independently targetable. As of the date of signature of the Treaty, such ICBMs and SLBMs are: for the United States of America, Minuteman III ICBMs, Poseidon C-3 SLBMs, and Trident C-4 SLBMs, and for the Union of Soviet Socialist Republics, RS-16, RS-18, RS-20 ICBMs and RSM-50 SLBMs.

Each Party will notify the other Party in the Standing Consultative Commission on a case-by-case basis of the designation of the one new type of light ICBM, if equipped with MIRVs, permitted pursuant to paragraph 9 of Article IV of the Treaty when first flight-tested, of designations of additional types of SLBMs equipped with MIRVs when first installed on a submarine; and of designations of types of ASBMs equipped with MIRVs when first flight-tested.

Third Common Understanding. The designations by the United States of America and by the Union of Soviet Socialist Republics for ICBMs and SLBMs equipped with MIRVs correspond in the following manner:

Missiles of the type designated by the United States of America as the Minuteman III and known to the Union of Soviet Socialist Republics by the same designation, a light ICBM that has been flight-tested with multiple independently targetable reentry vehicles;

Missiles of the type designated by the United States of America as the Poseidon C-3 and known to the Union of Soviet Socialist Republics by the same designation, an SLBM that was first flight-tested in 1968 and that has been flight-tested with multiple independently targetable reentry vehicles;

Missiles of the type designated by the United States of America as the Trident C-4 and known to the Union of Soviet Socialist Republics by the same designation, an SLBM that was first flight-tested in 1977 and that has been flight-tested with multiple independently targetable reentry vehicles;

Missiles of the type designated by the Union of Soviet Socialist Republics as the RS-16 and known to the United States of America as the SS-17, a light ICBM that has been flight-tested with a single reentry vehicle and with multiple independently targetable reentry vehicles;

Missiles of the type designated by the Union of Soviet Socialist Republics as the RS-18 and known to the United States of America as the SS-19, the heaviest in terms of launch-weight and throw-weight of light ICBMs, which has been flight-tested with a single reentry vehicle and with multiple independently targetable reentry vehicles;

Missiles of the type designated by the Union of Soviet Socialist Republics as the RS-20 and known to the United States of America as the SS-18, the heaviest in terms of launch-weight and throw-weight of heavy ICBMs, which has been flight-tested with a single reentry vehicle and with multiple independently targetable reentry vehicles;

Missiles of the type designated by the Union of Soviet Socialist Republics as the RSM-50 and known to the United States of America as the SS-N-18, an SLBM that has been flight-tested with a single reentry vehicle and with multiple independently targetable reentry vehicles.

Third Agreed Statement. Reentry vehicles are independently targetable:

(a) if, after separation from the booster, maneuvering and targeting of the reentry vehicles to separate aim points along trajectories which are unrelated to each other are accomplished by means of devices which are installed in a self-contained dispensing mechanism or on the reentry vehicles, and which are based on the use of electronic or other computers in combination with devices using jet engines, including rocket engines, or aerodynamic systems;

(b) if maneuvering and targeting of the reentry vehicles to separate aim points along trajectories which are unrelated to each other are accomplished by means of other devices which may be developed in the future.

Fourth Common Understanding. For the purposes of this Treaty, all ICBM launchers in the Derazhnya and Pervomaysk areas in the Union of Soviet Socialist Republics are included in the aggregate numbers provided for in Article V of the Treaty.

Fifth Common Understanding. If ICBM or SLBM launchers are converted, constructed or undergo significant changes to their principal observable structural design features after entry into force of the Treaty, any such launchers which are launchers of missiles equipped with MIRVs shall be distinguishable from launchers of missiles not equipped with MIRVs, and any such launchers which are launchers of missiles not equipped with MIRVs shall be distinguishable from launchers of missiles equipped with MIRVs, on the basis of externally observable design features of the launchers. Submarines with launchers of SLBMs equipped with MIRVs shall be distinguishable from submarines with launchers of SLBMs not equipped with MIRVs on the basis of externally observable design features of the submarines.

This Common Understanding does not require changes to launcher conversion or construction programs, or to programs including significant changes to the principal observable structural design features of launchers, underway as of the date of signature of the Treaty

6. ASBMs equipped with MIRVs are ASBMs of the types which have been flight-tested with MIRVs.

First Agreed Statement. ASBMs of the types which have been flight-tested with MIRVs are all ASBMs of the types which have been flight-tested with two or more independently targetable reentry vehicles, regardless of whether or not they have also been flight-tested with a single reentry vehicle or with multiple reentry vehicles which are not independently targetable.

Second Agreed Statement. Reentry vehicles are independently targetable:

(a) if, after separation from the booster, maneuvering and targeting of the reentry vehicles to separate aim points along trajectories which are unrelated to each other are accomplished by means of devices which are installed in a self-contained dispensing mechanism or on the reentry vehicles, and which are based on the use of electronic or other computers in combination with devices using jet engines, including rocket engines, or aerodynamic systems;

(b) if maneuvering and targeting of the reentry vehicles to separate aim points along trajectories which are unrelated to each other are accomplished by means of other devices which may be developed in the future

7. Heavy ICBMs are ICBMs which have a launch-weight greater or a throw-weight greater than that of the heaviest, in terms of either launch-weight or throw-weight, respectively, of the light ICBMs deployed by either Party as of the date of signature of this Treaty.

First Agreed Statement. The launch-weight of an ICBM is the weight of the fully loaded missile itself at the time of launch.

Second Agreed Statement. The throw-weight of an ICBM is the sum of the weight of.

(a) its reentry vehicle or reentry vehicles;

(b) any self-contained dispensing mechanisms or other appropriate devices for targeting one reentry vehicle, or for releasing or for dispensing and targeting two or more reentry vehicles; and

(c) its penetration aids, including devices for their release.

Common Understanding. The term "other appropriate devices," as used in the definition of the throw-weight of an ICBM in the Second Agreed Statement to paragraph 7 of Article II of the Treaty, means any devices for dispensing and targeting two or more reentry vehicles; and any devices for releasing two or more reentry vehicles or for targeting one reentry vehicle, which cannot provide their reentry vehicles or reentry vehicle with additional velocity of more than 1,000 meters per second.

8. Cruise missiles are unmanned, self-propelled, guided, weapon-delivery vehicles which sustain flight through the use of aerodynamic lift over most of their flight path and which are flight-tested from or deployed on aircraft, that is, air-launched cruise missiles, or such vehicles which are referred to as cruise missiles in subparagraph 1(b) of Article IX.

First Agreed Statement. If a cruise missile is capable of a range in excess of 600 kilometers, all cruise missiles of that type shall be considered to be cruise missiles capable of a range in excess of 600 kilometers.

First Common Understanding. If a cruise missile has been flight-tested to a range in excess of 600 kilometers, it shall be considered to be a cruise missile capable of a range in excess of 600 kilometers.

Second Common Understanding. Cruise missiles not capable of a range in excess of 600 kilometers shall not be considered to be of a type capable of a range in excess of 600 kilometers if they are distinguishable on the basis of externally observable design features from cruise missiles of types capable of a range in excess of 600 kilometers.

Second Agreed Statement. The range of which a cruise missile is capable is the maximum distance which can be covered by the missile in its standard design mode flying until fuel exhaustion, determined by projecting its flight path onto the Earth's sphere from the point of launch to the point of impact.

Third Agreed Statement. If an unmanned, self-propelled, guided vehicle which sustains flight through the use of aerodynamic lift over most of its flight path has been flight-tested or deployed for weapon delivery, all vehicles of that type shall be considered to be weapon-delivery vehicles.

Third Common Understanding. Unmanned, self-propelled, guided vehicles which sustain flight through the use of aerodynamic lift over most of their flight path and are not weapon-delivery vehicles, that is, unarmed, pilotless, guided vehicles, shall not be considered to be cruise missiles if such vehicles are distinguishable from cruise missiles on the basis of externally observable design features.

Fourth Common Understanding. Neither Party shall convert unarmed, pilotless, guided vehicles into cruise missiles capable of a range in excess of 600 kilometers, nor shall either Party convert cruise missiles capable of a range in excess of 600 kilometers into unarmed, pilotless, guided vehicles.

Fifth Common Understanding. Neither Party has plans during the term of the Treaty to flight-test from or deploy on aircraft unarmed, pilotless, guided vehicles which are capable of a range in excess of 600 kilometers. In the future, should a Party have such plans, that Party will provide notification thereof to the other Party well in advance of such flight-testing or deployment. This Common Understanding does not apply to target drones.

Article III

1. Upon entry into force of this Treaty, each Party undertakes to limit ICBM launchers, SLBM launchers, heavy bombers, and ASBMs to an aggregate number not to exceed 2,400.

2. Each Party undertakes to limit, from January 1, 1981, strategic offensive arms referred to in paragraph 1 of this Article to an aggregate number not to exceed 2,250, and to initiate reductions of those arms which as of that date would be in excess of this aggregate number.

3. Within the aggregate numbers provided for in paragraphs 1 and 2 of this Article and subject to the provisions of this Treaty, each Party has the right to determine the composition of these aggregates.

4. For each bomber of a type equipped for ASBMs, the aggregate numbers provided for in paragraphs 1 and 2 of this Article shall include the maximum number of such missiles for which a bomber of that type is equipped for one operational mission.

5. A heavy bomber equipped only for ASBMs shall not itself be included in the aggregate numbers provided for in paragraphs 1 and 2 of this Article.

6. Reductions of the numbers of strategic offensive arms required to comply with the provisions of paragraphs 1 and 2 of this Article shall be carried out as provided for in Article XI.

Article IV

1. Each Party undertakes not to start construction of additional fixed ICBM launchers.

2. Each Party undertakes not to relocate fixed ICBM launchers.

3. Each Party undertakes not to convert launchers of light ICBMs, or of ICBMs of older types deployed prior to 1964, into launchers of heavy ICBMs of types deployed after that time.

4. Each Party undertakes in the process of modernization and replacement of ICBM silo launchers not to increase the original internal volume of an ICBM silo launcher by more than thirty-two percent. Within this limit each Party has the right to determine whether such an increase will be made through an increase in the original diameter or in the original depth of an ICBM silo launcher, or in both of these dimensions.

5. Each Party undertakes:

(a) not to supply ICBM launcher deployment areas with intercontinental ballistic missiles in excess of a number consistent with normal deployment, maintenance, training, and replacement requirements;

(b) not to provide storage facilities for or to store ICBMs in excess of normal deployment requirements at launch sites of ICBM launchers;

(c) not to develop, test, or deploy systems for rapid reload of ICBM launchers.

6. Subject to the provisions of this Treaty, each Party undertakes not to have under construction at any time strategic offensive arms referred to in paragraph 1 of Article III in excess of numbers consistent with a normal construction schedule.

7. Each Party undertakes not to develop, test, or deploy ICBMs which have a launch-weight greater or a throw-weight greater than that of the heaviest, in terms of either launch-weight or throw-weight, respectively, of the heavy ICBMs deployed by either Party as of the date of signature of this Treaty.

8. Each Party undertakes not to convert land-based launchers of ballistic missiles which are not

Agreed Statement. The word "original" in paragraph 4 of Article IV of the Treaty refers to the internal dimensions of an ICBM silo launcher, including its internal volume, as of May 26, 1972, or as of the date on which such launcher becomes operational, whichever is later.

Common Understanding. The obligations provided for in paragraph 4 of Article IV of the Treaty and in the Agreed Statement thereto mean that the original diameter or the original depth of an ICBM silo launcher may not be increased by an amount greater than that which would result in an increase in the original internal volume of the ICBM silo launcher by thirty-two percent solely through an increase in one of these dimensions.

Agreed Statement. The term "normal deployment requirements," as used in paragraph 5 of Article IV of the Treaty, means the deployment of one missile at each ICBM launcher.

Common Understanding. A normal construction schedule, in paragraph 6 of Article IV of the Treaty, is understood to be one consistent with the past or present construction practices of each Party.

First Agreed Statement. The launch-weight of an ICBM is the weight of the fully loaded missile itself at the time of launch.

Second Agreed Statement. The throw-weight of an ICBM is the sum of the weight of:

(a) its reentry vehicle or reentry vehicles;

(b) any self-contained dispensing mechanisms or other appropriate devices for targeting one reentry vehicle, or for releasing or for dispensing and targeting two or more reentry vehicles; and

(c) its penetration aids, including devices for their release.

Common Understanding. The term "other appropriate devices," as used in the definition of the throw-weight of an ICBM in the Second Agreed Statement to paragraph 7 of Article IV of the Treaty, means any devices for dispensing and targeting two or more reentry vehicles; and any devices for releasing two or more reentry vehicles or for targeting one reentry vehicle, which cannot provide their reentry vehicles or reentry vehicle with additional velocity of more than 1,000 meters per second.

Common Understanding. During the term of the Treaty, the Union of Soviet Socialist Republics will not produce, test, or deploy ICBMs of the type designated by the Union of Soviet Socialist Republics as the RS-14 and known to the United States of

ICBMs into launchers for launching ICBMs, and not to test them for this purpose.

9. Each Party undertakes not to flight-test or deploy new types of ICBMs, that is, types of ICBMs not flight-tested as of May 1, 1979, except that each Party may flight-test and deploy one new type of light ICBM.

America as the SS-16, a light ICBM first flight-tested after 1970 and flight-tested only with a single reentry vehicle; this Common Understanding also means that the Union of Soviet Socialist Republics will not produce the third stage of that missile, the reentry vehicle of that missile, or the appropriate device for targeting the reentry vehicle of that missile.

First Agreed Statement. The term "new types of ICBMs," as used in paragraph 9 of Article IV of the Treaty, refers to any ICBM which is different from those ICBMs flight-tested as of May 1, 1979 in any one or more of the following respects:

- (a) the number of stages, the length, the largest diameter, the launch-weight, or the throw-weight, of the missile;
- (b) the type of propellant (that is, liquid or solid) of any of its stages.

First Common Understanding. As used in the First Agreed Statement to paragraph 9 of Article IV of the Treaty, the term "different," referring to the length, the diameter, the launch-weight, and the throw-weight, of the missile, means a difference in excess of five percent.

Second Agreed Statement. Every ICBM of the one new type of light ICBM permitted to each Party pursuant to paragraph 9 of Article IV of the Treaty shall have the same number of stages and the same type of propellant (that is, liquid or solid) of each stage as the first ICBM of the one new type of light ICBM launched by that Party. In addition, after the twenty-fifth launch of an ICBM of that type, or after the last launch before deployment begins of ICBMs of that type, whichever occurs earlier, ICBMs of the one new type of light ICBM permitted to that Party shall not be different in any one or more of the following respects: the length, the largest diameter, the launch-weight, or the throw-weight, of the missile.

A Party which launches ICBMs of the one new type of light ICBM permitted pursuant to paragraph 9 of Article IV of the Treaty shall promptly notify the other Party of the date of the first launch and of the date of either the twenty-fifth or the last launch before deployment begins of ICBMs of that type, whichever occurs earlier.

Second Common Understanding. As used in the Second Agreed Statement to paragraph 9 of Article IV of the Treaty, the term "different," referring to the length, the diameter, the launch-weight, and the throw-weight, of the missile, means a difference in excess of five percent from the value established for each of the above parameters as of the twenty-fifth launch or as of the last launch before deployment begins, whichever occurs earlier. The values demonstrated in each of the above parameters during the last twelve of the twenty-five launches or during the last twelve launches before deployment begins, whichever twelve launches occur earlier, shall not vary by more than ten percent from any other of the corresponding values demonstrated during those twelve launches.

Third Common Understanding. The limitations with respect to launch-weight and throw-weight, provided for in the First Agreed Statement and the First Common Understanding to paragraph 9 of Article IV of the Treaty, do not preclude the flight-testing or the deployment of ICBMs with fewer reentry vehicles, or fewer penetration aids, or both, than the maximum number of reentry vehicles and the maximum number of penetration aids with which ICBMs of that type have been flight-tested as of May 1, 1979, even if this results in a decrease in launch-weight or in throw-weight in excess of five percent.

In addition to the aforementioned cases, those limitations do not preclude a decrease in launch-weight or in throw-weight in excess of five percent, in the case of the flight-testing or the deployment of ICBMs with a lesser quantity of propellant, including the propellant of a self-contained dispensing mechanism or other appropriate device, than the maximum quantity of propellant, including the propellant of a self-contained dispensing mechanism or other appropriate device, with which ICBMs of that type have been flight-tested as of May 1, 1979, provided that such an ICBM is at the same time flight-tested or deployed with fewer reentry vehicles, or fewer penetration aids, or both, than the maximum number of reentry vehicles and the maximum number of penetration aids with which ICBMs of that type have been flight-tested as of May 1, 1979, and the decrease in launch-weight and throw-weight in such cases results only from the reduction in the number of reentry vehicles, or penetration aids, or both, and the reduction in the quantity of propellant.

Fourth Common Understanding. The limitations with respect to launch-weight and throw-weight, provided for in the Second Agreed Statement and the Second Common Understanding to paragraph 9 of Article IV of the Treaty, do not preclude the flight-testing or the deployment of ICBMs of the one new type of light ICBM permitted to each Party pursuant to paragraph 9 of Article IV of the Treaty with fewer reentry vehicles, or fewer penetration aids, or both, than the maximum number of reentry vehicles and the maximum number of penetration aids with which ICBMs of that type have been flight-tested, even if this results in a decrease in launch-weight or in throw-weight in excess of five percent.

In addition to the aforementioned cases, those limitations do not preclude a decrease in launch-weight or in throw-weight in excess of five percent, in the case of the flight-testing or the deployment of ICBMs of that type with a lesser quantity of propellant, including the propellant of a self-contained dispensing mechanism or other appropriate

ate device, than the maximum quantity of propellant, including the propellant of a self-contained dispensing mechanism or other appropriate device, with which ICBMs of that type have been flight-tested, provided that such an ICBM is at the same time flight-tested or deployed with fewer reentry vehicles, or fewer penetration aids, or both, than the maximum number of reentry vehicles and the maximum number of penetration aids with which ICBMs of that type have been flight-tested, and the decrease in launch-weight and throw-weight in such cases results only from the reduction in the number of reentry vehicles, or penetration aids, or both, and the reduction in the quantity of propellant.

10. Each Party undertakes not to flight-test or deploy ICBMs of a type flight-tested as of May 1, 1979 with a number of reentry vehicles greater than the maximum number of reentry vehicles with which an ICBM of that type has been flight-tested as of that date.

First Agreed Statement. The following types of ICBMs and SLBMs equipped with MIRVs have been flight-tested with the maximum number of reentry vehicles set forth below:

For the United States of America

ICBMs of the Minuteman III type—seven reentry vehicles;
SLBMs of the Poseidon C-3 type—fourteen reentry vehicles;
SLBMs of the Trident C-4 type—seven reentry vehicles;

For the Union of Soviet Socialist Republics

ICBMs of the RS-16 type—four reentry vehicles,
ICBMs of the RS-18 type—six reentry vehicles;
ICBMs of the RS-20 type—ten reentry vehicles;
SLBMs of the RSM-50 type—seven reentry vehicles.

Common Understanding. Minuteman III ICBMs of the United States of America have been deployed with no more than three reentry vehicles. During the term of the Treaty, the United States of America has no plans to and will not flight-test or deploy missiles of this type with more than three reentry vehicles.

Second Agreed Statement. During the flight-testing of any ICBM, SLBM, or ASBM after May 1, 1979, the number of procedures for releasing or for dispensing may not exceed the maximum number of reentry vehicles established for missiles of corresponding types as provided for in paragraphs 10, 11, 12, and 13 of Article IV of the Treaty. In this Agreed Statement "procedures for releasing or for dispensing" are understood to mean maneuvers of a missile associated with targeting and releasing or dispensing its reentry vehicles to aim points, whether or not a reentry vehicle is actually released or dispensed. Procedures for releasing anti-missile defense penetration aids will not be considered to be procedures for releasing or for dispensing a reentry vehicle so long as the procedures for releasing anti-missile defense penetration aids differ from those for releasing or for dispensing reentry vehicles.

Third Agreed Statement. Each Party undertakes:

- (a) not to flight-test or deploy ICBMs equipped with multiple reentry vehicles, of a type flight-tested as of May 1, 1979, with reentry vehicles the weight of any of which is less than the weight of the lightest of those reentry vehicles with which an ICBM of that type has been flight-tested as of that date;
- (b) not to flight-test or deploy ICBMs equipped with a single reentry vehicle and without an appropriate device for targeting a reentry vehicle, of a type flight-tested as of May 1, 1979, with a reentry vehicle the weight of which is less than the weight of the lightest reentry vehicle on an ICBM of a type equipped with MIRVs and flight-tested by that Party as of May 1, 1979; and
- (c) not to flight-test or deploy ICBMs equipped with a single reentry vehicle and with an appropriate device for targeting a reentry vehicle, of a type flight-tested as of May 1, 1979, with a reentry vehicle the weight of which is less than fifty percent of the throw-weight of that ICBM.

11. Each Party undertakes not to flight-test or deploy ICBMs of the one new type permitted pursuant to paragraph 9 of this Article with a number of reentry vehicles greater than the maximum number of reentry vehicles with which an ICBM of either Party has been flight-tested as of May 1, 1979, that is, ten.

First Agreed Statement. Each Party undertakes not to flight-test or deploy the one new type of light ICBM permitted to each Party pursuant to paragraph 9 of Article IV of the Treaty with a number of reentry vehicles greater than the maximum number of reentry vehicles with which an ICBM of that type has been flight-tested as of the twenty-fifth launch or the last launch before deployment begins of ICBMs of that type, whichever occurs earlier.

Second Agreed Statement. During the flight-testing of any ICBM, SLBM, or ASBM after May 1, 1979 the number of procedures for releasing or for dispensing may not exceed the maximum number of reentry vehicles established for missiles of corresponding types as provided for in paragraphs 10, 11, 12, and 13 of Article IV of the Treaty. In this Agreed Statement "procedures for releasing or for dispensing" are understood to mean maneuvers of a missile associated with targeting and releasing or dispensing its reentry vehicles to aim points, whether or not a reentry vehicle is actually released or dispensed. Procedures for releasing anti-missile defense penetration aids will not be considered to be procedures for releasing or for dispensing a reentry vehicle so long as the procedures for releasing anti-missile defense penetration aids differ from those for releasing or for dispensing reentry vehicles.

12. Each Party undertakes not to flight-test or deploy SLBMs with a

First Agreed Statement. The following types of ICBMs and SLBMs equipped with MIRVs have been flight-tested with the maximum number of reentry vehicles set forth below:

number of reentry vehicles greater than the maximum number of reentry vehicles with which an SLBM of either Party has been flight-tested as of May 1, 1979, that is, fourteen.

For the United States of America

ICBMs of the Minuteman III type—seven reentry vehicles;
SLBMs of the Poseidon C-3 type—fourteen reentry vehicles;
SLBMs of the Trident C-4 type—seven reentry vehicles.

For the Union of Soviet Socialist Republics

ICBMs of the RS-16 type—four reentry vehicles;
ICBMs of the RS-18 type—six reentry vehicles;
ICBMs of the RS-20 type—ten reentry vehicles;
SLBMs of the RSM-50 type—seven reentry vehicles.

Second Agreed Statement. During the flight-testing of any ICBM, SLBM, or ASBM after May 1, 1979 the number of procedures for releasing or for dispensing may not exceed the maximum number of reentry vehicles established for missiles of corresponding types as provided for in paragraphs 10, 11, 12, and 13 of Article IV of the Treaty. In this Agreed Statement "procedures for releasing or for dispensing" are understood to mean maneuvers of a missile associated with targeting and releasing or dispensing its reentry vehicles to aim points, whether or not a reentry vehicle is actually released or dispensed. Procedures for releasing anti-missile defense penetration aids will not be considered to be procedures for releasing or for dispensing a reentry vehicle so long as the procedures for releasing anti-missile defense penetration aids differ from those for releasing or for dispensing reentry vehicles.

13. Each Party undertakes not to flight-test or deploy ASBMs with a number of reentry vehicles greater than the maximum number of reentry vehicles with which an ICBM of either Party has been flight-tested as of May 1, 1979, that is, ten.

Agreed Statement. During the flight-testing of any ICBM, SLBM, or ASBM after May 1, 1979 the number of procedures for releasing or for dispensing may not exceed the maximum number of reentry vehicles established for missiles of corresponding types as provided for in paragraphs 10, 11, 12, and 13 of Article IV of the Treaty. In this Agreed Statement "procedures for releasing or for dispensing" are understood to mean maneuvers of a missile associated with targeting and releasing or dispensing its reentry vehicles to aim points, whether or not a reentry vehicle is actually released or dispensed. Procedures for releasing anti-missile defense penetration aids will not be considered to be procedures for releasing or for dispensing a reentry vehicle so long as the procedures for releasing anti-missile defense penetration aids differ from those for releasing or for dispensing reentry vehicles.

14. Each Party undertakes not to deploy at any one time on heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers a number of such cruise missiles which exceeds the product of 28 and the number of such heavy bombers.

First Agreed Statement. For the purposes of the limitation provided for in paragraph 14 of Article IV of the Treaty, there shall be considered to be deployed on each heavy bomber of a type equipped for cruise missiles capable of a range in excess of 600 kilometers the maximum number of such missiles for which any bomber of that type is equipped for one operational mission.

Second Agreed Statement. During the term of the Treaty no bomber of the B-52 or B-1 types of the United States of America and no bomber of the Tupolev-95 or Myasishchev types of the Union of Soviet Socialist Republics will be equipped for more than twenty cruise missiles capable of a range in excess of 600 kilometers.

Article V

1. Within the aggregate numbers provided for in paragraphs 1 and 2 of Article III, each Party undertakes to limit launchers of ICBMs and SLBMs equipped with MIRVs, ASBMs equipped with MIRVs, and heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers to an aggregate number not to exceed 1,320.

2. Within the aggregate number provided for in paragraph 1 of this Article, each Party undertakes to limit launchers of ICBMs and SLBMs equipped with MIRVs, and ASBMs equipped with MIRVs to an aggregate number not to exceed 1,200.

3. Within the aggregate number provided for in paragraph 2 of this Article, each Party undertakes to

limit launchers of ICBMs equipped with MIRVs to an aggregate number not to exceed 820.

4. For each bomber of a type equipped for ASBMs equipped with MIRVs, the aggregate numbers provided for in paragraphs 1 and 2 of this Article shall include the maximum number of ASBMs for which a bomber of that type is equipped for one operational mission.

Agreed Statement. If a bomber is equipped for ASBMs equipped with MIRVs, all bombers of that type shall be considered to be equipped for ASBMs equipped with MIRVs.

5. Within the aggregate numbers provided for in paragraphs 1, 2, and 3 of this Article and subject to the provisions of this Treaty, each Party has the right to determine the composition of these aggregates.

Article VI

1. The limitations provided for in this Treaty shall apply to those arms which are:

- (a) operational;
- (b) in the final stage of construction;
- (c) in reserve, in storage, or mothballed;
- (d) undergoing overhaul, repair, modernization, or conversion.

2. Those arms in the final stage of construction are:

(a) SLBM launchers on submarines which have begun sea trials;

(b) ASBMs after a bomber of a type equipped for such missiles has been brought out of the shop, plant, or other facility where its final assembly or conversion for the purpose of equipping it for such missiles has been performed;

(c) other strategic offensive arms which are finally assembled in a shop, plant, or other facility after they have been brought out of the shop, plant, or other facility where their final assembly has been performed.

3. ICBM and SLBM launchers of a type not subject to the limitation provided for in Article V, which undergo conversion into launchers of a type subject to that limitation, shall become subject to that limitation as follows:

(a) fixed ICBM launchers when work on their conversion reaches the stage which first defi-

Agreed Statement. The procedures referred to in paragraph 7 of Article VI of the Treaty shall include procedures determining the manner in which mobile ICBM launchers of a type not subject to the limitation provided for in Article V of the Treaty, which undergo conversion into launchers of a type subject to that limitation, shall become subject to that limitation, unless the Parties agree that mobile ICBM launchers shall not be deployed after the date on which the Protocol ceases to be in force.

nitely indicates that they are being so converted;

(b) SLBM launchers on a submarine when that submarine first goes to sea after their conversion has been performed.

4. ASBMs on a bomber which undergoes conversion from a bomber of a type equipped for ASBMs which are not subject to the limitation provided for in article V into a bomber of a type equipped for ASBMs which are subject to that limitation shall become subject to that limitation when the bomber is brought out of the shop, plant, or other facility where such conversion has been performed.

5. A heavy bomber of a type not subject to the limitation provided for in paragraph 1 of Article V shall become subject to that limitation when it is brought out of the shop, plant, or other facility where it has been converted into a heavy bomber of a type equipped for cruise missiles capable of a range in excess of 600 kilometers. A bomber of a type not subject to the limitation provided for in paragraph 1 or 2 of Article III shall become subject to that limitation and to the limitation provided for in paragraph 1 of Article V when it is brought out of the shop, plant, or other facility where it has been converted into a bomber of a type equipped for cruise missiles capable of a range in excess of 600 kilometers.

6. The arms subject to the limitations provided for in this Treaty shall continue to be subject to these limitations until they are dismantled, are destroyed, or otherwise cease to be subject to these limitations under procedures to be agreed upon.

Agreed Statement. The procedures for removal of strategic offensive arms from the aggregate numbers provided for in the Treaty, which are referred to in paragraph 6 of Article VI of the Treaty, and which are to be agreed upon in the Standing Consultative Commission, shall include:

(a) procedures for removal from the aggregate numbers, provided for in Article V of the Treaty, of ICBM and SLBM launchers which are being converted from launchers of a type subject to the limitation provided for in Article V of the Treaty, into launchers of a type not subject to that limitation;

(b) procedures for removal from the aggregate numbers, provided for in Articles III and V of the Treaty, of bombers which are being converted from bombers of a type subject to the limitations provided for in Article III of the Treaty or in Articles III and V of the Treaty into airplanes or bombers of a type not so subject.

Common Understanding. The procedures referred to in subparagraph (b) of the Agreed Statement to paragraph 6 of Article VI of the Treaty for removal of bombers from the aggregate numbers provided for in Articles III and V of the Treaty shall be based upon the existence of functionally related observable differences which indicate whether or not they can perform the mission of a heavy bomber, or whether or not they can perform the mission of a bomber equipped for cruise missiles capable of a range in excess of 600 kilometers.

7. In accordance with the provisions of Article XVII, the Parties will agree in the Standing Consul-

tative Commission upon procedures to implement the provisions of this Article.

Article VII

1. The limitations provided for in Article III shall not apply to ICBM and SLBM test and training launchers or to space vehicle launchers for exploration and use of outer space. ICBM and SLBM test and training launchers are ICBM and SLBM launchers used only for testing or training.

2. The Parties agree that:

(a) there shall be no significant increase in the number of ICBM or SLBM test and training launchers or in the number of such launchers of heavy ICBMs;

(b) construction or conversion of ICBM launchers at test ranges shall be undertaken only for purposes of testing and training;

(c) there shall be no conversion of ICBM test and training launchers or of space vehicle launchers into ICBM launchers subject to the limitations provided for in Article III.

Common Understanding. The term "testing," as used in Article VII of the Treaty, includes research and development.

First Agreed Statement. The term "significant increase," as used in subparagraph 2(a) of Article VII of the Treaty, means an increase of fifteen percent or more. Any new ICBM test and training launchers which replace ICBM test and training launchers at test ranges will be located only at test ranges.

Second Agreed Statement. Current test ranges where ICBMs are tested are located: for the United States of America, near Santa Maria, California, and at Cape Canaveral, Florida; and for the Union of Soviet Socialist Republics, in the areas of Tyura-Tam and Plesetskaya. In the future, each Party shall provide notification in the Standing Consultative Commission of the location of any other test range used by that Party to test ICBMs.

First Common Understanding. At test ranges where ICBMs are tested, other arms, including those not limited by the Treaty, may also be tested.

Second Common Understanding. Of the eighteen launchers of fractional orbital missiles at the test range where ICBMs are tested in the area of Tyura-Tam, twelve launchers shall be dismantled or destroyed and six launchers may be converted to launchers for testing missiles undergoing modernization.

Dismantling or destruction of the twelve launchers shall begin upon entry into force of the Treaty and shall be completed within eight months, under procedures for dismantling or destruction of these launchers to be agreed upon in the Standing Consultative Commission. These twelve launchers shall not be replaced.

Conversion of the six launchers may be carried out after entry into force of the Treaty. After entry into force of the Treaty, fractional orbital missiles shall be removed and shall be destroyed pursuant to the provisions of subparagraph 1(c) of Article IX and of Article XI of the Treaty and shall not be replaced by other missiles, except in the case of conversion of these six launchers for testing missiles undergoing modernization. After removal of the fractional orbital missiles, and prior to such conversion, any activities associated with these launchers shall be limited to normal maintenance requirements for launchers in which missiles are not deployed. These six launchers shall be subject to the provisions of Article VII of the Treaty and, if converted, to the provisions of the Fifth Common Understanding to paragraph 5 of Article II of the Treaty.

Article VIII

1. Each Party undertakes not to flight-test cruise missiles capable of a range in excess of 600 kilometers or ASBMs from aircraft other than bombers or to convert such aircraft into aircraft equipped for such missiles.

Agreed Statement. For purposes of testing only, each Party has the right, through initial construction or, as an exception to the provisions of paragraph 1 of Article VIII of the Treaty, by conversion, to equip for cruise missiles capable of a range in excess of 600 kilometers or for ASBMs no more than sixteen airplanes, including airplanes which are prototypes of bombers equipped for such missiles. Each Party also has the right, as an exception to the provisions of paragraph 1 of Article VIII of the Treaty, to flight-test from such airplanes cruise missiles capable of a range in excess of 600 kilometers and, after the date on which the Protocol ceases to be in force, to flight-test ASBMs from such airplanes as well, unless the Parties agree that they will not flight-test ASBMs after that date. The limitations provided for in Article III of the Treaty shall not apply to such airplanes.

The aforementioned airplanes may include only:

(a) airplanes other than bombers which, as an exception to the provisions of paragraph 1 of Article VIII of the Treaty, have been converted into airplanes equipped for cruise missiles capable of a range in excess of 600 kilometers or for ASBMs;

(b) airplanes considered to be heavy bombers pursuant to subparagraph 3(c) or 3(d) of Article II of the Treaty; and

(c) airplanes other than heavy bombers which, prior to March 7, 1979, were used for testing cruise missiles capable of a range in excess of 600 kilometers.

The airplanes referred to in subparagraphs (a) and (b) of this Agreed Statement shall be distinguishable on the basis of functionally related observable differences from airplanes which otherwise would be of the same type but cannot perform the mission

of a bomber equipped for cruise missiles capable of a range in excess of 600 kilometers or for ASBMs.

The airplanes referred to in subparagraph (c) of this Agreed Statement shall not be used for testing cruise missiles capable of a range in excess of 600 kilometers after the expiration of a six-month period from the date of entry into force of the Treaty, unless by the expiration of that period they are distinguishable on the basis of functionally related observable differences from airplanes which otherwise would be of the same type but cannot perform the mission of a bomber equipped for cruise missiles capable of a range in excess of 600 kilometers.

First Common Understanding. The term "testing," as used in the Agreed Statement to paragraph 1 of Article VIII of the Treaty, includes research and development.

Second Common Understanding. The Parties shall notify each other in the Standing Consultative Commission of the number of airplanes, according to type, used for testing pursuant to the Agreed Statement to paragraph 1 of Article VIII of the Treaty. Such notification shall be provided at the first regular session of the Standing Consultative Commission held after an airplane has been used for such testing.

Third Common Understanding. None of the sixteen airplanes referred to in the Agreed Statement to paragraph 1 of Article VIII of the Treaty may be replaced, except in the event of the involuntary destruction of any such airplane or in the case of the dismantling or destruction of any such airplane. The procedures for such replacement and for removal of any such airplane from that number, in case of its conversion, shall be agreed upon in the Standing Consultative Commission.

2. Each Party undertakes not to convert aircraft other than bombers into aircraft which can carry out the mission of a heavy bomber as referred to in subparagraph 3(b) of Article II.

Article IX

1. Each Party undertakes not to develop, test, or deploy:

(a) ballistic missiles capable of a range in excess of 600 kilometers for installation on waterborne vehicles other than submarines, or launchers of such missiles;

(b) fixed ballistic or cruise missile launchers for emplacement on the ocean floor, on the seabed, or on the beds of internal waters and inland waters, or in the subsoil thereof, or mobile launchers of such missiles, which move only in contact with the ocean floor, the seabed, or the beds of internal waters and inland waters, or missiles for such launchers;

(c) systems for placing into Earth orbit nuclear weapons or any other kind of weapons of mass destruction, including fractional orbital missiles;

(d) mobile launchers of heavy ICBMs;

(e) SLBMs which have a launch-weight greater or a throw-weight greater than that of the heaviest, in terms of either launch-weight or throw-weight, respectively, of the light ICBMs deployed by either Party as of the date of signature of this Treaty, or launchers of such SLBMs; or

Common Understanding to subparagraph (a). The obligations provided for in subparagraph 1(a) of Article IX of the Treaty do not affect current practices for transporting ballistic missiles.

Agreed Statement to subparagraph (b). The obligations provided for in subparagraph 1(b) of Article IX of the Treaty shall apply to all areas of the ocean floor and the seabed, including the seabed zone referred to in Articles I and II of the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof.

Common Understanding to subparagraph (e). The provisions of subparagraph 1(c) of Article IX of the Treaty do not require the dismantling or destruction of any existing launchers of either Party.

First Agreed Statement to subparagraphs (e) and (f). The launch-weight of an SLBM or of an ASBM is the weight of the fully loaded missile itself at the time of launch.

Second Agreed Statement to subparagraphs (e) and (f). The throw-weight of an SLBM or of an ASBM is the sum of the weight of:

- (a) its reentry vehicle or reentry vehicles;
- (b) any self-contained dispensing mechanisms or other appropriate devices for targeting one reentry vehicle, or for releasing or for dispensing and targeting two or more reentry vehicles; and
- (c) its penetration aids, including devices for their release.

(f) ASBMs which have a launch-weight greater or a throw-weight greater than that of the heaviest, in terms of either launch-weight or throw-weight, respectively, of the light ICBMs deployed by either Party as of the date of signature of this Treaty.

2. Each Party undertakes not to flight-test from aircraft cruise missiles capable of a range in excess of 600 kilometers which are equipped with multiple independently targetable warheads and not to deploy such cruise missiles on aircraft.

Article X

Subject to the provisions of this Treaty, modernization and replacement of strategic offensive arms may be carried out.

Article XI

1. Strategic offensive arms which would be in excess of the aggregate numbers provided for in this Treaty as well as strategic offensive arms prohibited by this Treaty shall be dismantled or destroyed under procedures to be agreed upon in the Standing Consultative Commission.

2. Dismantling or destruction of strategic offensive arms which would be in excess of the aggregate number provided for in paragraph 1 of Article III shall begin on the date of the entry into force of this Treaty and shall be completed within the following periods from that date: four months for ICBM launchers; six months for SLBM launchers; and three months for heavy bombers.

3. Dismantling or destruction of strategic offensive arms which would be in excess of the aggregate number provided for in paragraph 2 of Article III shall be initiated no later than January 1, 1981, shall be carried out throughout the ensuing twelve-month period, and shall be completed no later than December 31, 1981.

4. Dismantling or destruction of strategic offensive arms prohibited by this Treaty shall be completed within the shortest possible agreed period of time, but not later than six months after the entry into force of this Treaty.

Common Understanding to subparagraphs (e) and (f). The term "other appropriate devices," as used in the definition of the throw-weight of an SLBM or of an ASBM in the Second Agreed Statement to subparagraphs 1(e) and 1(f) of Article IX of the Treaty, means any devices for dispensing and targeting two or more reentry vehicles; and any devices for releasing two or more reentry vehicles or for targeting one reentry vehicle, which cannot provide their reentry vehicles or reentry vehicle with additional velocity of more than 1,000 meters per second.

Agreed Statement. Warheads of a cruise missile are independently targetable if maneuvering or targeting of the warheads to separate aim points along ballistic trajectories or any other flight paths, which are unrelated to each other, is accomplished during a flight of a cruise missile.

Article XII

In order to ensure the viability and effectiveness of this Treaty, each Party undertakes not to circumvent the provisions of this Treaty, through any other state or states, or in any other manner.

Article XIII

Each Party undertakes not to assume any international obligations which would conflict with this Treaty.

Article XIV

The Parties undertake to begin, promptly after the entry into force of this Treaty, active negotiations with the objective of achieving, as soon as possible, agreement on further measures for the limitation and reduction of strategic arms. It is also the objective of the Parties to conclude well in advance of 1985 an agreement limiting strategic offensive arms to replace this Treaty upon its expiration.

Article XV

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article.

3. Each Party undertakes not to use deliberate concealment measures which impede verification by national technical means of compliance with the provisions of this Treaty. This obligation shall not require changes in current construction, assembly, conversion, or overhaul practices.

First Agreed Statement. Deliberate concealment measures, as referred to in paragraph 3 of Article XV of the Treaty, are measures carried out deliberately to hinder or deliberately to impede verification by national technical means of compliance with the provisions of the Treaty.

Second Agreed Statement. The obligation not to use deliberate concealment measures, provided for in paragraph 3 of Article XV of the Treaty, does not preclude the testing of anti-missile defense penetration aids.

First Common Understanding. The provisions of paragraph 3 of Article XV of the Treaty and the First Agreed Statement thereto apply to all provisions of the Treaty, including provisions associated with testing. In this connection, the obligation not to use deliberate concealment measures includes the obligation not to use deliberate concealment measures associated with testing, including those measures aimed at concealing the association between ICBMs and launchers during testing.

Second Common Understanding. Each Party is free to use various methods of transmitting telemetric information during testing, including its encryption, except that, in accordance with the provisions of paragraph 3 of Article XV of the Treaty, neither Party shall engage in deliberate denial of telemetric information, such as through the use of telemetry encryption, whenever such denial impedes verification of compliance with the provisions of the Treaty.

Third Common Understanding. In addition to the obligations provided for in paragraph 3 of Article XV of the Treaty, no shelters which impede verification by national technical means of compliance with the provisions of the Treaty shall be used over ICBM silo launchers.

Article XVI

1. Each Party undertakes, before conducting each planned ICBM launch, to notify the other Party well in advance on a case-by-case basis that such a launch will occur, except for single ICBM launches from test ranges or from ICBM launcher deployment areas, which are not planned to extend beyond its national territory.

First Common Understanding. ICBM launches to which the obligations provided for in Article XVI of the Treaty apply, include, among others, those ICBM launches for which advance notification is required pursuant to the provisions of the Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War Between the United States of America and the Union of Soviet Socialist Republics, signed September 30, 1971, and the Agreement Between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on the Prevention of Incidents On and Over the High Seas, signed May 25, 1972. Nothing in Article XVI of the Treaty is intended to inhibit advance notification, on a voluntary basis, of any ICBM launches not subject to its provisions, the advance notification of which would enhance confidence between the Parties

Second Common Understanding. A multiple ICBM launch conducted by a Party, as distinct from single ICBM launches referred to in Article XVI of the Treaty, is a launch which would result in two or more of its ICBMs being in flight at the same time.

Third Common Understanding. The test ranges referred to in Article XVI of the Treaty are those covered by the Second Agreed Statement to paragraph 2 of Article VII of the Treaty.

2. The Parties shall agree in the Standing Consultative Commission upon procedures to implement the provisions of this Article.

Article XVII

1. To promote the objectives and implementation of the provisions of this Treaty, the Parties shall use the Standing Consultative Commission established by the Memorandum of Understanding Between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Regarding the Establishment of a Standing Consultative Commission of December 21, 1972.

2. Within the framework of the Standing Consultative Commission, with respect to this Treaty, the Parties will:

(a) consider questions concerning compliance with the obligations assumed and related situations which may be considered ambiguous;

(b) provide on a voluntary basis such information as either Party considers necessary to assure confidence in compliance with the obligations assumed;

(c) consider questions involving unintended interference with national technical means of verification, and questions involving unintended impeding of verification by national technical means of compliance with the provisions of this Treaty;

(d) consider possible changes in the strategic situation which have a bearing on the provisions of this Treaty;

(e) agree upon procedures for replacement, conversion, and dismantling or destruction, of strategic offensive arms in cases provided for in the provisions of this Treaty and upon procedures for removal of such arms from the aggregate numbers when they otherwise cease to be subject to the limitations provided for in this Treaty, and at regular sessions of the Standing Consultative Commission, notify each other in accordance with the aforementioned procedures, at least twice annually, of actions completed and those in process;

(f) consider, as appropriate, possible proposals for further increasing the viability of this Treaty, including proposals for amendments in accordance with the provisions of this Treaty;

(g) consider, as appropriate, proposals for further measures limiting strategic offensive arms.

3. In the Standing Consultative Commission the Parties shall maintain by category the agreed data base on the numbers of strategic offensive arms established by the Memorandum of Understanding Between the United States of America and the Union of Soviet Socialist Republics Regarding the Establishment of a Data Base on the Numbers of Strategic Offensive Arms of June 18, 1979.

Agreed Statement. In order to maintain the agreed data base on the numbers of strategic offensive arms subject to the limitations provided for in the Treaty in accordance with paragraph 3 of Article XVII of the Treaty, at each regular session of the Standing Consultative Commission the Parties will notify each other of and consider changes in those numbers in the following categories: launchers of ICBMs; fixed launchers of ICBMs; launchers of ICBMs equipped with MIRVs; launchers of SLBMs; launchers of SLBMs equipped with MIRVs; heavy bombers; heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers; heavy bombers equipped only for ASBMs; ASBMs; and ASBMs equipped with MIRVs.

Article XVIII

Each Party may propose amendments to this Treaty. Agreed amendments shall enter into force in accordance with the procedures governing the entry into force of this Treaty.

Article XIX

1. This Treaty shall be subject to ratification in accordance with the constitutional procedures of each Party. This Treaty shall enter into force on the day of the exchange of instruments of ratification and shall remain in force through December 31, 1985, unless replaced earlier by

FOR THE UNITED STATES OF AMERICA

JIMMY CARTER
President of the
United States of America

FOR THE UNION OF SOVIET SOCIALIST REPUBLICS

L. BREZHNEV
General Secretary of the
CPSU, Chairman of the
Presidium of the Supreme
Soviet of the U.S.S.R.

an agreement further limiting strategic offensive arms.

2. This Treaty shall be registered pursuant to Article 102 of the Charter of the United Nations.

3. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

Done at Vienna on June 18, 1979, in two copies, each in the English and Russian languages, both texts being equally authentic.

**PROTOCOL TO THE TREATY
BETWEEN THE UNITED
STATES OF AMERICA AND
THE UNION OF SOVIET
SOCIALIST REPUBLICS ON
THE LIMITATION OF
STRATEGIC OFFENSIVE ARMS**

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Having agreed on limitations on strategic offensive arms in the Treaty,

Have agreed on additional limitations for the period during which this Protocol remains in force, as follows:

Article I

Each Party undertakes not to deploy mobile ICBM launchers or to flight-test ICBMs from such launchers.

Article II

1. Each Party undertakes not to deploy cruise missiles capable of a range in excess of 600 kilometers on sea-based launchers or on land-based launchers.

2. Each Party undertakes not to flight-test cruise missiles capable of a range in excess of 600 kilometers which are equipped with multiple independently targetable warheads from sea-based launchers or from land-based launchers.

3. For the purposes of this Protocol, cruise missiles are unmanned, self-propelled, guided, weapon-delivery vehicles which sustain flight through the use of aerodynamic lift over most of their flight path and which are flight-tested from or deployed on sea-based or land-based launchers, that is, sea-launched cruise missiles and ground-launched cruise missiles, respectively.

Agreed Statement. Warheads of a cruise missile are independently targetable if maneuvering or targeting of the warheads to separate aim points along ballistic trajectories or any other flight paths, which are unrelated to each other, is accomplished during a flight of a cruise missile.

First Agreed Statement. If a cruise missile is capable of a range in excess of 600 kilometers, all cruise missiles of that type shall be considered to be cruise missiles capable of a range in excess of 600 kilometers.

First Common Understanding. If a cruise missile has been flight-tested to a range in excess of 600 kilometers, it shall be considered to be a cruise missile capable of a range in excess of 600 kilometers.

Second Common Understanding. Cruise missiles not capable of a range in excess of 600 kilometers shall not be considered to be of a type capable of a range in excess of 600 kilometers if they are distinguishable on the basis of externally observable design features from cruise missiles of types capable of a range in excess of 600 kilometers.

Second Agreed Statement. The range of which a cruise missile is capable is the maximum distance which can be covered by the missile in its standard design mode flying until fuel exhaustion, determined by projecting its flight path onto the Earth's sphere from the point of launch to the point of impact.

Third Agreed Statement. If an unmanned, self-propelled, guided vehicle which sustains flight through the use of aerodynamic lift over most of its flight path has been flight-tested or deployed for weapon delivery, all vehicles of that type shall be considered to be weapon-delivery vehicles.

Third Common Understanding. Unmanned, self-propelled, guided vehicles which sustain flight through the use of aerodynamic lift over most of their flight path and are not weapon-delivery vehicles, that is, unarmed, pilotless, guided vehicles, shall not be considered to be cruise missiles if such vehicles are distinguishable from cruise missiles on the basis of externally observable design features.

Fourth Common Understanding. Neither Party shall convert unarmed, pilotless, guided vehicles into cruise missiles capable of a range in excess of 600 kilometers, nor shall either Party convert cruise missiles capable of a range in excess of 600 kilometers into unarmed, pilotless, guided vehicles.

Fifth Common Understanding. Neither Party has plans during the term of the Protocol to flight-test from or deploy on sea-based or land-based launchers unarmed, pilotless, guided vehicles which are capable of a range in excess of 600 kilometers. In the future, should a Party have such plans, that Party will provide notification thereof to the other Party well in advance of such flight-testing or deployment. This Common Understanding does not apply to target drones.

Article III

Each Party undertakes not to flight-test or deploy ASBMs.

Article IV

This Protocol shall be considered an integral part of the Treaty. It shall enter into force on the day of the entry into force of the Treaty and shall remain in force through December 31, 1981, unless replaced earlier by an agreement on further measures limiting strategic offensive arms.

Done at Vienna on June 18, 1979, in two copies, each in the English and Russian languages, both texts being equally authentic.

FOR THE
UNITED STATES
OF AMERICA

JIMMY CARTER

President of the
United States of America

FOR THE
UNION OF SOVIET
SOCIALIST REPUBLICS

L. BREZHNEV

General Secretary of the
CPSU, Chairman of the
Presidium of the Supreme
Soviet of the U.S.S.R.

**MEMORANDUM
OF UNDERSTANDING
BETWEEN
THE UNITED STATES OF
AMERICA
AND THE UNION OF
SOVIET SOCIALIST
REPUBLICS
REGARDING THE
ESTABLISHMENT
OF A DATA BASE ON THE
NUMBERS
OF STRATEGIC OFFENSIVE
ARMS**

For the purposes of the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms, the Parties have considered data on numbers of strategic offensive arms and agree that as of November 1, 1978 there existed the following numbers of strategic offensive arms subject to the limitations provided for in the Treaty which is being signed today.

	<u>U.S.A.</u>	<u>U.S.S.R.</u>
Launchers of ICBMs	1,054	1,398
Fixed launchers of ICBMs	1,054	1,398
Launchers of ICBMs equipped with MIRVs	550	576
Launchers of SLBMs	656	950
Launchers of SLBMs equipped with MIRVs	496	128
Heavy bombers	574	156
Heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers		
Heavy bombers equipped only for ASBMs	0	0
ASBMs	0	0
ASBMs equipped with MIRVs	0	0

At the time of entry into force of the Treaty the Parties will update the above agreed data in the categories listed in this Memorandum.

Done at Vienna on June 18, 1979, in two copies, each in the English and Russian languages, both texts being equally authentic.

**FOR THE UNITED STATES
OF AMERICA**

JIMMY CARTER

President of the
United States of America

**FOR THE UNION OF SOVIET
SOCIALIST REPUBLICS**

L. BREZHNEV

General Secretary of the
CPSU, Chairman of the
Presidium of the Supreme
Soviet of the U.S.S.R.

**STATEMENT OF DATA ON THE
NUMBERS OF STRATEGIC OF-
FENSIVE ARMS AS OF THE DATE
OF SIGNATURE OF THE TREATY**

The United States of America declares that as of June 18, 1979 it possesses the following numbers of strategic offensive arms subject to the limitations provided for in the Treaty which is being signed today:

Launchers of ICBMs	1,054
Fixed launchers of ICBMs	1,054
Launchers of ICBMs equipped with MIRVs	550
Launchers of SLBMs	656
Launchers of SLBMs equipped with MIRVs	496

Heavy bombers	573
Heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers	3
Heavy bombers equipped only for ASBMs	0
ASBMs	0
ASBMs equipped with MIRVs	0

June 18, 1979

RALPH EARLE II

Chief of the United States
Delegation to the Strategic
Arms Limitation Talks

I certify that this is a true copy of the document signed by Ambassador Ralph Earle II entitled "Statement of Data on the Numbers of Strategic Offensive Arms as of the Date of Signature of the Treaty" and given to Ambassador V. Karpov on June 18, 1979 in Vienna, Austria.

THOMAS GRAHAM, JR.

General Counsel
United States Arms Control
and Disarmament Agency

STATEMENT OF DATA ON THE NUMBERS OF STRATEGIC OFFENSIVE ARMS AS OF THE DATE OF SIGNATURE OF THE TREATY

The Union of Soviet Socialist Republics declares that as of June 18, 1979, it possesses the following numbers of strategic offensive arms subject to the limitations provided for in the Treaty which is being signed today:

Launchers of ICBMs	1,398
Fixed launchers of ICBMs	1,398
Launchers of ICBMs equipped with MIRVs	608
Launchers of SLBMs	950
Launchers of SLBMs equipped with MIRVs	144
Heavy bombers	156
Heavy bombers equipped for cruise missiles capable of a range in excess of 600 kilometers	0
Heavy bombers equipped only for ASBMs	0
ASBMs	0
ASBMs equipped with MIRVs	0

June 18, 1979

V. KARPOV

Chief of the U.S.S.R. Delegation
to the Strategic Arms
Limitation Talks

JOINT STATEMENT OF PRINCIPLES AND BASIC GUIDELINES FOR SUBSEQUENT NEGOTIATIONS ON THE LIMITATION OF STRATEGIC ARMS

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Having concluded the Treaty on the Limitation of Strategic Offensive Arms,

Reaffirming that the strengthening of strategic stability meets the interests of the Parties and the interests of international security,

Convinced that early agreement on the further limitation and further reduction of strategic arms would serve to strengthen international peace and security and to reduce the risk of outbreak of nuclear war,

Have agreed as follows:

First. The Parties will continue to pursue negotiations, in accordance with the principle of equality and equal security, on measures for the further limitation and reduction in the numbers of strategic arms, as well as for their further qualitative limitation.

In furtherance of existing agreements between the Parties on the limitation and reduction of strategic arms, the Parties will continue, for the purposes of reducing and averting the risk of outbreak of nuclear war, to seek measures to strengthen strategic stability by, among other things, limitations on strategic offensive arms most destabilizing to the strategic balance

and by measures to reduce and to avert the risk of surprise attack.

Second. Further limitations and reductions of strategic arms must be subject to adequate verification by national technical means, using additionally, as appropriate, cooperative measures contributing to the effectiveness of verification by national technical means. The Parties will seek to strengthen verification and to perfect the operation of the Standing Consultative Commission in order to promote assurance of compliance with the obligations assumed by the Parties.

Third. The Parties shall pursue in the course of these negotiations, taking into consideration factors that determine the strategic situation, the following objectives:

1) significant and substantial reductions in the numbers of strategic offensive arms;

2) qualitative limitations on strategic offensive arms, including restrictions on the development, testing, and deployment of new types of strategic offensive arms and on the modernization of existing strategic offensive arms;

3) resolution of the issues included in the Protocol to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms in the context of the negotiations relating to the implementation of the principles and objectives set out herein.

Fourth. The Parties will consider other steps to ensure and enhance strategic stability, to ensure the

equality and equal security of the Parties, and to implement the above principles and objectives. Each Party will be free to raise any issue relative to the further limitation of strategic arms. The Parties will also consider further joint measures, as appropriate, to strengthen international peace and security and to reduce the risk of outbreak of nuclear war.

Vienna, June 18, 1979

**FOR THE UNITED STATES
OF AMERICA**

JIMMY CARTER

President of the
United States of America

**FOR THE UNION OF SOVIET
SOCIALIST REPUBLICS**

L. BREZHNEV

General Secretary of the
CPSU, Chairman of the
Presidium of the Supreme
Soviet of the U.S.S.R.

**SOVIET BACKFIRE
STATEMENT**

On June 16, 1979, President
Brezhnev handed President Carter

the following written statement:

"The Soviet side informs the US side that the Soviet 'Tu-22M' airplane, called 'Backfire' in the USA, is a medium-range bomber, and that it does not intend to give this airplane the capability of operating at intercontinental distances. In this connection, the Soviet side states that it will not increase the radius of action of this airplane in such a way as to enable it to strike targets on the territory of the USA. Nor does it intend to give it such a capability in any other manner, including by in-flight refueling. At the same time, the Soviet side states that it will not increase the production rate of this airplane as compared to the present rate."

President Brezhnev confirmed that the Soviet Backfire production rate would not exceed 30 per year.

President Carter stated that the United States enters into the SALT II Agreement on the basis of the commitments contained in the Soviet statement and that it considers the carrying out of these commitments to be essential to the obligations assumed under the Treaty.

CYRUS VANCE

Glossary

This glossary has been designed to provide a reference to the acronyms, words, and phrases associated with the strategic arms limitation negotiations and to clarify concepts and answer questions which arise in this context. It is intended for quick reference only, not as a basis for adjudicating definitional problems that might arise in negotiation or in final treaty or agreement language. This glossary was released by the Arms Control and Disarmament Agency in April 1979.

Aggregate. The SALT II agreement provides for several "aggregate" numerical limits on various categories of strategic offensive arms. The term "aggregate" refers principally to the overall aggregate of ICBM launchers, SLBM launchers, heavy bombers, and ASBM's. The SALT II agreement places an initial ceiling of 2,400 on this aggregate with reductions to 2,250 beginning in early 1981 to be finished by the end of that year. There are also aggregate sublimits of 1,320 on MIRV'ed ICBM launchers, MIRV'ed SLBM launchers, MIRV'ed ASBM's, and heavy bombers equipped for cruise missiles capable of a range in excess of 600 km; 1,200 on MIRV'ed ICBM launchers, MIRV'ed SLBM launchers, and MIRV'ed ASBM's; and 820 on MIRV'ed ICBM launchers through 1985. See also *Quantitative Limitation*.

Air-Launched Cruise Missile (ALCM). A cruise missile designed to be launched from an aircraft. See also *Cruise Missile (CM)*, *Cruise Missile Carrier (CMC)*, and *Cruise Missile Range*.

Air-to-Surface Ballistic Missile (ASBM). A ballistic missile launched from an airplane against a target on the Earth's surface. For the purpose of

SALT II, an ASBM is considered to be such a missile capable of a range in excess of 600 km. when carried by an aircraft. See also *Ballistic Missile*.

Air-to-Surface Ballistic Missile (ASBM) Carrier. An airborne carrier for launching a ballistic missile capable of a range in excess of 600 km against a target on the Earth's surface. For the purposes of SALT II, only bombers may be equipped for ASBM's. Bombers so equipped are then considered to be heavy bombers which themselves are not counted in the aggregate limits imposed by the treaty (unless they are also equipped with gravity bombs or long-range ALCM's), although each ASBM is so counted. See also *Air-to-Surface Ballistic Missile (ASBM)*, *Ballistic Missile*, and *Bomber*.

Air-to-Surface Missile (ASM). A missile launched from an airborne carrier against a target on the Earth's surface. See also *Air-Launched Cruise Missile (ALCM)* and *Air-to-Surface Ballistic Missile (ASBM)*.

Antiballistic Missile (ABM) Treaty. Formally entitled the "Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems," this treaty is one of the two agreements signed at Moscow on May 26, 1972, known collectively as the SALT I agreements. The ABM Treaty entered into force on October 3, 1972, and is of unlimited duration. The original ABM Treaty limited each side to two ABM deployment areas (one national capital area and one ICBM silo launcher area) with restrictions on the deployment of ABM launchers and interceptors (100 of each per area) and ABM radars at these areas. A protocol to the treaty

signed in 1974 further restricted each side to only one ABM deployment area.

Backfire. The NATO designation of a modern Soviet two-engine, swing-wing bomber. It is currently being deployed to operational units for use in a theater or naval strike role as a replacement for older Soviet medium bombers. Backfire has characteristics which fall between the characteristics generally attributed to existing heavy bombers and those of medium bombers. Under certain flight conditions, the Backfire is assessed to have an intercontinental capability.

Ballistic Missile. Any missile designed to follow the trajectory that results when it is acted upon predominantly by gravity and aerodynamic drag after thrust is terminated. Ballistic missiles typically operate outside the atmosphere for a substantial portion of their flight path and are unpowered during most of the flight. See also *Air-to-Surface Ballistic Missile (ASBM)*, *Intercontinental Ballistic Missile (ICBM)*, and *Submarine-Launched Ballistic Missile (SLBM)*.

Bomber. An aircraft designed to deliver bombs or missiles. See also *Air-to-Surface Ballistic Missile (ASBM) Carrier*, *Cruise Missile Carrier (CMC)*, and *Heavy Bomber*.

Circular Error Probable (CEP). A measure of the delivery accuracy of a weapon system. It is the radius of a circle around a target of such size that a weapon aimed at the target has a 50% probability of falling within the circle.

Cooperative Measures. Measures taken by one side in order to enhance the other side's ability to verify compliance with the provisions of the agreement. Such measures can be voluntary or negotiated.

Cruise Missile (CM). A guided missile which uses aerodynamic lift to offset gravity and propulsion to counteract drag. A cruise missile's flight

path remains within the Earth's atmosphere. See also *Air-Launched Cruise Missile (ALCM)*, *Cruise Missile Carrier (CMC)*, *Cruise Missile Range*, *Ground-Launched Cruise Missile (GLCM)*, and *Sea-Launched Cruise Missile (SLCM)*.

Cruise Missile Carrier (CMC). An aircraft equipped for launching a cruise missile. The limitations of SALT II apply to those CMC's equipped for cruise missiles capable of a range in excess of 600 km. See also *Air-Launched Cruise Missile (ALCM)*, *Bomber*, and *Heavy Bomber*.

Cruise Missile Range. SALT II provides that the range capability of a cruise missile is the maximum distance which can be covered by the missile in its standard design mode flying until fuel exhaustion, determined by projecting its flight path onto the Earth's sphere from the point of launch to the point of impact. Thus, range capability is, in effect, defined in terms of the odometer distance traveled by the cruise missile. See also *Cruise Missile (CM)*.

Data Base. As an adjunct to SALT II, the U.S. and the U.S.S.R. have agreed on a Memorandum of Understanding Regarding the Establishment of a Data Base on the Numbers of Strategic Offensive Arms which lists, for each side, the numbers of strategic offensive arms by category subject to the limitations provided for in the treaty. This data base will be periodically updated in the Standing Consultative Commission (SCC).

Deliberate Concealment. SALT II provides that verification of compliance with the provisions of the agreement shall be by national technical means (NTM). The sides have agreed not to use deliberate concealment measures which impede verification by NTM of compliance with the provisions of the agreement. Deliberate concealment measures are measures carried out deliberately to hinder or deliberately to impede verification by NTM of compliance with the provisions of the treaty. Deliberate conceal-

ment measures could include, for example, camouflage, use of coverings, or deliberate denial of telemetric information, such as through the use of telemetry encryption, whenever such measures impede verification of compliance with the provisions of the agreement. See also *Encryption, Interference, National Technical Means of Verification (NTM), and Telemetry*.

Development. Development is the first stage in the process of producing a particular weapon system. Subsequent stages include testing (or flight-testing), production, and deployment.

Encryption. Encryption is encoding communications for the purpose of concealing information. In SALT II, this term has been applied to a practice whereby a side alters the manner by which it transmits telemetry from a weapon being tested rendering the information deliberately undecipherable. See also *Deliberate Concealment and Telemetry*.

Fixed Intercontinental Ballistic Missile (ICBM) Launcher. There are two categories of ICBM launchers—fixed and mobile. Fixed ICBM launchers have traditionally been referred to as either “soft,” whereby the missile and most of its launch equipment remain above ground, or “hard,” whereby the missile and most of its launch equipment are contained in a hardened underground silo. In both cases the launcher—the equipment which launches the missile—is in a fixed location. See also *Intercontinental Ballistic Missile (ICBM) Silo Launcher and Launcher*.

Flight-Test. For the purposes of SALT II, a flight-test of a missile is an actual launch of the missile (as distinct from a static test) conducted for any purpose, including for development of the missile, for demonstration of its capabilities, and for training of crews. See also *Launch and Test Range*.

Fractional Orbital Bombardment System (FOBS). A missile that achieves an orbital trajectory but fires

a set of retrorockets before the completion of one revolution in order to slow down, reenter the atmosphere, and release the warhead it carries into a ballistic trajectory toward its target.

While a normal ICBM follows an arching, elliptical path to target, and is highly visible to defending radars, a weapon in low orbit (e.g., 100 miles altitude) can make a sharp descent to Earth, cutting radar warning time substantially. A FOBS path accordingly would consist of a launch into low orbit, a partial circle to the Earth target, and a rapid descent.

Fractionation. The division of the payload of a missile into several warheads. The use of a MIRV payload is an example of fractionation. The term “fractionation limits” is used to describe the treaty limitations on the maximum number of reentry vehicles per missile. See also *Payload and Reentry Vehicle (RV)*.

Functionally Related Observable Differences (FROD's). The means by which SALT II provides for distinguishing between those aircraft which are capable of performing certain SALT-limited functions and those which are not. FROD's are differences in the observable features of airplanes which specifically determine whether or not these airplanes can perform the mission of a heavy bomber, or whether or not they can perform the mission of a bomber equipped for cruise missiles capable of a range in excess of 600 km, or whether or not they can perform the mission of a bomber equipped for ASBM's. See also *Heavy Bomber and Observable Differences (OD's)*.

Ground-Launched Cruise Missile (GLCM). A cruise missile launched from ground installations or vehicles. See also *Cruise Missile (CM), Cruise Missile Range, and Protocol*.

Heavy (Ballistic) Missile. For the purposes of SALT II, ballistic missiles are divided into two categories according to their throw-weight and launch-weight—light and heavy.

Heavy missiles (ICBM's, SLBM's, and ASBM's) are those missiles which have a launch-weight greater or a throw-weight greater than the launch-weight or throw-weight of the Soviet SS-19 ICBM.

Heavy Bomber. The term used in SALT II to describe those aircraft included in the aggregate limitations of the agreement. Heavy bombers consist of four categories of airplanes:

- Current types are the B-52 and B-1 for the U.S. and the TU-95 (Bear) and Myasishchev (Bison) for the Soviets;

- Future types of bombers which can carry out the mission of a heavy bomber in a manner similar or superior to that of the bombers listed above;

- Types of bombers equipped for cruise missiles capable of a range in excess of 600 km; and

- Types of bombers equipped for ASBM's.

Intercontinental Ballistic Missile (ICBM). A land-based fixed or mobile rocket-propelled vehicle capable of delivering a warhead to intercontinental ranges. Once they are outside the atmosphere, ICBM's fly to a target on an elliptical trajectory. An ICBM consists of a booster, one or more reentry vehicles, possibly penetration aids, and, in the case of a MIRV'ed missile, a postboost vehicle. For the purposes of SALT II, an ICBM is considered to be a land-based ballistic missile capable of a range in excess of 5,500 km (about 3,000 nautical miles).

Intercontinental Ballistic Missile (ICBM) Silo Launcher. An ICBM silo launcher, a "hard" fixed ICBM launcher, is an underground installation, usually of steel and concrete, housing an intercontinental ballistic missile and the equipment for launching it. See also *Fixed Intercontinental Ballistic Missile (ICBM) Launcher and Launcher*.

Interference. The SALT II treaty provides that each party shall use national technical means (NTM) of

verification at its disposal to provide assurance of compliance with the treaty. In this connection, each party has undertaken a commitment not to interfere with the NTM of the other party. This means that neither side can destroy or attempt to negate the functioning of the NTM of the other side (e.g., blinding of photoreconnaissance satellites). See also *Deliberate Concealment, National Technical Means of Verification (NTM), Telemetry, and Verification*.

Interim Agreement. Formally entitled the "Interim Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Measures With Respect to the Limitation of Strategic Offensive Arms," this agreement comprises one of two agreements signed at Moscow on May 26, 1972, and known collectively as the SALT I agreements. The Interim Agreement entered into force on October 3, 1972, and formally expired on October 3, 1977. In September 1977, the U.S. and the U.S.S.R. separately stated that they did not plan to take any action inconsistent with the provisions of the Interim Agreement pending conclusion of the SALT II negotiations.

Joint Statement of Principles. SALT II consists of three parts: a treaty which will last through 1985, a protocol which will last through 1981, and a Joint Statement of Principles and Basic Guidelines for Subsequent Negotiations on the Limitation of Strategic Arms. The joint statement of principles provides a general statement of objectives for negotiation in SALT III.

Launch. For the purposes of SALT II, a launch includes a flight of a missile for testing, training, or any other purpose. The term "launch" would not encompass so-called pop-up tests which are tests of the launcher and ejection mechanism. See also *Flight-Test and Launcher*.

Launch-Weight. The weight of the fully loaded missile itself at the time of

launch. This would include the aggregate weight of all booster stages, the postboost vehicle (PBV), and the payload. See also *Heavy (Ballistic) Missile*, *Light (Ballistic) Missile*, and *Throw-Weight*.

Launcher. That equipment which launches a missile. ICBM launchers are land-based launchers which can be either fixed or mobile. SLBM launchers are the missile tubes on a ballistic missile submarine. An ASBM launcher is the carrier aircraft with associated equipment. Launchers for cruise missiles can be installed on aircraft, ships, or land-based vehicles or installations.

Light (Ballistic) Missile. For the purposes of SALT II, ballistic missiles are divided into two categories according to their throw-weight and launch-weight—light and heavy. The Soviet SS-19 ICBM is recognized as the heaviest of the existing light ICBM's. See also *Heavy (Ballistic) Missile*, *Launch-Weight*, and *Throw-Weight*.

Mobile ICBM Launcher. Equipment which launches an ICBM and which can move or be moved from one location to another. Mobile ICBM launchers could include ICBM launchers on wheeled vehicles, launchers on vehicles which travel on rails, and launchers which are moved among launch-points which might themselves be "hard" or "soft."

Modernization. The process of modifying a weapon system such that its characteristics or components are altered in order to improve the performance capabilities for that weapon system. SALT II provides that, subject to provisions to the contrary, modernization and replacement of strategic offensive arms may be carried out. See also *Qualitative Limitation*.

Multiple Independently-Targetable Reentry Vehicle (MIRV). Multiple reentry vehicles carried by a ballistic missile, each of which can be directed to a separate and arbitrarily located

target. A MIRV'ed missile employs a postboost vehicle (PBV) or other warhead-dispensing mechanism. The dispensing and targeting mechanism maneuvers to achieve successive desired positions and velocities to dispense each RV on a trajectory to attack the desired target, or the RV's might themselves maneuver toward their targets after they reenter the atmosphere. For the purposes of SALT II, MIRV'ed ICBM's, SLBM's, and ASBM's are defined as those which have been flight-tested with two or more independently-targetable reentry vehicles, regardless of whether or not they have also been flight-tested with a single reentry vehicle or with multiple reentry vehicles which are not independently targetable. See also *Payload* and *Postboost Vehicle (PBV)*.

Multiple Reentry Vehicle (MRV). The reentry vehicle of a ballistic missile equipped with multiple warheads where the missile does not have the capability of independently targeting the reentry vehicles—as distinct from a missile equipped for MIRV's. See also *Multiple Independently-Targetable Reentry Vehicle (MIRV)*, *Payload*, and *Reentry Vehicle (RV)*.

National Technical Means of Verification (NTM). Assets which are under national control for monitoring compliance with the provisions of an agreement. NTM include photographic reconnaissance satellites, aircraft-based systems (such as radars and optical systems), as well as sea- and ground-based systems (such as radars and antennas for collecting telemetry). SALT II provides that the sides undertake not to interfere with the NTM of the other party nor to use deliberate concealment measures which impede verification by NTM of compliance with the provisions of the agreement. See also *Deliberate Concealment*, *Interference*, *Telemetry*, and *Verification*.

New Type of ICBM. The U.S. and the U.S.S.R. have agreed, for the period of SALT II, to limit each side to only one new type of ICBM. Specific

technical criteria have been established to distinguish between new types of ICBM's and existing types of ICBM's. These criteria include such physical parameters as missile length, maximum diameter, throw-weight, launch-weight, and fuel type. See also *Launch-Weight, Modernization, and Throw-Weight*.

Noncircumvention. SALT II provides that each party undertakes not to circumvent the provisions of this treaty through any other state or states or in any other manner. This provision simply makes explicit the inherent obligation any state assumes when party to an international agreement not to circumvent the provisions of that agreement. This provision will not affect existing patterns of collaboration and cooperation with our allies, including cooperation in modernization of allied forces.

Observable Differences (OD's). Externally observable design features used to distinguish between those heavy bombers of current types which are capable of performing a particular SALT-limited function and those which are not. These differences need not be functionally related but must be a design feature which is externally observable. See also *Functionally Related Observable Differences (FROD's) and Heavy Bomber*.

Payload. Weapons and penetration aids carried by a delivery vehicle. In the case of a ballistic missile, the RV(s) and antiballistic missile penetration aids placed on ballistic trajectories by the main propulsion stages or the PBV; in the case of a bomber, those bombs, missiles, or penaids carried internally or attached to the wings or fuselage. See also *Multiple Independently-Targetable Reentry Vehicle (MIRV), Multiple Reentry Vehicles (MRV's), Penetration Aids (Penaids), Postboost Vehicle (PBV), and Reentry Vehicle*.

Penetration Aids (Penaids). Devices employed by offensive weapon systems, such as ballistic missiles and

bombers, to increase the probability of penetrating enemy defenses. They are frequently designed to simulate or to mask an aircraft or ballistic missile warhead in order to mislead enemy radar and/or divert defensive antiaircraft or antimissile fire. See also *Payload*.

Postboost Vehicle (PBV). Often referred to as a "bus," the PBV is that part of a missile's payload carrying the reentry vehicles, a guidance package, fuel, and thrust devices for altering the ballistic flight path so that the reentry vehicles can be dispensed sequentially toward different targets (MIRV's). Ballistic missiles with single RV's also might use a PBV to increase the accuracy of the RV by placing it more precisely into the desired trajectory. See also *Multiple Independently-Targetable Reentry Vehicle (MIRV), Payload, and Reentry Vehicle (RV)*.

Production. Series manufacturing a particular strategic nuclear delivery system following its development and testing.

Protocol. The SALT II agreement consists of three parts: a treaty which will last through 1985, a protocol which will last through 1981, and a Joint Statement of Principles and Basic Guidelines for Subsequent Negotiations on the Limitation of Strategic Arms. The protocol establishes temporary limitations on mobile ICBM launchers, ground- and sea-launched cruise missiles, and ASBM's.

Qualitative Limitation. Restrictions on capabilities of a weapon system as distinct from quantitative limits (e.g., on numbers of strategic delivery vehicles). In SALT II, such qualitative limitations include, *inter alia*, a prohibition on more than one new type of ICBM for each side, restrictions on missile launch-weight and throw-weight, and limitations on the number of reentry vehicles a missile may carry. See also *Fractionation, Launch-Weight, Modernization, and Throw-Weight*.

Quantitative Limitation. Numerical limits on the number of weapons systems in certain categories, as distinct from qualitative limits on weapons capabilities. For the purposes of SALT II, such limitations include the various aggregate limits. See also *Aggregate*.

Rapid Reload. The capability of a launcher to fire a second missile within a short period of time after an initial missile firing. See also *Launcher*.

Reentry Vehicle (RV). That portion of a ballistic missile which carries the nuclear warhead. It is called a reentry vehicle because it reenters the Earth's atmosphere in the terminal portion of the missile trajectory. See also *Multiple Independently-Targetable Reentry Vehicle (MIRV)*, *Multiple Reentry Vehicle (MRV)*, *Payload*, and *Postboost Vehicle (PBV)*.

Sea-Launched Cruise Missile (SLCM). A cruise missile launched from a submerged or surface ship. See also *Cruise Missile (CM)*, *Cruise Missile Range*, and *Protocol*.

Standing Consultative Commission (SCC). A permanent U.S.-Soviet commission first established in accordance with the provisions of the SALT I agreements. Its purpose is to promote the objectives and implementation of the provisions of the various treaties and agreements achieved between the U.S. and the U.S.S.R. in the SALT negotiations. The SCC meets at least twice a year. The commission deals with matters such as questions of compliance with the provisions of the treaties and agreements and the working out of procedures to implement the SALT agreements. The SCC will continue these functions with respect to SALT II.

Strategic Arms Limitation Talks (SALT). A series of negotiations between the U.S. and the U.S.S.R. which began in November 1969. The negotiations seek to limit and reduce both offensive and defensive strategic arms. The first round of negotiations, known

as SALT I, concluded in May 1972 and resulted in two agreements—the ABM Treaty and the Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Offensive Arms. SALT II, begun in November 1972, includes a treaty, a protocol of shorter duration, and a Joint Statement of Principles and Basic Guidelines for Subsequent Negotiations on the Limitation of Strategic Arms.

Submarine-Launched Ballistic Missile (SLBM). A ballistic missile carried in and launched from a submarine. For the purposes of SALT II, SLBM launchers are launchers installed on any nuclear-powered submarine or launchers of modern ballistic missiles installed on any submarine, regardless of its type. "Modern" SLBM's are, for the U.S., missiles installed in all nuclear-powered submarines; for the U.S.S.R. missiles of the type installed in nuclear-powered submarines made operational since 1965; and for both parties, any SLBM first flight-tested since 1965 and installed in any submarine, regardless of its type. See also *Ballistic Missile*.

Telemetry. Telemetry refers to data, transmitted by radio to the personnel conducting a weapons test, which monitor the functions and performance during the course of the test. See also *Deliberate Concealment and Encryption*.

Test and Training Launcher. For the purposes of SALT II, these are launchers of ICBM's or SLBM's used only for test and training purposes. New test and training launchers may be constructed only at test ranges. Test and training launchers may be replicas or partial launchers without an actual launch capability, or they may be launchers used to launch missiles for test and training purposes. See also *Launcher and Test Range*.

Test Range. For the purposes of SALT II, a test range is a facility where ICBM's are flight-tested. The sides have agreed that such existing

test ranges are located as follows: for the U.S., near Santa Maria, California, and at Cape Canaveral, Florida; and for the U.S.S.R. in the areas of Tyuratam and Plesetskaya. Any future additional test ranges will be specified by notification in the SCC. See also *Flight-Test, Launch, and Test and Training Launcher*.

Throw-Weight. Ballistic missile throw-weight is the useful weight which is placed on a trajectory toward the target by the boost stages of the missile. For the purposes of SALT II, throw-weight is defined as the sum of the weight of:

- The RV or RV's;
- Any PBV or similar device for releasing or targeting one or more RV's; and
- Any antiballistic missile penetration aids, including their release devices.

See also *Heavy (Ballistic) Missile, Launch-Weight, Light (Ballistic) Missile, and Postboost Vehicle*.

Verification. The process of determining, to the extent necessary to adequately safeguard national security, that the other side is complying with an agreement. This process of judging adequacy takes into account the moni-

toring capabilities of existing and future intelligence-collection systems and analysis techniques and the ability of the other side to evade detection if it should attempt to do so. This process also assesses the political and military significance of potential violations and the costs, risks, and gains to a side of cheating. It also takes into account the degree to which advantages conferred on the United States by a particular provision outweigh the disadvantages caused by problems of monitoring. See also *National Technical Means of Verification (NTM) and Standing Consultative Commission (SCC)*.

Warhead. That part of a missile, projectile, torpedo, rocket, or other munition which contains either the nuclear or thermonuclear system, the high-explosive system, the chemical or biological agents, or the inert materials intended to inflict damage. See also *Payload and Reentry Vehicle (RV)*.

Yield. The energy released in an explosion. The energy released in the detonation of a nuclear weapon is generally measured in terms of the kilotons (kt) or megatons (Mt) of TNT required to produce the same energy release.

IAEA Basic Documents Relating
to the Implementation of the NPT

STATUTE

ARTICLE I *Establishment of the Agency*

The Parties hereto establish an International Atomic Energy Agency (hereinafter referred to as "the Agency") upon the terms and conditions hereinafter set forth.

ARTICLE II *Objectives*

The Agency shall seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. It shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose.

ARTICLE III *Functions*

A. The Agency is authorized:

1. To encourage and assist research on, and development and practical application of, atomic energy for peaceful uses throughout the world; and, if requested to do so, to act as an intermediary for the purposes of securing the performance of services or the supplying of materials, equipment, or facilities by one member of the Agency for another; and to perform any operation or service useful in research on, or development or practical application of, atomic energy for peaceful purposes;
2. To make provision, in accordance with this Statute, for materials, services, equipment, and facilities to meet the needs of research on, and development and practical application of, atomic energy for peaceful purposes, including the production of electric power,

This Statute was approved on 23 October 1956 by the Conference on the Statute of the International Atomic Energy Agency, which was held at the Headquarters of the United Nations. It came into force on 29 July 1957, upon the fulfilment of the relevant provisions of paragraph E of Article XXI.

The Statute has been twice amended, by application of the procedure laid down in paragraphs A and C of Article XVIII. On 31 January 1963 some amendments to the first sentence of paragraph A.3 of Article VI came into force. The Statute as thus amended was further amended on 1 June 1973 by the coming into force of a number of amendments to paragraphs A to D of the same Article. These have been incorporated in the text of the Statute reproduced in this booklet, which consequently supersedes all earlier editions.

with due consideration for the needs of the under-developed areas of the world;

3. To foster the exchange of scientific and technical information on peaceful uses of atomic energy;

4. To encourage the exchange and training of scientists and experts in the field of peaceful uses of atomic energy;

5. To establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose; and to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State's activities in the field of atomic energy;

6. To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property (including such standards for labour conditions), and to provide for the application of these standards to its own operations as well as to the operations making use of materials, services, equipment, facilities, and information made available by the Agency or at its request or under its control or supervision; and to provide for the application of these standards, at the request of the parties, to operations under any bilateral or multilateral arrangement, or, at the request of a State, to any of that State's activities in the field of atomic energy;

7. To acquire or establish any facilities, plant and equipment useful in carrying out its authorized functions, whenever the facilities, plant, and equipment otherwise available to it in the area concerned are inadequate or available only on terms it deems unsatisfactory.

B. In carrying out its functions, the Agency shall:

1. Conduct its activities in accordance with the purposes and principles of the United Nations to promote peace and international co-operation, and in conformity with policies of the United Nations furthering the establishment of safeguarded world-wide disarmament and in conformity with any international agreements entered into pursuant to such policies;

2. Establish control over the use of special fissionable materials received by the Agency, in order to ensure that these materials are used only for peaceful purposes;

3. Allocate its resources in such a manner as to secure efficient utilization and the greatest possible general benefit in all areas of the world, bearing in mind the special needs of the under-developed areas of the world;

4. Submit reports on its activities annually to the General Assembly of the United Nations and, when appropriate, to the Security Council: if in connexion with the activities of the Agency there should arise questions that are within the competence of the Security Council, the Agency shall notify the Security Council, as the organ bearing the main responsibility for the maintenance of international peace and security, and may also take the measures open to it under this Statute, including those provided in paragraph C of article XII;

5. Submit reports to the Economic and Social Council and other organs of the United Nations on matters within the competence of these organs.

C. In carrying out its functions, the Agency shall not make assistance to members subject to any political, economic, military, or other conditions incompatible with the provisions of this Statute.

D. Subject to the provisions of this Statute and to the terms of agreements concluded between a State or a group of States and the Agency which shall be in accordance with the provisions of the Statute, the activities of the Agency shall be carried out with due observance of the sovereign rights of States.

ARTICLE IV *Membership*

A. The initial members of the Agency shall be those States Members of the United Nations or of any of the specialized agencies which shall have signed this Statute within ninety days after it is opened for signature and shall have deposited an instrument of ratification.

B. Other members of the Agency shall be those States, whether or not Members of the United Nations or of any of the specialized agencies, which deposit an instrument of acceptance of this Statute after their membership has been approved by the General Conference upon the recommendation of the Board of Governors. In

recommending and approving a State for membership, the Board of Governors and the General Conference shall determine that the State is able and willing to carry out the obligations of membership in the Agency, giving due consideration to its ability and willingness to act in accordance with the purposes and principles of the Charter of the United Nations.

C. The Agency is based on the principle of the sovereign equality of all its members, and all members, in order to ensure to all of them the rights and benefits resulting from membership, shall fulfil in good faith the obligations assumed by them in accordance with this Statute.

ARTICLE V *General Conference*

A. A General Conference consisting of representatives of all members shall meet in regular annual session and in such special sessions as shall be convened by the Director General at the request of the Board of Governors or of a majority of members. The sessions shall take place at the headquarters of the Agency unless otherwise determined by the General Conference.

B. At such sessions, each member shall be represented by one delegate who may be accompanied by alternates and by advisers. The cost of attendance of any delegation shall be borne by the member concerned.

C. The General Conference shall elect a President and such other officers as may be required at the beginning of each session. They shall hold office for the duration of the session. The General Conference, subject to the provisions of this Statute, shall adopt its own rules of procedure. Each member shall have one vote. Decisions pursuant to paragraph H of article XIV, paragraph C of article XVIII and paragraph B of article XIX shall be made by a two-thirds majority of the members present and voting. Decisions on other questions, including the determination of additional questions or categories of questions to be decided by a two-thirds majority, shall be made by a majority of the members present and voting. A majority of members shall constitute a quorum.

D. The General Conference may discuss any questions or any matters within the scope of this Statute or relating to the powers and functions of any organs provided for in this Statute, and may make recommendations to the

membership of the Agency or to the Board of Governors or to both on any such questions or matters.

E. The General Conference shall:

1. Elect members of the Board of Governors in accordance with article VI;
2. Approve States for membership in accordance with article IV;
3. Suspend a member from the privileges and rights of membership in accordance with article XIX;
4. Consider the annual report of the Board;
5. In accordance with article XIV, approve the budget of the Agency recommended by the Board or return it with recommendations as to its entirety or parts to the Board, for resubmission to the General Conference;
6. Approve reports to be submitted to the United Nations as required by the relationship agreement between the Agency and the United Nations, except reports referred to in paragraph C of article XII, or return them to the Board with its recommendations;
7. Approve any agreement or agreements between the Agency and the United Nations and other organizations as provided in article XVI or return such agreements with its recommendations to the Board, for resubmission to the General Conference;
8. Approve rules and limitations regarding the exercise of borrowing powers by the Board, in accordance with paragraph G of article XIV; approve rules regarding the acceptance of voluntary contributions to the Agency; and approve, in accordance with paragraph F of article XIV, the manner in which the general fund referred to in that paragraph may be used;
9. Approve amendments to this Statute in accordance with paragraph C of article XVIII;
10. Approve the appointment of the Director General in accordance with paragraph A of article VII.

F. The General Conference shall have the authority:

1. To take decisions on any matter specifically referred to the General Conference for this purpose by the Board;
2. To propose matters for consideration by the Board and request from the Board reports on any matter relating to the functions of the Agency.

A. The Board of Governors shall be composed as follows:

1. The outgoing Board of Governors shall designate for membership on the Board the nine members most advanced in the technology of atomic energy including the production of source materials, and the member most advanced in the technology of atomic energy including the production of source materials in each of the following areas in which none of the aforesaid nine is located:

- (1) North America
- (2) Latin America
- (3) Western Europe
- (4) Eastern Europe
- (5) Africa
- (6) Middle East and South Asia
- (7) South East Asia and the Pacific
- (8) Far East.

2. The General Conference shall elect to membership of the Board of Governors:

- (a) Twenty members, with due regard to equitable representation on the Board as a whole of the members in the areas listed in sub-paragraph A.1 of this article, so that the Board shall at all times include in this category five representatives of the area of Latin America, four representatives of the area of Western Europe, three representatives of the area of Eastern Europe, four representatives of the area of Africa, two representatives of the area of the Middle East and South Asia, one representative of the area of South East Asia and the Pacific, and one representative of the area of the Far East. No member in this category in any one term of office will be eligible for re-election in the same category for the following term of office; and

- (b) One further member from among the members in the following areas:

Middle East and South Asia,
South East Asia and the Pacific,
Far East;

- (c) One further member from among the members in the following areas:

Africa,
Middle East and South Asia,
South East Asia and the Pacific.

B. The designations provided for in sub-paragraph A-1 of this article shall take place not less than sixty days before each regular annual session of the General Conference. The elections provided for in sub-paragraph A-2 of this

article shall take place at regular annual sessions of the General Conference.

C. Members represented on the Board of Governors in accordance with sub-paragraph A-1 of this article shall hold office from the end of the next regular annual session of the General Conference after their designation until the end of the following regular annual session of the General Conference.

D. Members represented on the Board of Governors in accordance with sub-paragraph A-2 of this article shall hold office from the end of the regular annual session of the General Conference at which they are elected until the end of the second regular annual session of the General Conference thereafter.

E. Each member of the Board of Governors shall have one vote. Decisions on the amount of the Agency's budget shall be made by a two-thirds majority of those present and voting, as provided in paragraph H of article XIV. Decisions on other questions, including the determination of additional questions or categories of questions to be decided by a two-thirds majority, shall be made by a majority of those present and voting. Two-thirds of all members of the Board shall constitute a quorum.

F. The Board of Governors shall have authority to carry out the functions of the Agency in accordance with this Statute, subject to its responsibilities to the General Conference as provided in this Statute.

G. The Board of Governors shall meet at such times as it may determine. The meetings shall take place at the headquarters of the Agency unless otherwise determined by the Board.

H. The Board of Governors shall elect a Chairman and other officers from among its members and, subject to the provisions of this Statute, shall adopt its own rules of procedure.

I. The Board of Governors may establish such committees as it deems advisable. The Board may appoint persons to represent it in its relations with other organizations.

J. The Board of Governors shall prepare an annual report to the General Conference concerning the affairs of the Agency and any projects approved by the Agency. The Board shall also prepare for submission to the General Conference such reports as the Agency is or may be

required to make to the United Nations or to any other organization the work of which is related to that of the Agency. These reports, along with the annual reports, shall be submitted to members of the Agency at least one month before the regular annual session of the General Conference.

ARTICLE VII *Staff*

A. The staff of the Agency shall be headed by a Director General. The Director General shall be appointed by the Board of Governors with the approval of the General Conference for a term of four years. He shall be the chief administrative officer of the Agency.

B. The Director General shall be responsible for the appointment, organization, and functioning of the staff and shall be under the authority of and subject to the control of the Board of Governors. He shall perform his duties in accordance with regulations adopted by the Board.

C. The staff shall include such qualified scientific and technical and other personnel as may be required to fulfil the objectives and functions of the Agency. The Agency shall be guided by the principle that its permanent staff shall be kept to a minimum.

D. The paramount consideration in the recruitment and employment of the staff and in the determination of the conditions of service shall be to secure employees of the highest standards of efficiency, technical competence, and integrity. Subject to this consideration, due regard shall be paid to the contributions of members to the Agency and to the importance of recruiting the staff on as wide a geographical basis as possible.

E. The terms and conditions on which the staff shall be appointed, remunerated, and dismissed shall be in accordance with regulations made by the Board of Governors, subject to the provisions of this Statute and to general rules approved by the General Conference on the recommendation of the Board.

F. In the performance of their duties, the Director General and the staff shall not seek or receive instructions from any source external to the Agency. They shall refrain from any action which might reflect on their position as officials of the Agency; subject to their responsibilities to the Agency, they shall not disclose any

industrial secret or other confidential information coming to their knowledge by reason of their official duties for the Agency. Each member undertakes to respect the international character of the responsibilities of the Director General and the staff and shall not seek to influence them in the discharge of their duties.

G. In this article the term "staff" includes guards.

ARTICLE VIII *Exchange of information*

A. Each member should make available such information as would, in the judgement of the member, be helpful to the Agency.

B. Each member shall make available to the Agency all scientific information developed as a result of assistance extended by the Agency pursuant to article XI.

C. The Agency shall assemble and make available in an accessible form the information made available to it under paragraphs A and B of this article. It shall take positive steps to encourage the exchange among its members of information relating to the nature and peaceful uses of atomic energy and shall serve as an intermediary among its members for this purpose.

ARTICLE IX *Supplying of materials*

A. Members may make available to the Agency such quantities of special fissionable materials as they deem advisable and on such terms as shall be agreed with the Agency. The materials made available to the Agency may, at the discretion of the member making them available, be stored either by the member concerned or, with the agreement of the Agency, in the Agency's depots.

B. Members may also make available to the Agency source materials as defined in article XX and other materials. The Board of Governors shall determine the quantities of such materials which the Agency will accept under agreements provided for in article XIII.

C. Each member shall notify the Agency of the quantities, form, and composition of special fissionable materials, source materials, and other materials which that member is prepared, in conformity with its laws, to make available

immediately or during a period specified by the Board of Governors.

D. On request of the Agency a member shall, from the materials which it has made available, without delay deliver to another member or group of members such quantities of such materials as the Agency may specify, and shall without delay deliver to the Agency itself such quantities of such materials as are really necessary for operations and scientific research in the facilities of the Agency.

E. The quantities, form and composition of materials made available by any member may be changed at any time by the member with the approval of the Board of Governors.

F. An initial notification in accordance with paragraph C of this article shall be made within three months of the entry into force of this Statute with respect to the member concerned. In the absence of a contrary decision of the Board of Governors, the materials initially made available shall be for the period of the calendar year succeeding the year when this Statute takes effect with respect to the member concerned. Subsequent notifications shall likewise, in the absence of a contrary action by the Board, relate to the period of the calendar year following the notification and shall be made no later than the first day of November of each year.

G. The Agency shall specify the place and method of delivery and, where appropriate, the form and composition, of materials which it has requested a member to deliver from the amounts which that member has notified the Agency it is prepared to make available. The Agency shall also verify the quantities of materials delivered and shall report those quantities periodically to the members.

H. The Agency shall be responsible for storing and protecting materials in its possession. The Agency shall ensure that these materials shall be safeguarded against (1) hazards of the weather, (2) unauthorized removal or diversion, (3) damage or destruction, including sabotage, and (4) forcible seizure. In storing special fissionable materials in its possession, the Agency shall ensure the geographical distribution of these materials in such a way as not to allow concentration of large amounts of such materials in any one country or region of the world.

I. The Agency shall as soon as practicable establish or acquire such of the following as may be necessary:

1. Plant, equipment, and facilities for the receipt, storage, and issue of materials;

2. Physical safeguards;
3. Adequate health and safety measures;
4. Control laboratories for the analysis and verification of materials received;
5. Housing and administrative facilities for any staff required for the foregoing.

J. The materials made available pursuant to this article shall be used as determined by the Board of Governors in accordance with the provisions of this Statute. No member shall have the right to require that the materials it makes available to the Agency be kept separately by the Agency or to designate the specific project in which they must be used.

ARTICLE X *Services, equipment, and facilities*

Members may make available to the Agency services, equipment, and facilities which may be of assistance in fulfilling the Agency's objectives and functions.

ARTICLE XI *Agency projects*

A. Any member or group of members of the Agency desiring to set up any project for research on, or development or practical application of, atomic energy for peaceful purposes may request the assistance of the Agency in securing special fissionable and other materials, services, equipment, and facilities necessary for this purpose. Any such request shall be accompanied by an explanation of the purpose and extent of the project and shall be considered by the Board of Governors.

B. Upon request, the Agency may also assist any member or group of members to make arrangements to secure necessary financing from outside sources to carry out such projects. In extending this assistance, the Agency will not be required to provide any guarantees or to assume any financial responsibility for the project.

C. The Agency may arrange for the supplying of any materials, services, equipment, and facilities necessary for the project by one or more members or may itself undertake to provide any or all of these directly, taking into consideration the wishes of the member or members making the request.

D. For the purpose of considering the request, the Agency may send into the territory of the member or group of

members making the request a person or persons qualified to examine the project. For this purpose the Agency may, with the approval of the member or group of members making the request, use members of its own staff or employ suitably qualified nationals of any member.

E. Before approving a project under this article, the Board of Governors shall give due consideration to:

1. The usefulness of the project, including its scientific and technical feasibility;
2. The adequacy of plans, funds, and technical personnel to assure the effective execution of the project;
3. The adequacy of proposed health and safety standards for handling and storing materials and for operating facilities;
4. The inability of the member or group of members making the request to secure the necessary finances, materials, facilities, equipment, and services;
5. The equitable distribution of materials and other resources available to the Agency;
6. The special needs of the under-developed areas of the world; and
7. Such other matters as may be relevant.

F. Upon approving a project, the Agency shall enter into an agreement with the member or group of members submitting the project, which agreement shall:

1. Provide for allocation to the project of any required special fissionable or other materials;
2. Provide for transfer of special fissionable materials from their then place of custody, whether the materials be in the custody of the Agency or of the member making them available for use in Agency projects, to the member or group of members submitting the project, under conditions which ensure the safety of any shipment required and meet applicable health and safety standards;
3. Set forth the terms and conditions, including charges, on which any materials, services, equipment, and facilities are to be provided by the Agency itself, and, if any such materials, services, equipment, and facilities are to be provided by a member, the terms and conditions as arranged for by the member or group of members submitting the project and the supplying member;
4. Include undertakings by the member or group of

members submitting the project: (a) that the assistance provided shall not be used in such a way as to further any military purpose; and (b) that the project shall be subject to the safeguards provided for in article XII, the relevant safeguards being specified in the agreement;

5. Make appropriate provision regarding the rights and interests of the Agency and the member or members concerned in any inventions or discoveries, or any patents therein, arising from the project;

6. Make appropriate provision regarding settlement of disputes;

7. Include such other provisions as may be appropriate.

G. The provisions of this article shall also apply where appropriate to a request for materials, services, facilities, or equipment in connexion with an existing project.

ARTICLE XII *Agency safeguards*

A. With respect to any Agency project, or other arrangement where the Agency is requested by the parties concerned to apply safeguards, the Agency shall have the following rights and responsibilities to the extent relevant to the project or arrangement:

1. To examine the design of specialized equipment and facilities, including nuclear reactors, and to approve it only from the view-point of assuring that it will not further any military purpose, that it complies with applicable health and safety standards, and that it will permit effective application of the safeguards provided for in this article;

2. To require the observance of any health and safety measures prescribed by the Agency;

3. To require the maintenance and production of operating records to assist in ensuring accountability for source and special fissionable materials used or produced in the project or arrangement;

4. To call for and receive progress reports;

5. To approve the means to be used for the chemical processing of irradiated materials solely to ensure that this chemical processing will not lend itself to diversion of materials for military purposes and will comply with applicable health and safety standards; to require that special fissionable materials recovered or produced as a by-product be used for peaceful purposes under continuing Agency safeguards for research or in reactors, existing or under construction, specified by the member or members concerned; and to require

deposit with the Agency of any excess of any special fissionable materials recovered or produced as a by-product over what is needed for the above-stated uses in order to prevent stock-piling of these materials, provided that thereafter at the request of the member or members concerned special fissionable materials so deposited with the Agency shall be returned promptly to the member or members concerned for use under the same provisions as stated above;

6. To send into the territory of the recipient State or States inspectors, designated by the Agency after consultation with the State or States concerned, who shall have access at all times to all places and data and to any person who by reason of his occupation deals with materials, equipment, or facilities which are required by this Statute to be safeguarded, as necessary to account for source and special fissionable materials supplied and fissionable products and to determine whether there is compliance with the undertaking against use in furtherance of any military purpose referred to in sub-paragraph F-4 of article XI, with the health and safety measures referred to in sub-paragraph A-2 of this article, and with any other conditions prescribed in the agreement between the Agency and the State or States concerned. Inspectors designated by the Agency shall be accompanied by representatives of the authorities of the State concerned, if that State so requests, provided that the inspectors shall not thereby be delayed or otherwise impeded in the exercise of their functions;

7. In the event of non-compliance and failure by the recipient State or States to take requested corrective steps within a reasonable time, to suspend or terminate assistance and withdraw any materials and equipment made available by the Agency or a member in furtherance of the project.

B. The Agency shall, as necessary, establish a staff of inspectors. The staff of inspectors shall have the responsibility of examining all operations conducted by the Agency itself to determine whether the Agency is complying with the health and safety measures prescribed by it for application to projects subject to its approval, supervision or control, and whether the Agency is taking adequate measures to prevent the source and special fissionable materials in its custody or used or produced in its own operations from being used in furtherance of any military purpose. The Agency shall take remedial action forthwith to correct any non-compliance or failure to take adequate measures.

C. The staff of inspectors shall also have the responsibility

of obtaining and verifying the accounting referred to in sub-paragraph A-6 of this article and of determining whether there is compliance with the undertaking referred to in sub-paragraph F-4 of article XI, with the measures referred to in sub-paragraph A-2 of this article, and with all other conditions of the project prescribed in the agreement between the Agency and the State or States concerned. The inspectors shall report any non-compliance to the Director General who shall thereupon transmit the report to the Board of Governors. The Board shall call upon the recipient State or States to remedy forthwith any non-compliance which it finds to have occurred. The Board shall report the non-compliance to all members and to the Security Council and General Assembly of the United Nations. In the event of failure of the recipient State or States to take fully corrective action within a reasonable time, the Board may take one or both of the following measures: direct curtailment or suspension of assistance being provided by the Agency or by a member, and call for the return of materials and equipment made available to the recipient member or group of members. The Agency may also, in accordance with article XIX, suspend any non-complying member from the exercise of the privileges and rights of membership.

ARTICLE XIII *Reimbursement of members*

Unless otherwise agreed upon between the Board of Governors and the member furnishing to the Agency materials, services, equipment, or facilities, the Board shall enter into an agreement with such member providing for reimbursement for the items furnished.

ARTICLE XIV *Finance*

A. The Board of Governors shall submit to the General Conference the annual budget estimates for the expenses of the Agency. To facilitate the work of the Board in this regard, the Director General shall initially prepare the budget estimates. If the General Conference does not approve the estimates, it shall return them together with its recommendations to the Board. The Board shall then submit further estimates to the General Conference for its approval.

B. Expenditures of the Agency shall be classified under the following categories:

1. Administrative expenses: these shall include:

- (a) Costs of the staff of the Agency other than the staff employed in connexion with materials, services, equipment, and facilities referred to in sub-paragraph B-2 below; costs of meetings; and expenditures required for the preparation of Agency projects and for the distribution of information;
- (b) Costs of implementing the safeguards referred to in article XII in relation to Agency projects or, under sub-paragraph A-5 of article III, in relation to any bilateral or multilateral arrangement, together with the costs of handling and storage of special fissionable material by the Agency other than the storage and handling charges referred to in paragraph E below;

2. Expenses, other than those included in sub-paragraph 1 of this paragraph, in connexion with any materials, facilities, plant, and equipment acquired or established by the Agency in carrying out its authorized functions, and the costs of materials, services, equipment, and facilities provided by it under agreements with one or more members.

C. In fixing the expenditures under sub-paragraph B-1 (b) above, the Board of Governors shall deduct such amounts as are recoverable under agreements regarding the application of safeguards between the Agency and parties to bilateral or multilateral arrangements.

D. The Board of Governors shall apportion the expenses referred to in sub-paragraph B-1 above, among members in accordance with a scale to be fixed by the General Conference. In fixing the scale the General Conference shall be guided by the principles adopted by the United Nations in assessing contributions of Member States to the regular budget of the United Nations.

E. The Board of Governors shall establish periodically a scale of charges, including reasonable uniform storage and handling charges, for materials, services, equipment, and facilities furnished to members by the Agency. The scale shall be designed to produce revenues for the Agency adequate to meet the expenses and costs referred to in sub-paragraph B-2 above, less any voluntary contributions which the Board of Governors may, in accordance with paragraph F, apply for this purpose. The proceeds of such charges shall be placed in a separate fund which shall be used to pay members for any materials, services, equipment, or facilities furnished by them and to meet other expenses referred to in sub-paragraph B-2 above which may be incurred by the Agency itself.

F. Any excess of revenues referred to in paragraph E over the expenses and costs there referred to, and any voluntary contributions to the Agency, shall be placed in a general fund which may be used as the Board of Governors, with the approval of the General Conference, may determine.

G. Subject to rules and limitations approved by the General Conference, the Board of Governors shall have the authority to exercise borrowing powers on behalf of the Agency without, however, imposing on members of the Agency any liability in respect of loans entered into pursuant to this authority, and to accept voluntary contributions made to the Agency.

H. Decisions of the General Conference on financial questions and of the Board of Governors on the amount of the Agency's budget shall require a two-thirds majority of those present and voting.

ARTICLE XV *Privileges and immunities*

A. The Agency shall enjoy in the territory of each member such legal capacity and such privileges and immunities as are necessary for the exercise of its functions.

B. Delegates of members together with their alternates and advisers, Governors appointed to the Board together with their alternates and advisers, and the Director General and the staff of the Agency, shall enjoy such privileges and immunities as are necessary in the independent exercise of their functions in connexion with the Agency.

C. The legal capacity, privileges, and immunities referred to in this article shall be defined in a separate agreement or agreements between the Agency, represented for this purpose by the Director General acting under instructions of the Board of Governors, and the members.

ARTICLE XVI *Relationship with other organizations*

A. The Board of Governors, with the approval of the General Conference, is authorized to enter into an agreement or agreements establishing an appropriate relationship between the Agency and the United Nations and any other organizations the work of which is related to that of the Agency.

B. The agreement or agreements establishing the relationship of the Agency and the United Nations shall provide for:

1. Submission by the Agency of reports as provided for in sub-paragraphs B-4 and B-5 of article III;
2. Consideration by the Agency of resolutions relating to it adopted by the General Assembly or any of the Councils of the United Nations and the submission of reports, when requested, to the appropriate organ of the United Nations on the action taken by the Agency or by its members in accordance with this Statute as a result of such consideration.

ARTICLE XVII *Settlement of disputes*

A. Any question or dispute concerning the interpretation or application of this Statute which is not settled by negotiation shall be referred to the International Court of Justice in conformity with the Statute of the Court, unless the parties concerned agree on another mode of settlement.

B. The General Conference and the Board of Governors are separately empowered, subject to authorization from the General Assembly of the United Nations, to request the International Court of Justice to give an advisory opinion on any legal question arising within the scope of the Agency's activities.

ARTICLE XVIII *Amendments and withdrawals*

A. Amendments to this Statute may be proposed by any member. Certified copies of the text of any amendment proposed shall be prepared by the Director General and communicated by him to all members at least ninety days in advance of its consideration by the General Conference.

B. At the fifth annual session of the General Conference following the coming into force of this Statute, the question of a general review of the provisions of this Statute shall be placed on the agenda of that session. On approval by a majority of the members present and voting, the review will take place at the following General Conference. Thereafter, proposals on the question of a general review of this Statute may be submitted for decision by the General Conference under the same procedure.

C. Amendments shall come into force for all members when:

- (i) Approved by the General Conference by a two-thirds majority of those present and voting after consideration of observations submitted by the Board of Governors on each proposed amendment, and
- (ii) Accepted by two-thirds of all the members in accordance with their respective constitutional processes. Acceptance by a member shall be effected by the deposit of an instrument of acceptance with the depositary Government referred to in paragraph C of article XXI.

D. At any time after five years from the date when this Statute shall take effect in accordance with paragraph E of article XXI or whenever a member is unwilling to accept an amendment to this Statute, it may withdraw from the Agency by notice in writing to that effect given to the depositary Government referred to in paragraph C of article XXI, which shall promptly inform the Board of Governors and all members.

E. Withdrawal by a member from the Agency shall not affect its contractual obligations entered into pursuant to article XI or its budgetary obligations for the year in which it withdraws.

ARTICLE XIX *Suspension of privileges*

A. A member of the Agency which is in arrears in the payment of its financial contributions to the Agency shall have no vote in the Agency if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two years. The General Conference may, nevertheless, permit such a member to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the member.

B. A member which has persistently violated the provisions of this Statute or of any agreement entered into by it pursuant to this Statute may be suspended from the exercise of the privileges and rights of membership by the General Conference acting by a two-thirds majority of the members present and voting upon recommendation by the Board of Governors.

ARTICLE XX *Definitions*

As used in this Statute:

1. The term "special fissionable material" means plutonium-239; uranium-233; uranium enriched in

the isotopes 235 or 233; any material containing one or more of the foregoing; and such other fissionable material as the Board of Governors shall from time to time determine; but the term "special fissionable material" does not include source material.

2. The term "uranium enriched in the isotopes 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.

3. The term "source material" means uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Board of Governors shall from time to time determine; and such other material as the Board of Governors shall from time to time determine.

ARTICLE XXI *Signature, acceptance, and entry
into force*

A. This Statute shall be open for signature on 26 October 1956 by all States Members of the United Nations or of any of the specialized agencies and shall remain open for signature by those States for a period of ninety days.

B. The signatory States shall become parties to this Statute by deposit of an instrument of ratification.

C. Instruments of ratification by signatory States and instruments of acceptance by States whose membership has been approved under paragraph B of article IV of this Statute shall be deposited with the Government of the United States of America, hereby designated as depositary Government.

D. Ratification or acceptance of this Statute shall be effected by States in accordance with their respective constitutional processes.

E. This Statute, apart from the Annex, shall come into force when eighteen States have deposited instruments of ratification in accordance with paragraph B of this article, provided that such eighteen States shall include at least three of the following States: Canada, France, the Union of Soviet Socialist Republics, the United Kingdom of

Great Britain and Northern Ireland, and the United States of America. Instruments of ratification and instruments of acceptance deposited thereafter shall take effect on the date of their receipt.

F. The depositary Government shall promptly inform all States signatory to this Statute of the date of each deposit of ratification and the date of entry into force of the Statute. The depositary Government shall promptly inform all signatories and members of the dates on which States subsequently become parties thereto.

G. The Annex to this Statute shall come into force on the first day this Statute is open for signature.

ARTICLE XXII *Registration with the United Nations*

A. This Statute shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

B. Agreements between the Agency and any member or members, agreements between the Agency and any other organization or organizations, and agreements between members subject to approval of the Agency, shall be registered with the Agency. Such agreements shall be registered by the Agency with the United Nations if registration is required under Article 102 of the Charter of the United Nations.

ARTICLE XXIII *Authentic texts and certified copies*

This Statute, done in the Chinese, English, French, Russian and Spanish languages, each being equally authentic, shall be deposited in the archives of the depositary Government. Duly certified copies of this Statute shall be transmitted by the depositary Government to the Governments of the other signatory States and to the Governments of States admitted to membership under paragraph B of article IV.

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

DONE at the Headquarters of the United Nations, this twenty-sixth day of October, one thousand nine hundred and sixty-six.

ANNEX I

PREPARATORY COMMISSION

A. A Preparatory Commission shall come into existence on the first day this Statute is open for signature. It shall be composed of one representative each of Australia, Belgium, Brazil, Canada, Czechoslovakia, France, India, Portugal, Union of South Africa, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, and United States of America, and one representative each of six other States to be chosen by the International Conference on the Statute of the International Atomic Energy Agency. The Preparatory Commission shall remain in existence until this Statute comes into force and thereafter until the General Conference has convened and a Board of Governors has been selected in accordance with article VI.

B. The expenses of the Preparatory Commission may be met by a loan provided by the United Nations and for this purpose the Preparatory Commission shall make the necessary arrangements with the appropriate authorities of the United Nations, including arrangements for repayment of the loan by the Agency. Should these funds be insufficient, the Preparatory Commission may accept advances from Governments. Such advances may be set off against the contributions of the Governments concerned to the Agency.

C. The Preparatory Commission shall:

1. Elect its own officers, adopt its own rules of procedure, meet as often as necessary, determine its own place of meeting and establish such committees as it deems necessary;
2. Appoint an executive secretary and staff as shall be necessary, who shall exercise such powers and perform such duties as the Commission may determine;
3. Make arrangements for the first session of the General Conference, including the preparation of a provisional agenda and draft rules of procedure, such session to be held as soon as possible after the entry into force of this Statute;
4. Make designations for membership on the first Board of Governors in accordance with sub-paragraphs A-1 and A-2 and paragraph B of article VI;
5. Make studies, reports, and recommendations for the first session of the General Conference and for the first meeting of the Board of Governors on subjects of concern to the Agency requiring immediate attention, including (a) the financing of the Agency; (b) the programmes and budget for the first year of the Agency; (c) technical problems relevant to advance planning of Agency operations; (d) the establishment of a permanent Agency staff; and (e) the location of the permanent headquarters of the Agency;
6. Make recommendations for the first meeting of the Board of Governors concerning the provisions of a headquarters agreement defining the status of the Agency and the rights and obligations which will exist in the relationship between the Agency and the host Government;
7. (a) Enter into negotiations with the United Nations with a view to the preparation of a draft agreement in accordance

with article XVI of this Statute, such draft agreement to be submitted to the first session of the General Conference and to the first meeting of the Board of Governors; and

(b) make recommendations to the first session of the Conference and to the first meeting of the Board of Governors concerning the relationship of the Agency to other international organizations as contemplated in article XVI of this Statute.

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THE REVISED GUIDING PRINCIPLES AND GENERAL OPERATING
RULES TO GOVERN THE PROVISION OF TECHNICAL
ASSISTANCE BY THE AGENCY

1. The Revised Guiding Principles and General Operating Rules to Govern the Provision of Technical Assistance by the Agency were approved by the Board of Governors on 21 February 1979. The text is reproduced herein for the information of all Members.
2. The provisions established by the Board of Governors on 24 September 1977 for the application of safeguards in relation to the granting of technical assistance are also reproduced in the Annex to the Revised Guiding Principles and General Operating Rules.

I. GUIDING PRINCIPLES

A. GENERAL

1. The provision of all technical assistance by the International Atomic Energy Agency shall be governed by the following guiding principles:
 - (a) The primary objective of technical assistance is to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity in Member States by facilitating their free access to the peaceful uses of atomic energy, the transfer of nuclear technology, the development of research, the application and utilization of atomic energy for peaceful purposes in Member States and the promotion of co-operation between them for that purpose;
 - (b) The provision of technical assistance constitutes a major, high-priority function of the Agency, and responsibility for its success devolves on all Departments of the Secretariat;
 - (c) The technical assistance activities of the Agency shall be carried out with due observance of the sovereign rights of States, the provisions of the Agency's Statute and the terms of agreements concluded between the Agency and the State or group of States requesting technical assistance. The Agency shall

not make technical assistance subject to any political, economic, military or other conditions incompatible with the provisions of the Agency's Statute;

- (d) The Agency's resources for technical assistance shall be allocated primarily to meet the needs of developing countries;
- (e) Technical assistance shall be designed to meet needs of research on, and development and practical application of, atomic energy for peaceful purposes, including the production of electric power, as determined by the requesting State or group of States, and to foster the exchange of scientific and technical information on peaceful uses of atomic energy and to facilitate access to nuclear technologies, equipment and materials for peaceful purposes;
- (f) The nature, extent and scope of technical assistance to be provided to the requesting State or group of States shall be defined by the Government or Governments concerned, and the assistance actually provided shall be in conformity with the Government's request and shall be given only to or through Governments. This definition shall be as precise as possible. If requested, the Agency shall help the Government or Governments concerned in defining the nature, extent and scope of the technical assistance being sought;
- (g) The State or group of States requesting technical assistance shall define, in advance, the subject, purpose and programme for which the technical assistance is requested and shall carry out all necessary preparatory work to ensure that the technical assistance achieves its objective;
- (h) The Agency's Safety Standards and Measures[1] shall be applied, where relevant, to operations making use of technical assistance provided;
- (i) Technical assistance shall be provided only for peaceful uses of atomic energy. For the purposes of the technical assistance programme, peaceful uses of atomic energy shall exclude nuclear weapons manufacture, the furtherance of any military purpose and uses which could contribute to the proliferation of nuclear weapons, such as research on, development of, testing of or manufacture of a nuclear explosive device. To this end and to the extent required by the Board of Governors, Agency safeguards shall be applied to all forms of technical assistance in all sensitive technological areas in accordance with the provisions established by the Board of Governors as set forth in the Annex or as subsequently amended by the Board;
- (j) To the extent relevant, the Agency's recommendations regarding physical protection[2] shall be applied to nuclear facilities, equipment and materials relating directly to the technical assistance programme.

B. ELIGIBILITY OF STATES TO RECEIVE TECHNICAL ASSISTANCE

2. Subject to the guiding principle referred to in paragraph 1(d) above, that the Agency's resources for technical assistance shall be allocated primarily to meet the needs of developing countries, each Member State of the Agency or group of Member States shall be eligible for technical assistance provided from the Agency's own resources.

3. Eligibility for technical assistance from the United Nations Development Programme (UNDP) is governed by the statutory requirements and criteria of that programme[3].

[1] INFCIRC/18/Rev.1.

[2] INFCIRC/225/Rev.1.

[3] Participation in UNDP is open to any State which is a Member of the United Nations, of one of its specialized agencies or of the IAEA; the resources of UNDP are utilized exclusively for the benefit of developing countries and territories in accordance with the principles and procedures incorporated in the draft Statute of UNDP.

4. The eligibility of States for technical assistance from funds provided for special projects or programmes by Member States or from funds-in-trust provided by the Government of a Member State shall be governed by the agreement with the State providing the funds. It is understood that such agreements shall be compatible with the provisions of the Statute.

C. SOURCES OF TECHNICAL ASSISTANCE

5. The Agency may accept voluntary contributions of money and gifts of services, equipment and facilities in accordance with the rules regarding the acceptance of voluntary contributions of money by the Agency (approved by the General Conference on 1 October 1959) and the rules to govern the acceptance of gifts of services, equipment and facilities (adopted by the Board of Governors on 13 January 1959)[4]; it may also accept special fissionable materials and source material[5].

6. In addition, the Agency may provide technical assistance as an executing agency for UNDP in accordance with the agreement concluded between the Agency and the United Nations Special Fund[6]. It may also serve as an intermediary for providing technical assistance on behalf of the Government of any Member of the Agency or of any other State Member of the United Nations or of any specialized agency in accordance with an agreement concluded with the Government concerned.

D. AGREEMENTS FOR THE PROVISION OF TECHNICAL ASSISTANCE

7. Before technical assistance is provided, the Agency and the Government concerned shall conclude an agreement which shall provide for application of the basic agreement currently used to govern the provision of technical assistance under UNDP. The agreement between the Agency and the Government shall further set forth the specific conditions required under the Agency's Statute for the provision of technical assistance by the Agency to its Members.

E. FORMS OF TECHNICAL ASSISTANCE

8. The Agency may provide technical assistance in any of the following forms:

- (a) The services of experts, consultants and visiting professors;
- (b) Fellowships, scientific visits, training courses, study tours;
- (c) Equipment and supplies;
- (d) Such other assistance as in the opinion of the Board is consistent with the objectives of the Agency.

9. The Agency will continue to meet requests for assistance for technically sound projects having a duration of one year or less in order to fill gaps which Governments cannot fill from their own resources. However, increasing emphasis shall be given by the Agency to the provision of technical assistance in regard to integrated, multi-year programmes including projects for regional development. Integrated and/or multi-year programmes or projects should be related to the development plans or priorities and objectives of the recipient Member States or group of Member States with a view to making a contribution in support of them.

F. SCOPE OF APPLICATION OF THE GUIDING PRINCIPLES

10. These guiding principles shall apply to any technical assistance provided by the Agency, irrespective of the source of the funds or gifts involved and including projects for which the Agency serves as an executing agency or intermediary for a State or for another organization.

[4] INFCIRC/13.

[5] Article IX of the Agency's Statute.

[6] INFCIRC/33.

II. GENERAL OPERATING RULES

A. Elaboration of the programme of technical assistance to be provided from the Agency's own resources

11. At the request of Member States the Agency shall take steps to make its capabilities available to them in the drawing up of programmes for the peaceful uses of atomic energy involving the provision of technical assistance or in the drawing up of individual requests, including those relating to long-term projects. For this purpose the Agency may send staff members, experts or programming missions to requesting States.

12. The Government of each requesting Member State shall submit its detailed requests for technical assistance in accordance with the time-table established for that purpose. Each request for an integrated and/or multi-year programme or project should indicate how the relevant authorities of the requesting Member State or group of Member States relate it to the national development plans or priorities and objectives of that State or group of States.

B. Annual approval and review of the technical assistance programme

13. The Board of Governors shall examine and approve each year the Director General's proposals for technical assistance in the form of the services of experts and equipment to be provided from the Agency's own resources during the following year. In so doing, the Board shall take into account the likely amount of such resources.

14. The Director General's proposals for technical assistance referred to in paragraph 13 shall distinguish between those projects which it is expected will be executed through the use of convertible currency and those which it is expected will be executed through the use of non-convertible currency.

15. The Board may approve technical assistance projects involving the services of experts or equipment of a duration of more than one year. The financial implications of each such project shall be reviewed during each ensuing year after its approval and such review shall take due account of the relative priority of the project.

16. Fellowships and training activities shall be approved by the Director General and shall be reported upon in the Annual Report on Technical Assistance provided by the Agency and in the Agency's Annual Report.

17. The time-table for the submission of requests for technical assistance to be provided from the Agency's own resources shall thus normally be as follows:

<u>Year</u>	<u>Month/Date</u>	<u>Action</u>
A	August	Member States shall be invited by the Director General to submit detailed requests for technical assistance to be provided in year C.
A	31 December	Final date for the receipt of detailed requests for technical assistance to be provided in year C.
B	September	Final establishment of priorities among Member States' requests in consultation with the Governments concerned.
B	November/December	Review by the Board's Technical Assistance Committee (TAC) of the proposed programme of technical assistance for the year C and TAC's report recommending Board approval thereof enabling the Director General to make preparations for the programme to be implemented as from 1 January in year C.
C	February	Board of Governors notes TAC's report and approves the recommended programme for the year C.

18. The Director General may, after consulting the Board, modify the foregoing timetable if he considers this necessary in the light of operating experience.

19. The Board shall annually review all technical assistance that the Agency has provided during the preceding year, including projects for which the Agency has served as executing agency or intermediary, regardless of the source of funds for the technical assistance.

C. Programme changes

20. At the request of or in agreement with the recipient Government concerned, the Director General may approve a modification to a project already approved provided that the modification shall not alter the nature and major objective of the project as approved by the Board. A modification shall not be carried out without the prior approval of the Board in the case of a project which, in its original or modified form, requires the application of safeguards. If the modification requires additional expenditures by the Agency it may be approved provided that the required funds are available from savings accrued in the operation of the current year's technical assistance programme or any previously approved technical assistance programme. The Board shall be informed of programme changes in the Annual Report on Technical Assistance.

D. Establishment of a reserve fund

21. Not more than 2.5% of the funds available for technical assistance to be provided under the Agency's annual technical assistance programme shall be set aside by the Board each year as a reserve fund to finance technical assistance which is the subject of requests submitted by developing Member States after the Board has approved the technical assistance programme for the year in question. The percentage set by the Board for this purpose shall be reviewed from time to time in the light of experience.

22. The Director General may use this reserve fund to finance such additional technical assistance of the type referred to in the preceding paragraph and supplemental assistance for previously approved projects, provided that any such assistance shall not involve an expenditure of more than \$25 000 from the Agency's resources. Each such project shall be reported to the Board in the subsequent Annual Report on Technical Assistance.

E. Financial procedures to be applied to the programme of technical assistance provided from the Agency's own resources

23. The financial procedures to be applied to the programme of technical assistance to be provided from the Agency's own resources shall conform to the relevant provisions of the Financial Regulations of the Agency and any other relevant rules approved by the Board of Governors.

24. If the funds earmarked for a particular technical assistance project have not been obligated within two years after their provision has been approved by the Board, the Director General may, after consultation with the Government concerned, cancel the project and either replace it by another approved project in the same country or return the funds to the relevant operating fund of the Agency. The Director General shall inform the Board in the subsequent Annual Report on Technical Assistance of any such cancellation.

F. Technical assistance under the United Nations Development Programme

25. The technical assistance that the Agency provides as executing agency for UNDP shall be governed by UNDP's statutory requirements and by the guiding principles set forth in part I of this document and, to the extent relevant, the general operating rules in this document.

G. Co-operation and co-ordination with the United Nations and the specialized agencies

26. The technical assistance that the Agency provides from its own resources and as an executing agency for the United Nations Development Programme and as an intermediary for any State or other organization shall be co-ordinated with the technical assistance provided by other organizations of the United Nations system.

ANNEX

THE APPLICATION OF SAFEGUARDS IN RELATION TO THE GRANTING OF TECHNICAL ASSISTANCE

1. Among the numerous and diverse requests for technical assistance examined by the Agency each year a small number may appear to relate, directly or indirectly, to "sensitive technological areas" in relation to which safeguards are normally applied. The question therefore arises as to whether safeguards should be applied to materials, equipment and facilities within the "sensitive technological area" to which the assistance requested is relevant bearing in mind that technical assistance refers primarily to the provision of equipment and experts' services

2. Any policy laid down by the Board regarding the application of safeguards to materials, equipment and facilities in "sensitive technological areas" which benefit from technical assistance provided by the Agency will need first to be in accordance with the Agency's Statute under which the Agency "shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose" and "is authorized to establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose"[1]. Secondly, such a policy must clearly take full account of the views of all countries concerned. Further, the policy will be determined to a large extent by practical considerations bearing in mind the scale of operations and the special characteristics of certain technical assistance projects. Finally, it will be necessary to ensure uniformity of treatment among all Member States in fulfilment of Article III.C of the Statute.

3. In view of the difficulty of drawing up precise and meaningful threshold criteria for the triggering of safeguards in certain fields it is desirable that the Secretariat, in analysing requests on a case-by-case basis, should be allowed a certain amount of flexibility in applying this policy within broad guidelines established by the Board. All safeguards agreements will, in accordance with the usual practice, be placed before the Board. In addition, cases where there is disagreement between the Secretariat and a Member State concerning the application of this policy to a proposal for technical assistance put forward by that State will be referred to the Board for decision. In this manner an Agency policy will evolve guaranteeing objective and uniform treatment of all requests.

4. Fields of application. The "sensitive technological areas" which are referred to in paragraph 1 above and which are relevant to the application of safeguards are:

- (a) Uranium enrichment;
- (b) Reprocessing of spent fuel;
- (c) Production of heavy water; and
- (d) Handling of plutonium, including manufacture of plutonium and mixed uranium/plutonium fuel.

This list, which will be kept under review by the Director General, may be modified by the Board from time to time in the light of experience.

5. Extent of contribution. Safeguards will be applicable in relation to technical assistance in the fields listed in paragraph 4 above only if it appears that a "substantial contribution" is being made to the project assisted in accordance with procedures set forth in paragraph 7. In the absence of any precise criteria, an element of judgement will be required which must take into account, inter alia, the nature and scope of the information being transferred, the significance of equipment supplied, the precise nature and size of the project or those aspects of it for which assistance is required.

[1] Agency's Statute, Articles II and III. A. 5 respectively.

6. Exclusions. The use of information transferred by the Agency which is freely available to the public, e. g. through scientific and technical journals, proceedings of conferences and unclassified reports, etc., will not require the application of safeguards. Moreover, safeguards will not be applied in relation to certain types of Agency assistance to its Member States, such as participation in IAEA conferences, symposia and training courses, participation in INIS, in nuclear data activities, including fusion data, and in other generalized arrangements or projects for the transfer of information.

7. Procedures. All requests for technical assistance involving the provision of equipment and experts' services will be reviewed by the Secretariat in order to determine whether safeguards may be necessary. When submitting the draft technical assistance regular programme to the Technical Assistance Committee in November or December and to the February Board, the Director General will indicate which, if any, of the proposed projects are considered to make a substantial contribution within one or more of the sensitive areas listed in paragraph 4 above in relation to which appropriate safeguards may need to be applied. In the case of Member States which have concluded appropriate safeguards agreements with the Agency concerning the relevant activity, no additional safeguards agreements relating to the benefits obtained from technical assistance provided by the Agency will be required. In the case of Member States for which such provisions do not apply, safeguards agreements, where applicable, will be drawn up by the Agency to cover materials and facilities utilizing the technology being transferred and will be concluded before the delivery of the technical assistance. The agreements will provide for the application of the above safeguards only if the technical assistance is in fact effectively given to the requesting country.

8. In the case of requests for scientific visits and fellowships no safeguards will normally be required. However when, in the opinion of the Secretariat, the quantum of assistance granted through such means constitutes a "substantial contribution" to a project in a "sensitive technological area", within a requesting Member State, the matter will be brought to the attention of the Board for appropriate action.

APPENDIX 24C

GUIDELINES FOR THE INTERNATIONAL OBSERVATION BY THE AGENCY OF NUCLEAR EXPLOSIONS FOR PEACEFUL PURPOSES UNDER THE PROVISIONS OF THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS OR ANALOGOUS PROVISIONS IN OTHER INTERNATIONAL AGREEMENTS

On 21 June 1972 the Board of Governors approved guidelines for the international observation by the Agency of nuclear explosions for peaceful purposes under the provisions of the Treaty on the Non-Proliferation of Nuclear Weapons or analogous provisions in other international agreements. These guidelines are now reproduced herein for the information of all Members.

A. GENERAL GUIDELINES AND OBJECTIVES

Purpose of observation

1. The basic purpose of international observation, hereinafter called "observation", is to verify that, in the course of conducting a peaceful nuclear explosion project in a non-nuclear-weapon State or States, the intent and letter of Articles I and II of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)[1] or of analogous provisions in other international agreements are not violated.

Circumstances requiring observation

2. Observation is required where peaceful nuclear explosion services are carried out either:

(a) Through the Agency; or

) Pursuant to bilateral agreements, in accordance with Article V of NPT or with provisions in other international agreements, calling for such observation.

Observation agreement

3. Observation shall be undertaken pursuant to a specific agreement for observation, hereinafter called the "observation agreement" to be concluded in accordance with applicable provisions of this document between the Agency and the State or States concerned. The observation agreement shall be concluded, except for emergency situations in accordance with paragraph 19 of this document, not less than 60 days before the transport of the nuclear explosive device or devices (or any components thereof) from the territory of the nuclear-weapon State concerned.

[1] Reproduced in document INFCIRC/140. Article I of NPT reads: "Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices"; Article II reads: "Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices."

The Agency's obligations

4. The Agency shall:

- (a) Arrange to provide the minimum number of observers necessary to maintain surveillance, in accordance with the observation agreement over those areas or situations where Articles I and II of NPT, or analogous provisions in other international agreements, might be contravened;
- (b) Request only that information and carry out only those activities needed to perform its observation functions for the purpose specified in paragraph 1 of this document;
- (c) Carry out its observation functions in a manner designed to avoid hindering the conduct of the peaceful nuclear explosion operations, to avoid disclosing any confidential or privileged information it might receive and to give due recognition to the provisions of NPT or other relevant international agreements and existing domestic law of the Governments concerned;
- (d) Inform all Member States, and those non-member States parties to agreements with the Agency, of any situations or incidents which contravene, or have the appearance of contravening, either the intent or the letter of Articles I or II of NPT or of analogous provisions in other international agreements, or the obligations of the parties under the observation agreement; and
- (e) Request appropriate action of participating States, including, if approved by the Board of Governors, withdrawal of the nuclear explosive device or devices from the territory of the non-nuclear-weapon State or States, if the situation or incident referred to in the preceding sub-paragraph has not been corrected to the satisfaction of the Director General within a reasonable period of time.

Other parties' obligations

5. It is the responsibility of the supplier nuclear-weapon State and non-nuclear-weapon State or States which, in addition to the Agency, are parties to the observation agreement to:

- (a) Plan and conduct peaceful nuclear explosion projects in such a manner as to protect against the direct or indirect disclosure of nuclear explosive design information, including, but not limited to, oral disclosure of such information;
- (b) Provide the opportunity for observation in accordance with the observation agreement; and
- (c) Co-operate with the Agency in order to enable the Agency observers to perform their functions in accordance with the observation agreement.

6. The supplier nuclear-weapon State shall take appropriate steps to ensure that persons other than its authorized nationals acting on its behalf do not have access to the design information contained in any documents or materials designated in accordance with paragraph 9(e) of this document.

7. Where the opportunity for observation is provided in accordance with the observation agreement, the peaceful nuclear explosion project need not be delayed if, through no fault of the nuclear-weapon State or non-nuclear-weapon State or States party to the observation agreement, the observation function is not performed.

B. PURPOSE AND SCOPE OF OBSERVATION AGREEMENT

8. The observation agreement in general will set forth the observations necessary to provide the following assurances against violation of Articles I and II of NPT or of analogous provisions in other international agreements:

- (a) That the nuclear explosive device or devices to be used in furnishing peaceful nuclear explosion services to a non-nuclear-weapon State or States, and any documents or materials designated in accordance with paragraph 9(e) of this document, remain at all times under the custody and control of the supplier nuclear-weapon State;
- (b) That there is no opportunity for persons other than authorized nationals of the supplier nuclear-weapon State acting on its behalf to obtain design information pertaining to the nuclear explosive device or devices by physical or instrumental or visual access to the interior of any canister holding the nuclear explosive device or devices or to any documents or materials designated in accordance with paragraph 9(e) of this document, or to obtain such information by any other means;
- (c) That no attempt is made to obtain any radioactive materials designated by the nuclear-weapon State in accordance with paragraph 9(f) of this document; and
- (d) That the nuclear explosion or explosions are carried out in accordance with the declared purpose.

9. Observation agreements, in general, shall include, but not be limited to, the following:

- (a) Appropriate parts of NPT or other relevant international agreements and of this document, either directly or by reference;
- (b) An undertaking by the parties to the observation agreement to conduct themselves in accordance with the guidelines and objectives set forth in this document;
- (c) A description of the proposed project including, in general, the declared purpose of the project, the planned involvement of each party in the project, the technology involved, the number of nuclear explosive device canisters involved, with the approximate explosive yield of each fully assembled canister, and the planned schedule for detonation;
- (d) Information necessary for a detailed description of the required observations, as follows:
 - (i) A description of the general characteristics and external dimensions of the shipping container and the fully assembled nuclear explosive device canister or canisters to be used in carrying out the peaceful nuclear explosion project;
 - (ii) A description of how the nuclear explosive device canister or canisters are to be emplaced, at what depth, and how each emplacement hole is to be filled;
 - (iii) A description of the predicted on-site physical effects such as surface ground motion, chimney or excavation dimensions, and of how these effects relate to carrying out the declared purpose of the peaceful nuclear explosion project;
- (e) A specific declaration by the supplier nuclear-weapon State indicating which of the documents and materials that will be transported by it to the non-nuclear-weapon State or States in connection with the peaceful nuclear explosion project contain design information related to a nuclear explosive device, and, therefore, require observation. The declaration should also include a description of the conditions under which observation of such documents and materials is no longer required;
- (f) A specific declaration by the supplier nuclear-weapon State indicating which radioactive materials, if any, resulting from a peaceful nuclear explosion or explosions within a non-nuclear-weapon State or States and remaining

after the detonation require observation for a specified period of time, if the nuclear-weapon State considers that any such materials are capable of assisting any non-nuclear-weapon State or States in obtaining significant nuclear explosive design information; and

- (g) A description of the detailed plans, agreed to among the parties, which are required for observation. Such plans may be incorporated in the observation agreement as annexes, and may be altered or extended by agreement among the parties without formal amendment of the observation agreement itself,

10. The detailed plans required for observation shall include:

- (a) A schedule for the transportation of the nuclear explosive device or devices (and any components thereof) in sufficient detail for the observers to perform their assigned functions, including, but not limited to, methods of transportation, time of departure and arrival, and plans for protective action by the parties;
- (b) A detailed description of the observation required including contingency plans in the event of unplanned (but reasonably possible) circumstances, names of observers and other responsible representatives of parties to the observation agreement, and a more general description of any equipment to be used in maintaining technical surveillance and how this equipment is to be used; and
- (c) A description of the equipment, if any, to be used by the observers to determine that the nuclear explosive device or devices have been detonated and that the explosion was carried out in accordance with the declared purpose of the project. A description of the use of such equipment should also be included.

C. CHARACTER OF OBSERVATION

11. Observation shall begin when the nuclear explosive device or devices (or any components thereof), including any documents and materials declared by the supplier nuclear-weapon State to contain design information, leave either the territory or the means of transport which is under the jurisdiction and control of the supplier nuclear-weapon State, whichever occurs later. At the request of the supplier nuclear-weapon State, observation may begin prior to the transport of the nuclear explosive device or devices from its territory for the purpose of affixing security seals on tamper-proof containers used for transporting the nuclear explosive device or devices or otherwise to facilitate the observation function.

12. Once observation has been initiated with respect to the nuclear explosive device or devices and any documents or materials designated in accordance with paragraphs 9(e) and 9(f) of this document, surveillance shall be continued on a 24-hour per day basis until either:

- (a) The nuclear explosive device or devices are detonated and any such documents or materials no longer require surveillance in accordance with the observation agreement; or
- (b) The nuclear explosive device or devices and any such documents or materials are removed from the territory of the non-nuclear-weapon State or States by the supplier nuclear-weapon State.

13. In maintaining surveillance in accordance with the preceding paragraph, continuous visual observation is desirable but other means of surveillance are acceptable if they are considered adequate by the parties to the observation agreement and are regarded by them at least as effective as continuous visual observation. These other means of surveillance may include:

- (a) Technical means of surveillance, such as tamper-proof containers and security seals for the transport of the nuclear explosive device or devices and of the documents or materials designated in accordance with paragraph 9(e) of this document;

- (b) During and after transportation of the nuclear explosive device or devices (or any component thereof), or of the documents or materials referred to in the preceding sub-paragraph, exterior observation of any facility in which work is being done on the explosive device or devices or on or with the said documents or materials, to verify that only authorized representatives of the supplier nuclear-weapon State have access to the interior of any canister holding a nuclear explosive device or to the said documents or materials;
- (c) After emplacement of the nuclear explosive device or devices underground at the project site, observation of the surface of the emplacement area; and
- (d) Appropriate inspection to determine whether or not there has been any attempt to obtain any radioactive materials designated by the supplier nuclear-weapon State in accordance with paragraph 9(f) of this document.

14. At the time of the detonation and immediately thereafter, as described in the observation agreement, the Agency observers shall employ such methods as may be adequate to ascertain that the nuclear explosive device or devices have been detonated. For a completely contained underground explosion this requirement might be satisfied by ground motion instrumentation to determine approximate explosive yield.

15. During the operations at the nuclear explosion site, Agency observers will determine whether or not the explosion has taken place in accordance with the declared purpose. Such observations need not be on a continuous basis unless specifically required by the observation agreement.

D. REPORTING

16. Agency observers individually or collectively shall promptly report to the Director General and to the responsible project representative of the supplier nuclear-weapon State concerned any observed circumstances which appear to indicate that the requirements set forth in paragraph 8 of this document are not satisfied.

17. An interim report shall be prepared by Agency observers and submitted to the Director General not later than 90 days following each nuclear detonation. Apart from providing a summary of observation activities for the period up to the time of its preparation, such interim report shall specify the further actions planned to meet the obligations of the observation agreement. Interim reports shall be submitted irrespective of whether any report has been made to the Director General under the preceding paragraph. The Director General shall circulate copies of all interim reports to the Board of Governors.

18. When observation of a peaceful nuclear explosion project has been concluded to the satisfaction of the Director General, he shall issue a Record of Observation to the supplier nuclear-weapon State and to the non-nuclear-weapon State or States in which the project was conducted. Those States shall have 30 days thereafter to transmit a report along with the Director General's Record of Observation to the Board of Governors. The Board of Governors, in turn, shall submit a report on the matter to all Member States and to non-member States parties to agreements with the Agency.

E. EMERGENCY PROJECTS

19. In emergency situations, such as oil or gas well fires, where the prompt use of a peaceful nuclear explosion or explosions would alleviate the situation, special measures may be taken consistent with the guidelines embodied in this document. In no case, however, will such measures be implemented in the absence of specific approval by the Board of Governors.

F. DESIGNATION OF AGENCY OBSERVERS

20. When it is proposed to designate an Agency observer for a peaceful nuclear explosion project, the Director General shall inform in writing the supplier nuclear-

weapon State and the non-nuclear-weapon State or States in which the project is to be conducted of the name and nationality of the proposed Agency observer and shall transmit a written certification of the observer's relevant qualifications and shall enter into such other consultations as the interested States request. The supplier nuclear-weapon State and the non-nuclear-weapon State or States in which the project is to be conducted shall inform the Director General within 30 days of receipt of such a proposal whether they would accept the designation of that Agency observer. If so accepted, the proposed observer may be designated as an Agency observer for that project, and the Director General shall notify the interested States of such designation.

21. If a State party to an observation agreement, either upon proposal of a designation or at any time after a designation has been made, objects to the designation of an Agency observer for the peaceful nuclear explosion project involved it shall inform the Director General of its objection. In this event, the Director General shall propose to the interested States an alternative designation or designations. The Director General may refer to the Board, for its appropriate action, the repeated refusal of a party to an observation agreement to accept the designation of an Agency observer if, in his opinion, this refusal would impede the observation provided for in the relevant observation agreement.

22. The nuclear-weapon State or the non-nuclear-weapon State or States involved in a peaceful nuclear explosion project shall as speedily as possible grant or renew appropriate visas where required for persons accepted by such States as designated Agency observers.

G. VISITS OF AGENCY OBSERVERS

23. The States parties to an observation agreement shall, except in emergency situations, be given at least three weeks' notice of the arrival of the Agency's observers, including their names and the place and approximate time of their arrival and departure.

24. Agency observers may be accompanied by representatives of the States concerned, provided that the observers shall not thereby be delayed or otherwise impeded in the exercise of their functions. Agency observers shall use such points of entry into and departure from the State, and such routes and modes of travel within it, as may be designated by the State.

25. Agency observers, in locations where this is necessary, shall be provided, on request and for reasonable compensation if agreed on, with appropriate equipment for carrying out observation and with suitable accommodation and transport.

26. The visits and activities of the Agency's observers shall be so arranged as to ensure on the one hand the effective discharge of their functions and on the other hand the minimum possible inconvenience to the States concerned.

27. Consultations shall take place with the States concerned to ensure that, consistent with the effective discharge of the functions of the Agency's observers, their activities will be conducted in harmony with the terms of NPT or with analogous provisions of other international agreements, and with the laws and regulations existing in the State or States in which the project will be conducted.

28. After submitting proper identification, Agency observers, in accordance with the observation agreement, shall have access to the exterior of the nuclear explosive device canister or canisters and to the location of any documents and materials the supplier nuclear-weapon State has, in accordance with paragraphs 9(e) and 9(f) of this document, declared to require observation, provided, however, that such access shall be limited to that which is necessary to verify that persons other than authorized nationals of the supplier nuclear-weapon State do not have any form of access to the interior of the nuclear explosive device canister or canisters or to the design information contained in any documents or materials that require observation.

29. Agency observers shall have access to any location within the area designated as the peaceful nuclear explosion project site in the observation agreement, except such

locations, if any, as cannot, consistent with Articles I and II of NPT or with analogous provisions in other international agreements, be open to other than authorized nationals of the supplier nuclear-weapon State.

30. Agency observers shall be granted the privileges and immunities necessary for the performance of their functions. Suitable provisions shall be included in each observation agreement, in so far as relevant to the execution of that agreement, from among the provisions of the Agreement on the Privileges and Immunities of the International Atomic Energy Agency, [2] excepting Articles V and XII thereof, provided that all parties to the observation agreement so agree.

31. Disputes between a State concerned and the Agency arising out of the exercise of the functions of Agency observers will be settled according to an appropriate disputes clause in the observation agreement.

H. MISCELLANEOUS PROVISIONS

32. The guidelines set forth in this document and the procedures for which it provides are established for the information of interested States, to enable them to determine in advance the circumstances and the manner in which the Agency would provide for observation, and for the guidance of the organs of the Agency itself, in order to enable the Board of Governors and the Director General to determine readily what provisions should be included in observation agreements and how to interpret such provisions.

33. The provisions of this document that are relevant to a particular peaceful nuclear explosion project will become legally binding only upon the entry into force of an observation agreement and to the extent that they are incorporated therein. Such incorporation may also be made by reference.

34. This document shall be subject to review and may be modified by the Board of Governors in the light of experience as peaceful nuclear explosion science, technology and management develop.

[2] INFCIRC/9/Rev. 2.

PROCEDURES FOR THE AGENCY TO USE IN RESPONDING TO REQUESTS FOR SERVICES
RELATED TO NUCLEAR EXPLOSIONS FOR PEACEFUL PURPOSES*

1. BACKGROUND

1.1. Work of expert panels

1.1.1. In 1969 the Agency convened a group of experts to formulate an agenda for the first international technical panel on nuclear explosions for peaceful purposes (PNE). This panel was then convened in March 1970 and concentrated on the phenomenology of both contained and cratering explosions.

1.1.2. The second technical panel was held in January 1971 and was primarily concerned with the practical applications of PNE for industrial purposes. A third panel was convened in November 1972 to discuss the phenomenology of both contained and cratering events.

1.1.3. These panels were made up by experts from the States that have played a major part in developing PNE or related technology. In addition all Member States were invited to attend and follow the discussions of the panel and were given the opportunity to present papers on topics of interest.

1.1.4. The proceedings of the first two panels have appeared as Agency publications a/ as will the proceedings of the third. The Agency has also published (1970) a bibliography on the use of PNE. b/

1.2. The Agency's responsibility to provide PNE-related services

1.2.1. Article V of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) c/ specifies that non-nuclear-weapon States (NNWS) party to it may obtain the benefits of PNE "under appropriate international observation and through appropriate international procedures. It further states that these benefits shall be provided pursuant to a special international agreement or agreements, through an appropriate international body ..."

1.2.2. In 1968 the General Assembly of the United Nations requested a report on "the establishment within the framework of the IAEA of an international service for nuclear explosions for peaceful purposes under appropriate international control". d/

*/ IAEA Doc. GOV/1891 in UN Doc. A/9722/Add. 1, 17 Oct. 1974, Ann. II.

a/ "Peaceful Nuclear Explosions". Proceedings of a panel, Vienna, 2-6 March 1970. Agency publication 1970, STI/PUB/273, and "Peaceful Nuclear Explosions II". Proceedings of a panel, Vienna, 18-22 January 1971. Agency publication 1971, STI/PUB/298.

b/ "Peaceful Uses of Nuclear Explosions". Agency publication STI/PUB/21/38.

c/ Reproduced in INF/CIRC/140.

d/ See General Assembly resolution 2456 (XXIII).

1.2.3. The Agency's General Conference requested the Board of Governors to review studies on the Agency's possible function in the field of PNE and to report thereon. e/

1.2.4. In 1969 The Board of Governors of the Agency established an Ad Hoc Committee open to all Member States to analyse the role the Agency might play in helping make available the benefits of PNE. This Committee concluded that the performance of the functions of the international body referred to in Article V of NPT, as well as the international observations called for, were within the technical competence of the Agency and fell within the scope of its statutory functions. f/ The work of this Committee is summarized in a report entitled "The Agency's Responsibility to Provide Services in Connection with Nuclear Explosions for Peaceful Purposes". g/ In 1971 the General Assembly.

"noting further that the International Atomic Energy Agency, in accordance with its Statute, is an appropriate organ to exercise the functions of an international service for nuclear explosions for peaceful purposes, taking into account the relevant provisions of the Treaty on the Non-Proliferation of Nuclear Weapons"

requested the Agency

"to continue its activities in this field and to study ways and means of establishing, within its framework, an international service for nuclear explosions for peaceful purposes under appropriate international control". h/

1.2.5. In recognizing this general responsibility which was to follow closely the evolution of the technology of PNE three general categories of functions were mentioned:

- (a) Information exchange;
- (b) Provision of services to requesting Member States; and
- (c) Co-operative arrangements for access to scientific by-products.

The Agency has been fulfilling the first function, promoting the collection and dissemination of information, for some time. This aspect of the PNE programme is being continued with technical panels being scheduled as the generation of new information dictates.

1.2.6. Under the provision of services to requesting Member States it was envisaged that the Agency's experience in related fields such as radiological health and safety, technical and economic studies, could be utilized provided that the procedures fully take into account the very specific character of PNE.

1.3. The Agency's guidelines for "Appropriate International Observation"

1.3.1. As mentioned earlier, article V of NPT specifies that PNE projects be carried out under "appropriate international observation". In order to consider the question of "appropriate international observation" the Agency convened a group of experts in November 1970. This group arrived at a consensus which, after consideration of comments given by all Member States, formed the basis for "Guidelines for the international observation by the Agency of nuclear explosions for peaceful purposes under the provisions of the Treaty on the Non-Proliferation

e/ See resolution GC(XII)/RES/245.

f/ See GC(XIII)/410, para. 13.

g/ GC(XIII)/410.

h/ See General Assembly resolution 2829 (XXVI).

of Nuclear Weapons or analogous provisions in other international agreements , i/ which were approved by the Board of Governors in June 1972. The guidelines were distributed to all States and transmitted for information to the General Assembly of the United Nations.

1.3.2. The basic purpose of these guidelines is to ensure that, in the course of conducting a PNE project in a NNWS, the intent and letter of articles I and II of NPT, or of analogous provisions in other international agreements, are not violated.

1.4. Scope of the problem and stages to be considered

1.4.1. Requests for PNE-related services and responses thereto can cover a wide spectrum of considerations including technical, legal, economic, health and safety, environmental and international treaty considerations. Further, they may range in complexity from the appropriateness of the PNE technology for a specific application to detailed feasibility studies, explosion services and post-project evaluations. The stages involved in planning a typical PNE project can be classified as follows:

- (a) Preliminary review.
- (b) Pre-feasibility study and
- (c) Feasibility study.

1.4.2. Beyond such studies, there would be a number of steps of increasing complexity to be taken, such as project definition and design, project execution, post-project evaluation and project termination. As it was thought unlikely that the Agency would for some time to come receive requests for assistance with later project stages, the Working Group felt that these procedures might be more appropriately examined in the light of the circumstances obtaining at that time and formulated on an ad hoc basis. Therefore the Working Group's attention was concentrated largely on the assessment stages. The sections cover:

- (a) The stages of assessment.
- (b) Possible Agency responses and action
- (c) Guidelines for requesting States and
- (d) Recommendations.

2. STAGES OF ASSESSMENT

2.1. Introduction

2.1.1. The following is a description of stages a potential Requesting State might follow in reaching a decision on a potential PNE application. A succession of studies progressively more detailed and increasing in cost is conceived to detect possible flaws in the basic concept with a minimum expenditure of time and money.

2.2. Preliminary review

2.2.1. This would be the first evaluation of a proposed PNE project (including non-nuclear alternatives) and would cover on the basis of readily available information: technical, economic, legal, health and safety, environmental assessment and international treaty considerations. The review would serve as a basis for further decisions on the part of the Requesting State and for initiating

i/ Reproduced in INFCIRC/169.

requests for Agency assistance if desired. The effort involved would be up to a few man-months.

2.3. Pre-feasibility study

2.3.1. This is a more detailed study, elaborating on the preliminary review and drawing upon all available data. It requires a wide variety of expertise in order to assess site hydrology, geology, meteorology, demography, structure effects and implications for agriculture, natural resources and other aspects. Information concerning relevant PNE device characteristics is required at this stage. This study would also identify the additional on-site survey which would be required as part of a subsequent feasibility study. Pre-feasibility studies are expected to require approximately from one to ten man-years of effort.

2.4 Feasibility study

2.4.1. A feasibility study is undertaken to provide the basis for a decision on whether to proceed with the detailed design and implementation of the project. Depending upon the extent of site data already available, this could be a considerable undertaking. Field work would have to be done to collect data needed for detailed evaluation of all aspects of the project. It includes a full evaluation of alternatives and a cost benefit analysis. It would include geological, hydrological, meteorological, topographical and other surveys and detailed studies of the human settlements affected. It would also include a full range of studies pertaining to health and safety considerations, assessment of effects expected from ground shock etc. and precautionary steps as well as a detailed assessment of the cost of all parts of the project. This stage would also require additional information concerning relevant PNE device characteristics.

2.4.2. For very large projects the cost of this phase could be the equivalent of a large number of man-years, range up to several million dollars and would usually be included in the total project cost.

3. POSSIBLE AGENCY RESPONSES AND ACTIONS

3.1. The main purpose of this paper is to provide procedures for use by the Agency and those interested in Agency services, in accordance with the Agency's Statute and IAEA or analogous provisions in other international agreements. For simplicity, the discussion hereafter is focused on the roles of the Agency and Member States concerned.

3.2. It should be noted that some States whether or not in a position to provide explosive services may be able to offer other PNE related services. In this document, such States will be referred to as "PNE Consultant States", whereas States able to offer explosive services will be referred to as "PNE Supplier States".

3.3. It should also be noted that the assistance of the Agency need not be sought until the project has passed one or more of the stages previously described. When the Agency is contacted, its initial action would be a screening of the proposed project and of the information so far obtained and an evaluation of the status of the project.

3.4. The function of this review for those projects at a very early stage would be to permit the Agency to focus on essentially suitable projects and to assist in the formulation of an appropriate request before the potential suppliers become actively engaged. The scope of this phase would depend on the nature of the detailed information which the requester could provide. This phase might consist of an evaluation of information readily available or a visit to the proposed site. The effort involved might range from one man-week to one man-month, and the panel recommends that the expense be borne by the Agency.

3.5. When the project looks feasible, or if the Requesting State so desires and there are no existing bilateral agreements, the Agency would inform all PNE Supplier States, and all PNE Consultant States interested in the particular services required, and invite them to consider further participation in the project.

3.6. Upon receipt of the answers, the Agency would inform the Requesting State and could assist it in contacting and making arrangements with each interested State. These States would then be invited to:

- (a) Indicate their reactions to the project.
- (b) Specify their capability for participation and
- (c) Define the terms for further participation.

3.7. It is understood that information on bilateral agreements would be given by the States concerned to the Agency in sufficient time to allow negotiations on appropriate international observation to begin. ^{1/}

3.8. The Agency could, upon request, arrange for independent review of the preliminary review pre-feasibility and feasibility studies. More important the Agency could provide, if called upon to do so, an independent review of the health and safety aspects of the project. The Agency would thus aid in reassuring the international community that these aspects have not been slighted in favour of economic advantages. In order to provide such a review, the Agency could consider nominating a group of independent experts on health and safety.

3.9. After the feasibility studies have been completed, the Agency's continuing involvement in project design, execution and any subsequent stages would depend largely upon the circumstances. It would appear that the Agency could contribute in a variety of ways; some of them being observation, monitoring and reporting.

3.10. It has been pointed out that there could be situations, such as runaway gas wells, where the timely application of PNE could be of considerable value. In such cases it is obvious that health and safety considerations are no less important than in routine applications. The project should be expedited through a co-operative effort on the part of all concerned to work faster and possibly to elide some of the intermediate planning stages.

4. GUIDELINES FOR REQUESTING STATES

4.1. The request should come through governmental channels.

4.2. The request should state clearly the assistance required from the Agency.

4.3. The request should outline the purpose of the project.

4.4. The request should mention the status of the project, list the information and documents available and alternatives already considered.

4.5. The request should provide a point of contact where the IAEA may obtain all pertinent information on the work so far undertaken.

4.6. The request should comprise a statement regarding what financial resources are already available or will be made available for the project.

^{1/} The Agency's guidelines provide *inter alia* that "except for emergency situations ... the observation agreement ... shall be concluded not less than 60 days before the transport of the nuclear explosive device or devices ..." (INFCIRC/169, para. A.3).

4.7. These guidelines are to be understood in the context of this paper. The amount and nature of information to be made available will depend on the stage at which the Agency is approached.

5. RECOMMENDATIONS

5.1. It is to be expected that the main responsibility for the safety studies will rest with the Requesting State and the PNE Supplier State. Nevertheless, the international community, and particularly those States geographically proximate to the Requesting State, will retain a direct interest in the safety aspects. In the view of the Working Group it would be in the interests of all parties if such safety studies would be made public. There could be an arrangement aimed to provide the international community with an independent appraisal of such safety studies. The Working Group therefore recommends that the Agency, if requested, should review safety studies.

5.2. In addition to its consideration of seismic and other effects, which might extend beyond the territory of the Requesting State, the Agency, taking into account pertinent international agreements, should assess the amounts, subsequent territorial distribution, and estimated resultant exposures from any radioactivity that might arise. It could also describe related desirable monitoring procedures. The Agency could assemble an ad hoc group of safety experts to formulate a collective opinion which the Director General could forward to the Board of Governors.

5.3. Since the Agency's review would be prepared in the interest of the international community at large the Working Group believes that the costs involved in its preparation could properly be borne by the Agency's Regular Budget.

5.4. The Working Group noted that a number of PNE Consultant States, whether or not able to provide explosive services, might be able to supply other services such as assessment and design capability. Accordingly it recommends that the Agency invite its Member States to indicate whether, for the purposes outlined in this document, they desire to be registered as potential suppliers of such services.

5.5. The Director General should consider the desirability of bringing, at appropriate stages, to the attention of the Board of Governors and of the Conference called to review NPT, the nature and extent of the Agency's involvement in activities related to PNE projects.

5.6. The Working Group recommends that the Director General keep under review the need for development of these procedures, particularly those relating to the later stages of PNE projects.

ANALYSIS OF SPECIFIC APPLICATIONS OF NUCLEAR
EXPLOSIONS FOR PEACEFUL PURPOSES*I. GENERAL

1. In the course of its work the Ad Hoc Advisory Group has considered a number of proposed and actual applications of nuclear explosions. Eleven of these have been analysed in some detail; they include examples of both contained and excavation applications for industrial purposes. In these eleven cases the Group's broad consensus of the state of art has been set out using a common format having 14 headings as follows:

1. Application and Principle;
2. Basic Objective;
3. Concept Description;
4. Technical Status;
5. Technical Uncertainties;
6. Site Specific Factors;
7. Safety Implications;
8. Health Implications;
9. Environmental Implications;
10. Major Cost Elements;
11. Some Economic and Technical Alternatives;
12. Cost Comparison with Alternatives;
13. Special Factors; and
14. Conclusions.

2. These appraisals are intended to give a fair view of current and future potential in a form helpful to engineers, managers and administrators who are considering the applicability of peaceful nuclear explosions in their own geographic and economic circumstances. Each analysis is largely self-contained so that inevitably a number of general points are made in more than one analysis. It would have been possible to examine some other applications in this way but this was not felt to be very useful. In some instances the available information does not justify the same depth of analysis whilst in the case of cratering applications the major part of such an

* Nuclear Explosives for Peaceful Purposes. Report of the Ad Hoc Advisory Group on Nuclear Explosives for Peaceful Purposes. (Vienna: IAEA, 1979) (Reprinted for the Second Review Conference of the Parties to the NPT, Geneva, 1980), pp. 40-102.)

analysis would closely follow those for canal construction, creation of water reservoirs and harbour construction. However, brief notes are included on twelve applications - seven contained and five cratering - additional to those analysed in greater depth. Finally, there is included a section on scientific studies involving nuclear explosions where issues different from those in the case of industrial applications may arise.

3. Within the broad heads of contained applications and cratering applications consideration was given to a sub-division into proved, possible and speculative applications. Such a division demands a difficult value judgement and may become obsolete as the technology develops. Such an approach was rejected and, instead, the main contained applications have been ordered by logical groups - petroleum stimulation (gas, oil), emergency situations (runaway gas and oil wells), storage and waste disposal and nuclear and chemical retorting (the chimney or cavity acting as the retort).

4. Finally, it should be emphasized that the technical and economic feasibility of each application is crucially dependent on the demographic, geographic and geologic characteristics of the project location. In general, detailed evaluation of these characteristics is a prerequisite for determining whether a project is feasible or desirable. In addition, political factors, including acceptability to the public, are likely to be important.

II. CONTAINED APPLICATIONS

A. GAS STIMULATION

1. Application and Principle

The rate of gas recovery from low-permeability formations would be accelerated by using single or multiple contained explosions to increase the effective diameter of the well bore within the gas-bearing formation.

2. Basic Objective

The objective of this application is to increase the available supply of natural gas by making the recovery of previously unexploitable or marginal resources technically and economically viable.

3. Concept Description

Large deposits of natural gas exist in geologic formations, which are characterized by very low permeability to gas flow. To stimulate gas production from these low-permeability formations, large numbers of cracks would have to be created so that the flow paths for the gas are significantly shortened. Economic recovery of the gas from these formations can be accomplished only by increasing the effective permeability. In this application, from one to perhaps six nuclear explosives would be emplaced through a drill hole and exploded in the gas formation. The explosion is intended to produce a continuous volume of broken rock, or chimney, intersecting several gas-bearing

strata, and a surrounding zone of fractured rock from which gas is subsequently recovered. In the United States of America the maximum simultaneous energy release has usually been assumed to be 100 kilotons in order to limit seismic damage and this may require sequential rather than simultaneous firing of the several nuclear explosives in a drill hole. Re-entry would be delayed to permit the decay of short-lived radionuclides.

4. Technical Status

Gas well stimulation using nuclear explosions has been technically demonstrated in three experiments in the Rocky Mountain region of the United States of America, but the stimulation of a gas reservoir with sufficient gas in-place which would permit economic exploitation has not been demonstrated.

The first of these, GASBUGGY, in 1967 involved a single 30-kt explosion. Analysis of the results of this experiment indicated an increase in gas production from enhanced permeability outside the chimney corresponding to an effective well bore several times the chimney diameter. The second experiment, RULISON, in 1969 involved a single 43-kt explosion. The increase in gas production has been less than predicted, probably due to deficiencies in the technologies used to define the reservoir characteristics (gas in-place, permeability and lateral extent of gas-bearing strata) upon which the predictions were based. The third experiment, RIO BLANCO, in 1973 involved three simultaneous explosions, each of 30 kt, at depths of 1770, 1890 and 2040 metres. The three explosions were expected to produce a single, interconnected chimney. The reason for the failure of the individual chimneys to interconnect is unknown. The lower than predicted gas production is apparently due to an overly optimistic pre-shot evaluation of the reservoir characteristics. This application has been studied in the Soviet Union which has reported the carrying out of a gas stimulation experiment, although no results have been published; they have also described a proposed field experiment which would involve three 40-kt nuclear explosions at a depth of 1600 metres in a gas condensate reservoir in a carbonaceous reef deposit.

5. Technical Uncertainties

The principal technical uncertainties relating to the use of nuclear explosions in this application include those associated with the characteristics, particularly the flow and permeability properties, of the unstimulated reservoirs; the conditions necessary for achieving chimney interconnection in multiple nuclear explosions in a well; the possibilities of using sequential rather than simultaneous explosions within a single well in order to limit seismic effects; the characteristics of nuclear stimulated wells, particularly the fracture pattern and the closing of fractures (healing), which control the long-term gas production from such wells; and the effect on the exploitability of nearby resources. The stimulated natural gas may be diluted with large quantities of carbon dioxide. Tritium concentration in the gas in the long term will be low but uncertain.

6. Site Specific Factors

- (a) Detailed geological data, e.g. on rock strengths, quantity of gas in place and flow capacities, are indispensable for the reservoir definition upon which all technical and economic questions of nuclear stimulation depend. Techniques for measuring the permeabilities of tight gas formations are not very accurate, however, and even minor errors or variations from one part of the formation to another can be critical. The chemical composition (amounts of carbonates) in the formation must also be known in order to estimate the amounts of carbon dioxide that will be in the gas as a result of the decomposition of carbonate rock by the nuclear explosion. Data are necessary regarding connate water in the formations, as this is a critical factor in gas recovery from low-permeability formations, and regarding subsurface waters in general in the area. These latter data are necessary for assessing the feasibility of and procedures for disposing of the tritiated water resulting from the nuclear explosion.
- (b) Data on population, activities (including possible future recovery of other resources) and associated structures in the area are needed for radiological protection planning and for assessing the cost of seismic impact, including the compatibility of frequently-repeated nuclear explosions with other activities in the area. Data are also needed on gas usage patterns and on the affected populations for assessing the radiological impact of the use of gas from nuclear stimulated wells.

7. Safety Implications

- (a) Accidental release of radioactive explosion products: Probability very low with adequate geologic investigation and engineering execution. Depth of burial established by resource location is much greater than required for containment. If minor seepage of gaseous explosion products should occur then, with practicable response capability, public exposure should be very low.
- (b) Seismic damage to structures is predictable with adequate knowledge of geologic setting and structure evaluation. Seismic effects may be significant in the context of architectural damage to structures. Limited temporary evacuation of nearby residents will eliminate injury potential.

8. Health Implications

Radiation exposure to public near the site could be possible by gas release during chimney re-entry operations and any flaring of the chimney gases. Calculational models of hypothetical gas distribution systems indicate very low (less than one millirem per year) individual exposures in populations routinely using natural gas stimulated by peaceful nuclear explosions when low-tritium explosives are used.

9. Environmental Implications

The permanent environmental effects resulting from the construction and operation of wells stimulated by nuclear explosions for peaceful purposes are essentially no different from those of a conventional well. Minor transient effects in local flora and

fauna and in surface and subsurface waters have been observed. The production and disposal of substantial quantities of tritiated water require special attention to avoid introduction of this material into the biosphere. Impact on the potential recoverability of other minerals in close proximity requires individual evaluation.

10. Major Cost Elements

Provision of nuclear explosive related services (likely to be of the order of a half of stimulation cost per well); drilling; re-entry and completion of well following detonation; installation of gas treatment plant; safety measures; seismic damage or insurance; price differential on radioactively-contaminated gas, if any; revenue loss if early production used for power generation.

11. Some Economic and Technical Alternatives

(a) Technologies:

Massive hydraulic fracturing;
Injection of chemical explosives into fractures or their use
in well boreholes.

(b) Substitute sources of supply:

Coal gasification;
Proving of new natural gas reserves.

12. Cost Comparison with Alternatives

Massive hydraulic fracturing (MHF) appears likely to prove more cost-effective than PNE stimulation. However, large uncertainties attach to the likely cost effectiveness of both MHF and PNE stimulation and the range of uncertainty is such that the possible advantage of MHF may be illusory. Alternatives other than producing gas from very tight formations by either MHF or PNE stimulations are likely to be more attractive for some time. The most comprehensive cost effectiveness study of these methods is that carried out by the United States Natural Gas Survey; this study takes into account the range of technical uncertainties for each method.

13. Special Factors

Gas stimulation is mainly of interest in countries committed to gas usage and having inadequate reserves. Many hundreds of nuclear explosives are required for each field stimulated by this method and this could cause public acceptability problems.

Governmental regulation of gas price in some situations restricts interest in stimulation methods. Establishment of allowable levels of radioactivity in market gas is a prerequisite for public use of gas from nuclearly-stimulated wells. Gas well stimulation techniques may become competitive if gas prices rise with continuing depletion of world hydrocarbon reserves.

14. Conclusions

The technical feasibility of nuclear gas stimulation has been established by

nuclear field experiments and extensive laboratory studies. PNE stimulation of low-permeability gas formations is still a long way from economic development as a viable method of gas recovery.

B. OIL STIMULATION

1. Application and Principle

Contained nuclear explosions would be used to accelerate oil production and to enhance total oil recovery from carbonate reservoirs.

2. Basic Objective

The objective of this application is to increase the available supply of oil by making the recovery of currently marginal or unexploitable resources technically and economically viable.

3. Concept Description

There are two basically different concepts which have been considered for increasing the rate of recovery of oil from certain oil fields. In some fields the oil-bearing formations are characterized by very low permeabilities. For such fields the concept is to use nuclear explosions in the oil-bearing formation to create a larger effective well radius in the formation, because the larger the well radius, the greater the amount of oil that can flow into the well during a period of time. In some types of formation this larger well radius would correspond to the radius of the chimney produced by a nuclear explosion. In some other formation types the effective well radius may include a fracture zone around the chimney.

The other concept of oil well stimulation might apply to situations where an oil reservoir is separated by an impervious zone or stratum from an underlying aquifer. If the rate of recovery of oil from such a reservoir has dropped because of a reduction in the reservoir pressure as oil was withdrawn, it may be possible to increase the pressure and, in turn, the oil recovery rate by using nuclear explosions to break the impervious stratum, allowing the influx of water at the original reservoir pressure.

4. Technical Status

In 1960, in the Soviet Union at one of the operating but partially depleted carbonate deposits three nuclear explosions were carried out. At the first stage two 2.3 kiloton explosives were detonated at a distance of 200 m from each other, and then a third explosive of 8 kiloton was detonated three-and-a-half months later.

All the explosions were carried out at depths of about 1400 m. Exploitation of the deposit during several subsequent years has shown that due to induced fracturing of the rock, oil production from various wells throughout the deposit increased by 27 to 60%.

The second project involved an oil reservoir in a carbonate reef deposit at a depth of 1000 and 1200 metres undergoing secondary recovery by water injection

and two 8-kt nuclear explosions in a water-bearing formation immediately below the reservoir at depths of about 30 metres below the oil-water contact. Production increases of 30 to 60% were reported.

In the Soviet Union a third project has been planned in which it was proposed to use nuclear explosions to interconnect an oil reservoir with an underlying high-pressure water zone so that the influx of water would push the oil out.

5. Technical Uncertainties

The technical uncertainties are due to the fact that the mechanisms of stimulation are not well understood and that there is experience with FNE oil stimulation only for carbonate reef deposits. It is not known whether this experience is applicable to other types of deposits.

Despite the indication in the literature of the lack of oil contamination, the inadequate quantity of experimental data does not permit the evaluation of the radiation effects in the use of this oil.

6. Site Specific Factors

- (a) Detailed data on geology, hydrology and reserves history are essential for the design of and assessment of the technical and economic feasibility of any oil stimulation project. These include data on the formation characteristics of the oil reservoir and the presence and properties of associated water-bearing formations. Since the concepts as generally discussed to date refer to the stimulation of oil fields already in production and, in at least some cases, already subjected to conventional stimulation practices, necessary data include detailed production histories of the wells and such additional information as the producing mechanism or mechanisms in the field, gas-oil ratios, well pressure histories, any re-working of wells and the details of any conventional stimulation of the wells.
- (b) Data on population, activities and associated structures in the area are needed for radiological protection planning and for assessing the seismic impact. To the extent that lower yield explosions would be sufficient for this application the seismic restrictions for this application may be less than for some other FNE applications. Data would also be needed on oil processing practices and oil product usage patterns for assessing the radiological impact of the use of the oil products.

7. Safety Implications

- (a) Accidental release of explosion products may occur due either to prompt venting or subsequent failure of well-head assemblies on adjacent or re-entry wells (if applicable).
- (b) The hazard from seismic effects to individuals is low, subject to adequate yield limitation, adequate warning of firing time and adequate instruction of affected population. Damage to property is predictable subject to adequate knowledge of geology and an adequate structure survey.

8. Health Implications

Radiation exposure of public near the site could be possible by gas release during chimney re-entry operations and any flaring of the chimney gases.

Radioactive contamination of oil might occur by:

- (a) Tritium incorporated into hydrocarbon;
- (b) Entrained radioactively contaminated water;
- (c) Entrained radioactive particulate matter.

Experience in the Soviet Union indicates negligible contamination of oil extracted from wells in extended fracture zones.

9. Environmental Implications

Tritium contamination of the local environment might occur from disposal of produced water containing radioactivities.

10. Major Cost Elements

Provision of nuclear explosive related services; drilling; safety measures; and seismic damage or insurance. Re-entry drilling may not be necessary; in experience to date existing wells have been used.

11. Some Economic and Technical Alternatives

Various conventional secondary recovery techniques (including water and gas injection, fire or hot-water flooding, hydrofracturing and gas solution) are used routinely with varying degrees of success.

12. Cost Comparison with Alternatives

Costs, as well as effectiveness, for alternative methods are highly variable and site-dependent. No data are available for comparative cost effectiveness on the two projects described. United States analysis of the Field A project based on Soviet Union data regarding the degree of stimulation, however, did indicate that nuclear stimulation may be cost-effective in this project.

13. Special Factors

Although a sizable portion of the world oil deposits could be potential candidates for PNE stimulation, other more conventional techniques appear to be sufficiently effective and this fact seems likely to inhibit widespread use of the technique in the near future. Possible radioactive contamination of the oil must be considered in assessing use of refined products.

14. Conclusions

Two successful oil stimulation experiments have been carried out in the USSR where the technique is considered to be "proven technology".

PNE oil stimulation may be a cost-effective technique, at least for certain fields. The mechanism for recovery enhancement is not well understood; this limits the predictability for other types of deposits.

C. SEALING OF RUNAWAY GAS AND OIL WELLS

1. Application and Principle

A runaway oil or gas well is sealed by a contained underground explosion, which compresses the well bore-hole and forces the material from a plastic stratum, such as clay or salt, into the region of the bore-hole.

2. Basic Objective

The objective of this application is to conserve valuable fuels and to remove actual or potential environmental hazards.

3. Concept Description

The use of a nuclear explosion in this application involves the drilling of an emplacement well slantwise near the runaway well so that the emplacement well will come very close, e.g. 30 or 40 metres, to the runaway well hole in a region where the runaway well penetrates a plastic stratum at a depth sufficient to contain the formation pressure of the gas or oil. A nuclear explosive is fired at the bottom of this emplacement well.

Normally only one explosive would be needed in each application.

4. Technical Status

This application has been technically proved. Nuclear explosions were used to seal two runaway gas wells in the region of Bukhara in the Soviet Union in September 1966 and in May 1968.

On 1 December 1963, in the drilling of a gas well in southern Uzbekistan, control of the well was lost at a depth of 2450 metres, resulting in the uncontrolled release of over $12 \cdot 10^6 \text{ m}^3$ of gas per day. Many fruitless attempts were made during the ensuing three years to cap the well at the surface or to reduce the flow and extinguish the flame. A 30-kt nuclear explosive was emplaced in a slant well on a 200-metre-thick clay zone at a depth of about 1500 metres and at a distance of 35 ± 5 metres from the runaway well and fired. The flare went out 25 seconds later and the well was successfully sealed. In 1966 there was a second runaway gas well in a nearby gas field resulting in the loss of 1 to $1.5 \cdot 10^6 \text{ m}^3$ of gas per day. After a month and a half this well blocked itself and was then cemented.

Gas, however, subsequently appeared in surrounding wells and even penetrated directly to the surface. A 40-kt nuclear explosive was emplaced in a slant well in a salt formation at a depth of 2240 metres and at a distance of 30 ± 5 metres from the runaway well and detonated. Owing to the large amount of gas that had been released into the overlying strata during the preceding two years, the flare continued for seven days before it finally died out. In both cases no radioactivity above background in the area was detected.

5. Technical Uncertainties

The knowledge of the geology at the site of a runaway well might be inadequate. Estimation of the correct distance between the explosion point and the runaway well for the particular geology might be difficult.

6. Study Factors

- (a) Data are necessary to determine the presence at appropriate depths and the precise location of any plastic strata suitable for sealing, e.g. clay or salt. Information is also needed on the integrity of the runaway well hole to ensure that the seal is made below any existing breaks to avoid the seal being by-passed.
- (b) Data on activities, structures and constructions in the area are necessary for assessing seismic impact.

7. Safety Implications

There is a possibility of venting through the runaway well. Meteorological dispersion conditions and area control measures must be chosen to cope with possible venting of a major fraction of the volatile radioactivity.

8. Health Implications

None have been identified.

9. Environmental Implications

The environmental impact of a runaway well - release of noxious gases etc. - may far exceed any possible environmental impact from the nuclear explosion.

10. Major Cost Elements

The major costs are those of supplying, emplacing and detonating the nuclear explosive; site works required are likely to be minimal. Additional costs may be incurred because of the emergency nature of the operation, but this would also happen with alternative approaches.

11. Some Economic and Technical Alternatives

Runaway petroleum wells have long been controlled by a variety of methods including hydraulic fracturing through nearby inclined bore-holes and the use of conventional explosions. A small but highly specialized and highly experienced industry exists which tackles such problems.

12. Cost Comparison with Alternatives

If currently available alternative methods are applicable, they seem likely to be cheaper.

13. Special Factors

This method might be used once or twice a decade throughout the world. Normally only one explosive will be needed in each application. A considerable time seems to be needed to carry out sealing of runaway wells using PNE.

14. Conclusions

This application of PNE must be considered proved and economic for the particular circumstances of the Bukhara incidents. The technique now provides one possible tool for controlling runaway wells.

D. LIQUID HYDROCARBON STORAGE

1. Application and Principle

Liquid hydrocarbons (crude oil, gas condensate or, perhaps, refined products) are stored in the void volume created by a contained underground nuclear explosion.

2. Basic Objective

The objective of this application is to improve the economics of liquid hydrocarbon supply by allowing steady production whilst meeting seasonal peaks in demand (buffer storage) or whilst awaiting processing or shipment of the liquid hydrocarbons and to provide strategic storage.

3. Concept Description

The void volume provided by the cavity or by the chimney and its surrounding fracture zone created in an impermeable formation by a fully contained nuclear explosion would be used for the underground storage of liquid forms of petroleum. Projects would involve either a single explosion or several explosions if several storage chambers were to be created at a single site. One variation of the concept would be the storage of petroleum at the site of off-shore wells while awaiting the arrival of tankers.

4. Technical Status

This application was technically demonstrated in one case reported by the Soviet Union where a cavity was created for storage of a gas condensate.

In this demonstration a 15-kt nuclear explosion was used to create a cavity at a depth of 1140 metres in a bedded salt formation. The cavity has a volume of 50 000 cubic metres and was tested with fluid and gas up to a pressure of 84 atmospheres to measure its size and to assure its integrity. The cavity was subsequently put into use for storage of gas condensate at a pressure of about 30 atmospheres as part of the development of a gas reservoir.

In the Soviet Union a 1.1-kt nuclear explosion at a depth of 161.4 m in a salt dome created a standing ellipsoidal cavity having a volume of 11 200 m³. A 25-kt nuclear explosive has also been used in the Soviet Union in a salt dome at a depth of 600 m to create a cavity, almost spherical, with a volume of about 140 000 m³. This cavity has been tested under pressure. In the United States a 5-kt explosion detonated in a salt dome produced a stable cavity with similar scaled dimensions.

Several theoretical studies have also been made on the use of nuclear explosions to create cavities or chimneys for oil storage beneath the seabed in West European areas.

5. Technical Uncertainties

Construction of oil storage facilities using nuclear explosions has only been investigated in salt formations and it is not known whether integrity can be ensured in other more widely occurring geologic media and over long periods of time. As far as off-shore applications are concerned, no experience exists

in the detonation of nuclear explosives beneath the sea bed. The extent to which obstruction of oil flow by dirt and explosion debris in nuclear chimneys would occur and the fraction of stored oil which might be unrecoverable are uncertainties. Additional uncertainties relate to the possible radioactive contamination of stored oil and to the need for and effectiveness of flushing to remove radioactive materials from the cavity or chimney before use.

6. Site Specific Factors

- (a) An impermeable zone must exist around the cavity or the chimney and its fracture zone to ensure integrity of the storage chamber, and detailed geologic data on formation homogeneity, rock properties, chemical composition and fault systems would be needed to assess a site. Since ground water must be excluded from the storage volume, data on any ground water are necessary for site assessment. These data are also necessary for assessing any radiological impact involving ground water systems.
- (b) Data on population, activities and associated structures and constructions in the area are needed for site assessments, including seismic and radiological impacts and protection planning.
- (c) At off-shore fields there is little choice of geology. For strategic and buffer storage site limitations are much less.

7. Safety Implications

- (a) Accidental release of radioactive explosion products: the probability is low subject to adequate geological investigation and adequate depth of burial of the explosive. If minor seepage of gaseous explosion products should occur, then with practicable response capability, public exposure should be very low. The impact can be reduced with suitable choice of firing time, acceptable meteorological dispersion conditions and appropriate close-in site control.
- (b) No injury should occur to individuals due to seismic effects provided yield is limited to appropriate value depending on population distribution and temporary evacuation arrangements. Damage to structures can be adequately predicted; the amount tolerated depends on economic questions.

8. Health Implications

- (a) Radiation exposure of public near the site could be possible by gas release during chimney re-entry operations.
- (b) Radioactive contamination of stored oil may lead to exposure of consumers and others to radiation; the level of contamination has been demonstrated to be very low for gas condensate in one case. Flushing may be helpful prior to planned use of cavity. Disposal of contaminated flushing gas should be possible.
- (c) If storage proves to lack integrity oil pollution may occur. Oil spillage during operations is a potential hazard, common to all methods of oil storage.

9. Environmental Implications

Underground storage is less visible than above ground storage and can conserve scarce land surface. Possible oil pollution has general environmental implications (but not specific to PNE approach).

10. Major Cost Elements

Site evaluation, particularly for likely integrity; provision of nuclear explosive related services; emplacement holes; flushing the storage of radioactivity; installation of conventional equipment - pumps, pipelines, etc.

11. Some Economic and Technical Alternatives

Storage in steel tanks above or below the ground, in rock caverns, in dissolved salt caverns or in disused mines. Use of sealed pipelines to connect off-shore fields with on-shore facilities.

12. Cost Comparison with Alternatives

Leached salt domes or beds, especially close off-shore or near the sea, and possibly disused mines, are probably less costly than PNE-created cavities. Beneath deep water nuclear storage is likely to be cheaper than these possibilities. Studies also indicate that, given suitable sites, nuclear storage is cheaper than above ground steel tanks.

13. Special Factors

Seismic damage considerations suggest that off-shore sites are likely to be favoured. The storage capacity per kiloton yield is such that strategic storage could require tens of cavities each requiring separate explosives. This could even be the case for storage at far off-shore fields. Countries have varying needs for strategic storage. The prospects for oil recovery from beneath deep water (over 300 m) off-shore are still unclear. In most instances, off-shore or on-shore, there are many competing alternatives to PNE oil storage.

14. Conclusions

One gas condensate storage is operating successfully and the production of storage cavities in salt using PNE has been demonstrated several times. The available theoretical studies suggest that PNE-produced oil storage could be competitive with alternatives particularly off-shore. However, the risks associated with storage integrity and oil flow characteristics (blockage, etc.) are of uncertain magnitude. It is also pertinent to note that no experience exists in the detonation of nuclear explosives beneath the sea bed.

E. GAS STORAGE

1. Application and Principle

Gas is stored in the void volume provided by a contained underground nuclear explosion.

2. Basic Objective

The objective of this application is improvement of the economics of gas supply by allowing steady production and distribution whilst meeting daily and seasonal peaks in demand.

3. Concept Description

The void volume provided by the cavity or chimney and its surrounding fractured zone created in an impermeable formation by a fully contained nuclear explosion would be used for the underground storage of gas. The concept usually involves creation of such storage facilities at the distribution end of a pipeline to handle peaks in demand. Projects would involve either a single explosion or a few explosions if several storage chambers were to be created at a single site.

4. Technical Status

This application has been technically demonstrated in one case reported from the Soviet Union. The cavities in salt domes described under the Technical Status of Liquid Hydrocarbon Storage, would also be suitable for gas storage. Underground nuclear explosions carried out to date by the Soviet Union, France and the United States of America provide a basis for prediction of the sizes of cavities which would be created at an adequately evaluated site and for defining the depth required for the explosion to be fully contained.

Theoretical studies on gas storage on land and beneath the sea bed have been carried out by British scientists. Studies on gas storage in the United States of America have also been published. In France, a study has been made suggesting the use of a 20-kt explosive at a depth of 1400 metres for creating a cavity of 90 000 m³ geometric volume at a coastal line.

5. Technical Uncertainties

Construction of storage cavities has only been investigated in salt and the principal technical uncertainty with this application is whether cavity integrity can be ensured in other more widely occurring geologic media. No experience exists in the detonation of nuclear explosives beneath the sea bed. Additional uncertainties relate to the possible radioactive contamination of stored gas and to the need for and effectiveness of flushing to remove radioactive materials from the cavity or chimney before use.

6. Site Specific Factors

- (a) An impermeable region must exist around the cavity to ensure an integrity of the cavity, and detailed geological data would be needed to establish the presence of such a region and to assess the effects of the explosion on the material in this zone.
- (b) Since ground water must be excluded from this storage volume data on any ground water present are necessary for assessing the suitability of a site.
- (c) Data on population distribution and on all activities and associated structures are needed for planning safety precautions and for assessing

the suitability of a site, noting that much of the gas storage needs are close to centres of demand and highly populated areas.

7. Safety Implications

- (a) The probability of accidental release of radioactive explosion products due to early venting prior to flushing is low subject to adequate depth of burial. If minor seepage of gaseous explosion products should occur, then with achievable response capability, public exposure should be very low. The impact is reducible with suitable choice of firing time and meteorological conditions and with appropriate site control.
- (b) The hazard to individuals from seismic effects is low subject to adequate yield limitation, adequate warning of firing time and adequate instruction of affected population. Damage to property is predictable subject to adequate knowledge of geology and an adequate structure survey.

8. Health Implications

Radiation exposure to the public near the site could be possible by gas release during chimney re-entry operations and any flaring of the gases used to flush the cavity or chimney.

Radioactive contamination of stored gas. Level of contamination low, subject to use of a low-tritium explosive and possible flushing of cavity prior to storage. Individual radiation exposure resulting from use of stored gas minor, subject to dewatering, monitoring and appropriate dilution of gas prior to distribution.

9. Environmental Implications

Potential tritium contamination of local environment from disposal of water extracted from gas and from flaring of flushing gases.

A cavity is less visible than surface alternatives. The use of PNEs avoids brine disposal problems of the solution mining alternative.

10. Major Cost Elements

Site evaluation, particularly for likely integrity; provision of nuclear explosive related services; emplacement hole; installation of conventional gas equipment - pumps, pipelines, etc.

11. Some Economic and Technical Alternatives

Storage in depleted gas fields, mined caverns, dissolved salt caverns, aquifers and above-surface storage tanks. Storage as liquefied natural gas.

12. Cost Comparison with Alternatives

Costs depend largely on sites considered. Paper studies suggest that there are likely to be some sites where gas storage in PNE cavities may be cheaper than alternatives.

13. Special Factors

If economically and technically suitable sites can be found projects are likely to involve either a single explosion or a few explosions if several

storage chambers are created at a single site. Site specific limitations will severely restrict the fraction of the market which PNE storage is able to secure. Storage is most important near centres of high demand where population densities may be high. There are many competing alternatives.

14. Conclusions

The technical feasibility of cavity or chimney formation has been established in several media and natural gas storage is conceptually one of the simpler applications of PNEs. Except in salt domes, the integrity of the cavity has not been proved. In the relatively few locations where PNE storage has a cost advantage, the costs of the conventional and PNE approaches are unlikely to differ by more than a factor of 2. Thus the technical and economic attractiveness of the application has yet to be proved conclusively.

F. RADIOACTIVE WASTE DISPOSAL

1. Application and Principle

A cavity or chimney created by a contained underground nuclear explosion would be used for the disposal of radioactive waste.

2. Basic Objective

The objective of this application is to isolate permanently high-level radioactive wastes from the biosphere.

3. Concept Description

Cavities created deep in the earth by low-yield nuclear explosions, e.g. 5 kt, in silicate rock at several thousand metres, and isolated from mobile water, have been suggested for disposal of high-level radioactive waste from the reprocessing of spent reactor fuel. The cavity would be constructed under the site for a fuel reprocessing plant prior to the plant's construction. Liquid wastes, which could include low-level wastes, would be injected directly into the cavity with sufficient cooling water recycled to maintain a low cavity temperature until the cavity was full or no further disposal was required at the site. At that time the addition of cooling water would be stopped, the cavity allowed to boil to dryness, and the decay heat of the waste allowed to melt the surrounding rock. Upon eventual cooling and resolidification, the waste would be bound in a silicate matrix. Another approach would be to use the cavity to dispose of, by slurry injection, accumulated solidified high-level wastes shipped to the disposal site.

4. Technical Status

Technical feasibility is unproved. Little has been done beyond a conceptual study carried out in the United States of America. General experience with cavity construction using low-yield nuclear explosions is probably sufficient to proceed with development work on the application. There is, however, little relevant experience regarding the phenomenology and engineering of waste injection and cooling, waste boiling, waste-rock melting and resolidification.

5. Technical Uncertainties

Major uncertainties are involved with the physical and chemical reactions which would occur in the cavity as a result of waste injection. These are the possible transport of radionuclides by steam during the injection phase or along rock fissures; the engineering for waste injection and cooling; possible cavity/chimney instability as it affects underground plumbing; waste-molten rock compatibility; and the leachability of radionuclides from the resolidified rock mass.

6. Site Specific Factors

- (a) Detailed data on the rock properties, chemical composition and fault structure of the site would be needed for assessing the suitability of the site.
- (b) Data on any underground water down to levels below the cavity are needed to assess the possibility of eventual leaching of the wastes and the long-term migration of any contaminated waters.
- (c) Data on population and activities in the area are needed for radiological protection planning and for assessing seismic impact. Since this application would involve only low-yield nuclear explosions, seismic limitations would be less severe than in other applications. Probably more restrictive would be the requirements for siting of the reprocessing plant or for the transportation and handling of the high-level radioactive wastes.

7. Safety Implications

Ground motion effects are somewhat less than other applications of nuclear explosions for peaceful purposes because of low-yield requirements (say 5 kt). Explosive emplacement would be much deeper than necessary for containment. Therefore, any accidental release of radioactive detonation products would be limited to seepage of gaseous debris and leakage upon re-entry. The major safety considerations would be those associated with operation of the high-level waste facility cycle - particularly the radioactive steam.

8. Health Implications

Radioactivity resulting from the peaceful nuclear explosion would be trivial in quantity in comparison to the radioactive waste subsequently injected. The only significant addition would be small amounts of gaseous radioactivity released upon re-entry into the cavity, which would result in very small local exposures.

The extremely large quantities of high-level radioactive waste to be emplaced in the cavity require detailed study of all phases of operation to assure isolation of the waste from the biosphere.

9. Environmental Implications

The disposal of high-level wastes in this manner would preclude subsequent retrieval. There must, therefore, be an extremely high degree of assurance

that the wastes will remain sufficiently isolated from the surface environment and water resources essentially permanently. Other major environmental considerations would be those associated with the operation of the high-level waste facility, especially the need to handle large quantities of radioactive steam in an environmentally safe manner.

10. Major Cost Elements

Major costs unique to PNE cavity construction are for the provision of nuclear explosive related services, drilling and safety measures. Costs which are common to conventional and PNE construction include facilities for waste handling and injection, cooling water recycling and monitoring and control.

11. Some Economic and Technical Alternatives

An alternative to the PNE cavity would be a conventionally mined cavity or deep, large diameter bore-holes. The currently favoured method of high-level waste disposal is to emplace canisters of solidified waste in mined salt cavities. Other alternatives that have been mentioned include deep sea bed extra-terrestrial and polar ice cap disposal, and the introduction of alternative nuclear fuel cycles which might involve different approaches to waste management from those currently envisaged.

12. Cost Comparison with Alternatives

Preliminary analysis indicates that direct disposal into a cavity coupled to a reprocessing plant would cost about $\frac{1}{4}$ to $\frac{1}{6}$ as much as waste solidification followed by disposal in a mined salt cavity. Use of a PNE cavity for disposal after waste solidification and interim surface storage is likely to be more expensive than use of a disused mine or other existing cavity. It is uncertain whether PNEs would provide any economic advantage in this application over cavity excavation by conventional methods.

13. Special Factors

This method allows direct removal of radioactive wastes from the biosphere and can eliminate several handling and transportation steps with their attendant risks from the tail end of the fuel cycle. This method, of course, essentially precludes retrievability of the waste. A calculation shows that 10 to 20 low-yield explosions (giving void volume of approximately $5 \times 10^3 \text{ m}^3$) could suffice to handle most of the world's high-level waste for the next several decades, but whether or not reprocessing on the scale envisaged in this calculation will be carried out remains uncertain.

14. Conclusions

Little work has been done beyond the conceptual stage and there are major uncertainties relating to these applications. Study of the concept using conventionally constructed cavities may be applicable to PNE utilization.

G. OIL PRODUCTION FROM SHALE

1. Application and Principle

Contained nuclear explosions would be utilized to fragment thick deeply-buried kerogen-bearing shales for subsequent in situ retorting.

2. Basic Objective

The objective of this application is to increase the available supply of liquid hydrocarbons by making the recovery of currently unexploitable resources technically and economically viable.

3. Concept Description

Large amounts of fuel are locked up in certain deposits of oil shales. These shales contain a solid hydrocarbon, kerogen, which when retorted, produces a liquid "oil" that can be refined in much the same way as crude oil. The in situ retorting of deeply buried shales would leave the spent shale in place after retorting. In this concept a nuclear explosion at the base of a deeply buried oil shale formation would be used to produce a column of broken rock, or chimney. The explosion probably would be done after the formation had been dewatered. Holes would then be drilled to provide an air inlet, an exhaust gas outlet and an outlet for the oil. Air would be pumped into the top of the chimney and the oil shale ignited at the top of the chimney. The combustion zone would move downward through the broken rock in the chimney, with the hot gases from the combustion zone transferring heat to the oil shale below, decomposing the kerogen, and releasing the oil. The viscous oil is presumed to migrate to the bottom of the chimney from which it is pumped through the outlet well for final treatment by conventional refining.

1. Technical Status

This application is technically improved. There have been no nuclear explosions in oil shale.

A feasibility study and project design were undertaken in the mid-1960s for a United States experiment (Project Bronco). Laboratory-scale experimentation on simulated in situ retorts is providing information on the physical and chemical mechanisms which operate in the retorting process. No direct retorting development by nuclear explosions is currently under way, but efforts are continuing regarding a modified in situ process which will also be applicable to rock breakage schemes based on the use of nuclear explosions. The only detailed analysis of this concept has been for United States deposits, and in particular those of the Piceance Basin in Colorado which have been estimated to contain several hundred billions of barrels. The criteria considered in that analysis for use of nuclear explosions were that the deposits be at least 130 metres thick and contain about 30 litres or more of oil per ton of shale. Almost all, if not all, of the oil shale meeting these criteria is in this Piceance Basin. The yield of the nuclear explosions considered in the study depended upon the oil shale thickness and the thickness of the overburden. A 100-kt explosion was expected to yield a chimney 50 metres in radius and 320 metres in height. The retorting time ranged from three months to a year,

depending upon the chimney height. The estimated recovery from each nuclear chimney ranged from 0.3 to 3.3 million barrels. On a world-wide scale the nature and extent of oil shale deposits are not known. Deposits in Brazil and the Soviet Union are known, but the applicability of nuclear explosions to them has not been evaluated.

5. Technical Uncertainties

There is no experience with nuclear explosions in this type of rock in oil shale formations and, hence, there are uncertainties in the characteristics (e.g. void fraction, rubble size distribution, gas generation and the relationship between chimney dimensions and yield) of a chimney that would be produced by a nuclear explosion in oil shale and in explosion containment in relatively high carbonate rock. There is also uncertainty as to the proper spacing between chimneys. Chimney integrity must be assured and hence the spacing must be sufficient to avoid the fracture zone of a chimney breaking through into an adjacent chimney. At the same time the chimneys must be close together for recovery of a reasonable fraction of a deposit. There are also major uncertainties associated with the retorting process and these include the air pressure drop across a chimney, both initially and after retorting has progressed, the extent to which the fracture zone around a chimney would be retorted, the occurrence of channelling of the combustion zone so that only a portion of the chimney would be retorted, combustion zone movement and temperature control. As a consequence of these and other uncertainties the recoverable fraction of oil in a formation is uncertain. There are additional uncertainties associated with product oil specification and its variation as the retorting progresses from the top to the bottom of a chimney; the need for pre-refining or upgrading of shale oil; the dewatering of oil shale formations and the disposal of the water especially if it is radioactive as a consequence of dewatering after the nuclear explosion; long-term migration of radioactivity in the ground water; radioactive contamination of the product oil; and the engineering for the underground plumbing for air injection, oil recovery and gas exhaust.

6. Site Specific Factors

- (a) Detailed geological data are required for resource and reservoir definition.

These include data on the physical and chemical properties and the water content of the oil shale and of the overburden material, the oil content of the shale and detailed survey data on the thickness and depths of all the strata over the area of interest. Detailed data on ground water and its movements to depths well below the shale formation are needed for assessing the effects of chimney formation and retorting on the ground water and other uses of the ground water, the radioactive contamination and subsequent migration of ground water, the impact of ground water on the retorting process and the feasibility and impact of water disposal from formation dewatering and from the oil recovery processes.

- (b) Data on population and activities in the area are needed for assessing the radiological impact and for planning radiological protection both for the nuclear explosions and for the release of radioactive gases during the

retorting period. These data plus data on structures and constructions, such as mines for recovering shale oil in the area, are needed for assessing the seismic impact resulting both from the initial ground motion and from the general raising of the surface with any significant use of nuclear explosions in an area. For example, an average surface rise of about 15 metres would be expected for the case where 25% of a formation was rubblelized. Data would also be needed on oil processing practices and on oil product usage patterns for assessing the radiological impact of the use of the oil products and the impact on their marketing.

7. Safety Implications

- (a) Accidental release of radioactive explosion products: concern about explosion containment due to relatively shallow depth of burial and high residual gas pressure from carbonate decomposition. Application viability will depend critically on the successful establishment of reliable containment procedures.
- (b) Seismic effects would be important due to the need for significant surface facilities in close proximity to the explosion site, and repeated explosions in a confined area to maximize resource recovery. Limited temporary evacuation of nearby residents would eliminate injury. Structure damage predictable with adequate geologic and structure information.

8. Health Implications

Radiation exposure of public near the site could be possible by gas release during chimney re-entry operations and any flaring of the chimney gases.

Calculational models of hypothetical routine usage of gasoline refined from shale oil indicate very low (less than one millirem per year) individual exposure in populations routinely using gasoline produced by this technique using low-tritium explosives. Exposure of pre-refining plant workers to radioactive debris carried with the product oil to the surface is a concern.

9. Environmental Implications

Environmental effects from in situ processes generally are viewed as of less impact than surface processing alternatives. Use of nuclear explosions for fragmentation of oil shale should share this position. However, certain unique effects of nuclear explosions will produce some environmental impact. Among these environmental impacts are surface displacement, transient effects in local ecosystems and hydrologic regimes, and disposal of contaminated process fluids.

10. Major Cost Elements

The following cost elements are unique to PNE rubblelization:

Nuclear explosive related services; nuclear explosion emplacement holes; seismic damage or insurance; and radioactivity-related documentation and control.

Cost elements in common with other in situ processes: underground plumbing for air/gas injection and exhaust and product recovery; dewatering; and compression equipment/operation.

11. Some Economic and Technical Alternatives

The alternative to PNE can be divided into two categories: 1. other in situ processes, and 2. techniques which require physical removal by mining of the host shale and subsequent treatment in above-ground retorts. The other in situ processes include direct injection of steam or other hot gases into fractures in the shale, direct combustion of the shale by air injection through boreholes, and a modified in situ scheme wherein a void volume is mined out and an array of chemical explosives is employed to produce a rubblelized region for retorting. The mining techniques include both room-and-pillar schemes and open-pit methods.

12. Cost Comparisons with Alternatives

All cost comparisons and estimates are currently based on projections, as there is no commercial-scale production of oil from shale by any process. The projected costs from shale oil range from \$7 to \$15 per barrel at this time. In general, the lower end of this range is associated with the projection for in situ processes. Some sources report a further advantage to PNE rubblelization as a result of the lack of a requirement for physical removal of shale in the retort preparation.

13. Special Factors

In recent years an increasing interest in oil shale development has arisen in the United States of America as a result of the rapid escalation of world oil prices and declining conventional domestic oil production. The vast majority of the United States oil shale deposits are Government-owned and a definitive leasing policy is currently evolving. This factor has inhibited expenditures for extraction process development in the private sector.

It is reported that, if successful, a rate of 32 PNEs/year could produce about 250 000 barrels of oil per day. Considering the large scale of the oil shale resources available in the Piceance Basin in Colorado successful utilization of nuclear explosions in the oil shale retorting process could require several thousand PNEs over an extended period of time (decades). Because of the large-scale nature of the operations, environmental impacts of both in situ and surface retorting techniques, while rather different in character, are likely to be significant.

14. Conclusions

There is no present commercial shale-oil production. Present oil prices have induced significant non-PNE process development activity. There are major uncertainties for all in situ recovery processes, some unique to PNE rubblelization. PNE utilization in the foreseeable future appears unlikely, but could result in significant economic advantage if and when the process development is undertaken. The active development of the chemical explosive modified in situ process will yield information directly applicable to the PNE-based technique.

H. COPPER ORE LEACHING

1. Application and Principle

Copper would be recovered from large deep-lying low-grade sulphide ore deposits, using in situ leaching of the ore fragmented by contained underground nuclear explosions.

2. Basic Objective

The objective of this application is to increase the available supply of copper by making the recovery of previously unexploitable resources technically and economically viable.

3. Concept Description

In this concept a contained nuclear explosion would be used to create a chimney of broken ore below the water table. After the chimney has filled with water, oxygen is pumped in under pressure near the bottom of the chimney. The dissolved oxygen oxidizes the sulphide minerals, producing acid and heat, which accelerates oxidation and dissolution of the ore. The resulting leach solution is pumped to the surface where it is processed to remove the copper and then returned to the chimney together with oxygen in a continuous process.

4. Technical Status

The use of nuclear explosions for this application is technically unproved. There have been no nuclear experiments.

This application has been studied in the United States of America. A recent study dealt with the recovery of copper from deep porphyry deposits of primary sulphide ores located below the water table. The study considered a schedule of ten chimneys, using 100-kt explosions, every three years, a leaching period of six years for a chimney, and an annual copper production of 40 000 tons from deposits containing 0.5% copper. The technical feasibility of the concept was studied using theoretical analyses, laboratory data and field data.

5. Technical Uncertainties

The principal technical uncertainties associated with this concept concern: (a) the sensitivity of the recovery process to the composition of the ore and to variations in the composition; (b) the properties of chimneys in porphyry ore bodies including chimney dimensions and the particle size distribution, which affects the circulation of the leaching liquid in the chimney and the oxygen requirements; (c) the oxygen injection requirements and the loss of oxygen from the injection system; (d) the degree to which adequate circulation of the leaching solution in the chimney can be maintained; (e) the degree to which radioactivity can be leached and transported in the liquor process operations; (f) the extent to which the temperature and temperature gradient of the leaching solution can be maintained in the desired ranges and (g) the coefficient of copper recovery as a function of time.

6. Site Specific Factors

(a) Detailed data are needed on the chemical composition of the ore and its

carbonate content and on the depth and extent of the ore deposit for defining the deposit and for assessing the feasibility of and planning its recovery. These data plus data on the overburden material are also required for assessing the containment of nuclear explosions. Data are needed on allground water in the area and their movements. These are required for assessing the technical suitability of the deposit to this approach (adequate water to fill the chimneys and assurance against excessive loss of leaching solution from the chimneys), and for assessing the radioactive contamination and migration of ground water.

- (b) Data on population, activities and associated structures and constructions are required for assessing seismic impact in the area, in general, and seismic impact on the surface facilities involved in the copper recovery, and for planning any evacuation and for radiological impact assessment and protection planning. Use and re-use patterns of the product copper must be determined in order to assess the impact of small amounts of radioactivity in the copper.

7. Safety Implications

- (a) Radioactivity containment during the explosion: The explosions must be planned deep enough to provide assurance of radioactivity containment, taking account of geological considerations. If minor seepage of gaseous explosion products should occur then, with practicable response capability, public exposure should be very low.
- (b) Safety of processing plant workers: Tritium is likely to be the critical nuclide for exposure in the case of plant workers. A minimum tritium-producing explosion is therefore indicated.
- (c) Seismic effects: Attention needs to be given to possible seismic damage to structures. Damage predictable, subject to adequate knowledge of geology.

8. Health Implications

Radiation exposure of public near the site of nuclear chemical mining could be possible by gas release during chimney re-entry, by radionuclides carried by process gases escaping to the atmosphere and by radioactivity possibly introduced into ground water in the vicinity through disposal or leakage of residual leach solution.

9. Environmental Implications

The product copper may introduce copper containing traces of radioactivity into the world inventory of the metal.

10. Major Cost Elements

The major cost elements in the use of PNEs for copper leaching are: nuclear explosive related services; nuclear explosive emplacement holes; seismic damage or insurance; and radiological safety documentation and control. Cost elements common to other in situ leaching processes are: pipelines; surface plants (including oxygen plant); operating costs; and surface leach liquor processing plant.

11. Alternative Methods

In situ processes which do not involve PNEs are also receiving attention but no data were available on them.

12. Cost Comparison with Alternatives

Data for cost comparison for the situation discussed are not available to the consultants for any alternative technology. The reference case study suggests that if the many technical uncertainties can be resolved favourably it may be possible to produce copper at a cost comparable with that of present conventional production.

13. Special Factors

The proposed technique aims to produce 100 tons of copper per kiloton of explosive yield from deep-lying low-grade deposits. Most geological exploration so far has been oriented to find near-surface deposits amenable to open-pit mining. The success of the proposed PNE technique would provide an incentive for further geological exploration for deep low-grade deposits.

Specific factors in underground mining operations include health hazards (heat, humidity, dust, silicosis, rock bursts) that accompany exploitation at greater depth. Hence a method that could replace the necessity for underground work by remote control from the surface while leaving the waste rock underground merits thorough consideration. There is the possibility of trace amounts of radioactivity in the product copper, which should be taken into account while considering its marketability for some uses.

14. Conclusions

The PNE technique suggested is for deep-lying copper ore deposits of low grade, for the mining of which alternative methods have not yet been reported. Although there have been many nuclear explosions in hard rock which have contributed data on explosive effects in such media, no nuclear explosions have been carried out to provide a test for the many technical uncertainties of this application. There have been a number of theoretical and laboratory studies.

I. OTHER CONTAINED APPLICATIONS

Additional applications with regard to which there is less recent information are briefly described in the following paragraphs. However, no attempt has been made to identify all of the relevant technical uncertainties and factors.

(a) Energy Storage

One way of meeting peak demands for electricity is to use surplus off-peak electrical power to compress air into a large storage chamber. During periods of peak demand this air is mixed with a suitable fuel to drive gas turbines. The pre-compression of the air before it is fed to the turbine gives a significant improvement in efficiency. Nuclear cavities and chimneys might be used to provide this storage - an application broadly similar to gas or oil storage discussed above.

(b) In Situ Coal Gasification

Under suitable geologic conditions it may be possible to conduct in situ gasification of coal in a way not unlike that discussed above for producing oil from shale. The coal would be broken by explosives and a mixture of oxygen and steam introduced from above with high quality gas (mainly methane) being recovered from the bottom of the reaction region. In a few areas of the world the thickness of seams is so great that it might be possible to use nuclear explosives to break up the coal. The nuclear chimney, possibly containing several layers of shattered coal, then forms a chemical retort for the in situ operation. Although this application of PNE was considered in Wyoming during the late sixties exploitation of the same site is now being evaluated on the assumption that large quantities of cheap chemical explosives might be used.

(c) Other Ore Leaching

In relation to the detailed discussion of copper ore leaching above, it should be noted that if the method were to be successfully demonstrated it could probably be applied to deep deposits of suitable ores of other metals.

(d) Geothermal Heat Recovery

In many areas of the world high-temperature isotherms occur relatively close to the surface of the earth. Commercial exploitation of these sources of energy is limited to the areas where a natural system of fractures acts to collect heat from a large volume of rock and sufficient natural water is available to act as heat transfer agent. Geothermal heat recovery would aim at the creation of a chimney and associated fracture system using a nuclear explosion, the introduction of water into the chimney-fracture system, and the removal of superheated steam for the generation of electrical power.

No nuclear explosion has been carried out yet to examine this application. However, preliminary studies of the use of nuclear explosions for tapping the geothermal heat of the earth itself revealed that very large shots (e.g. 5 Mt) at a very substantial depth would be required before the use of underground heat could become economic.

(e) Isotope Production

It has been shown that, by irradiating suitable targets with the intense neutron flux produced at the instant of a nuclear explosion, quantities of radionuclides can be manufactured which would take months or years to produce in nuclear reactors or accelerators. These include not only transuranic nuclides where the target might be thorium or uranium but also neutron rich isotopes of lighter elements and nuclides which are far from the mass/charge stability curve. Many of these nuclides have important industrial or medical uses. The cost effectiveness of the manufacture of these nuclides using nuclear explosions does not appear to have been investigated in detail. The recovery and processing of the target would be a key problem but the siting and safety problems of this application could be much smaller than for most PNE applications.

(f) Ore Breaking

Mining by block caving has established a technology for underground handling of large tonnages of broken rock. Design characteristics from conventional block caving are adaptable to the mining of rock broken by underground nuclear explosions.

Two possibilities have been considered. The first involved the use of rock broken by a nuclear explosion and contained in the chimney. Through the use of a shaft and tunnel, access would be obtained for the removal of the ore by methods similar to those currently in use in the mining industry. The advantage of the chimney would be that the rock would be fractured before the block mining was attempted. Such a technique might be suitable for areas of taconite, for example, which is so strong that conventional block cave mining techniques are not practical.

The second technique would utilize the ability of the shock wave to break rock in tension when it encounters a free surface. By this process all of the ore between a network of tunnels and shafts and the shot point would be broken. An ore-breaking project involving this technique was proposed in the USSR in 1970. In this project a 1.8-kt nuclear explosion would be emplaced immediately below an ore body 60-80 metres thick, dipping into a mountain at an angle of about 25-35°. A vertical and a horizontal lattice-work grid would be mined in order to provide free surfaces within the matrix, off of which the shock wave would reflect as a tensile wave, resulting in enhanced fracturing of the rock. It has been estimated that this single 1.8-kt explosion would break about $0.9 \cdot 10^6 \text{ m}^3$ of ore, of which $0.4 \cdot 10^6 \text{ m}^3$ could be removed from an adit below the fracture zone by normal stope-mining methods.

The effects of contained nuclear explosions in hard rock have been determined in projects carried out by France, the Soviet Union and the United States of America.

(g) Electric Power Generation and Fissile Material Breeding

The potential use of nuclear explosions to generate electric power and to breed fissile material has been studied. In this concept, nuclear explosives are lowered into a large underground cavity through a suitably valved entry. A working fluid in the cavity is maintained at appropriate temperatures and pressure by successive detonation of fusion explosives. The working fluid is circulated to a heat exchanger at the surface which develops the secondary steam needed to run the turbine of an electric generator. If the explosive contains thorium or normal uranium, ^{233}U or ^{239}Pu may be produced, entrained in the working fluid, and recovered by filtration before the working fluid is returned to the cavity. This application is technically unproven.

III. EXCAVATION APPLICATIONS

A. CANAL CONSTRUCTION

1. Application and Principle

As a tool in canal construction, single and multiple cratering explosions would be used to move earth and provide suitable channels for canals and sections of canals.

2. Basic Objective

The objective of this application is:

- (a) Improvement of inland water transport systems, particularly when surface transport is difficult;
- (b) Improvement of sea transport by shortening the distance to be travelled or improvement of the transit time and capacity over that of existing canals by providing a larger navigation prism and avoiding the use of locks; and
- (c) Transfer of water from one place to another for hydroelectric schemes, irrigation or water replenishment.

3. Concept Description

Single nuclear explosives emplaced at appropriate depths for excavation purposes produce craters approximately hyperbolic in cross-section. The explosion fractures the surrounding material, throwing it upward and outward. Some of the material falls back into the cavity, resulting in what is termed the apparent crater, and the remainder falls outside forming the crater lip. In excavating a canal, a number of nuclear explosives buried in a row would be fired simultaneously to produce a linear crater, the dimensions of which depend upon the type of material being excavated and its moisture content, the yields and burial depths of the explosives, and their spacing within the row. To limit the air blast and ground motion a large canal would be constructed in segments. To avoid interference in the construction of adjacent segments, alternate segments would be constructed followed by construction of the remaining segments. Subsequently, conventional earth moving methods would be used to smooth the channel and remove fall-back material at the points between segments and to perform any other required remedial work on the crater slopes and lips.

4. Technical Status

The use of nuclear explosives in the construction of canals is as yet technically unproved but a number of research explosions relevant to canal construction have been carried out in the Soviet Union and the United States of America.

Studies have been made of the use of nuclear explosives in several proposed canal projects. These include a navigation canal for connecting the Orinoco River to the Rio-Negro River in Venezuela and a canal across the Kra Peninsula in Thailand. A study is currently in progress in Egypt of an 80-km-long canal for bringing Mediterranean sea-water to the Qattara Depression. The

use of nuclear explosives for some 60 kilometres of the canal is among the alternatives being studied. Water flowing through the canal would drive a hydroelectric power plant.

Work in the United States of America has included seven nuclear cratering experiments between 1962 and 1968 and numerous studies. The most extensive study reported to date on the use of nuclear explosives for canal construction was that for a sea-level canal through the Central American isthmus in either Colombia or Panama. Five routes were included in the initial studies in 1960. The canal was to have a navigation prism 18 metres deep and 300 metres wide. Individual salvoes of up to 13.5 Mt and a total explosion yield of 170 Mt were considered, with one route involving about 250 nuclear explosives in 27 salvoes and another 150 explosives in 21 salvoes. The detailed analysis of the Canal Study Commission was completed in 1970 with the conclusion that, if a sea-level canal were built, it should be along a route which called only for conventional excavation procedures, since the technical feasibility of the use of nuclear explosives for sea-level canal excavation had not been established. Since this exhaustive and relatively pessimistic analysis was made, little attention has been given to the use of nuclear explosives for excavation purposes in the United States.

A project which has been under study in the Soviet Union for several years is the Pechora-Kolva canal. This would be a water-diversion canal intended to help stabilize the level of the Caspian Sea which has dropped over 2.5 metres in the last 35 years. Part of the flow of the upper portion of the Pechora River which flows into the Arctic Sea would be diverted into the Kolva River, which feeds into the Caspian Sea. Nuclear explosives have been considered for construction of a 65-km section of the canal. The desired canal cross-section is 3000 m^2 . It is envisaged that about 250 nuclear explosives, emplaced at depths ranging from 150 to 205 metres, would be used in salvoes of 20 explosives in a row with a total yield for any one salvo of about 3 Mt. As a preliminary step in studying the use of nuclear explosives to construct this section of the proposed canal, an experiment was carried out on the proposed route of the canal involving a row of three 15-kt nuclear explosives. The experiment was designed to study the cratering characteristic of the medium, a weak water-saturated alluvium. The creation of a water-filled crater trench, the slopes of which have remained stable, was reported in 1975.

5. Technical Uncertainties

The principal technical uncertainties relating to the use in canal construction of nuclear explosives in near-megaton and greater yields include those associated with the properties and dimensions of the craters which would be produced by single and row explosives; the suitability of these craters for canals in various geological media; engineering properties such as the stability of the slopes of trenches formed by row-charges of nuclear explosives and the variations of these properties from one geological formation to another; the nature and extent of conventional earth moving and

excavation required to modify the trenches produced by nuclear excavation; and the radiation levels from fall-out from cratering nuclear explosions.

6. Site Specific Factors

- (a) For planning and feasibility decisions regarding proposed canals, predictions are required of the dimensions and properties of craters which would be produced by nuclear explosions. For these predictions detailed geologic data are needed on the material properties along routes being considered together with accurate knowledge of the relationship and its uncertainties between explosion yield and crater parameters for the range of relevant yields and geologies.
- (b) Detailed hydrography data are needed both for the design parameters of a canal and for assessing the impact of the canal on the existing surface waters in the area and on their current and planned utilization.
- (c) Detailed hydrology data are needed for estimation of the effects of subsurface waters on canal construction and operation and of the effects of canal construction and operations on such water resources and their utilization.
- (d) Extensive meteorological data relating to the past are needed for predictions of the transport and deposition of radioactivity from cratering explosions, for predicting local anomalies in this deposition due to phenomena such as rain-out and for forecasting the occurrence and stability of weather conditions suitable for nuclear detonations. Meteorological, together with other information, is also needed for assessing the possible climatological impacts of canal construction and operation.
- (e) Evacuation and relocation of inhabitants from the areas surrounding the construction sites are required for protection from radiological and seismic effects. For planning and assessing this evacuation and relocation detailed data are required on the population density, distribution and relevant social, employment and economic statistics of the inhabitants.
- (f) In order to assess the impact of and to plan protective measures with respect to radioactive contamination and seismic damage, data are needed for all possibly affected areas on the current and planned utilization of the areas for such activities as agriculture, fishing, mining and other resource recovery, manufacturing and commerce.

7. Safety Implications

- (a) The meteorological conditions at the time of detonation must be selected to avoid atmosphere refraction effects resulting in window-damaging air blast overpressures at appreciable distances from the explosion site. Close-in (direct) air blast is less restrictive than ground motion.
- (b) The hazards to individuals of seismic damage are low subject to the

designation of temporary evacuation areas of a size appropriate to the explosion yield, adequate warning of firing time and adequate instruction of affected population. Damage to property is predictable subject to adequate knowledge of geology and an adequate structure survey.

- (c) There will be an immediate radiological hazard due to close-in, intermediate and distant fall-out, possibly resulting in local "hot spots" particularly if precipitation-scavenging occurs. This will necessitate planned evacuation of people from the close-in zone. At greater distances it will be advisable to have contingency arrangements for evacuation if, due to unexpected occurrences, such as the weather varying significantly from that predicted, it seems possible that radiation levels may reach unacceptable values. This requires the provision of extensive radioactivity monitoring facilities.

The number of separate (single or multiple) explosions for a single project is likely to be large, dozens or hundreds - much larger than the number of experimental cratering explosions made so far. The currently available data may then be inadequate for radiological prediction purposes, particularly if the geological and meteorological conditions are different in the canal area to the conditions for the experimental explosions so far.

Radiological outcome is dependent on meteorological conditions and these are often uncertain; in many areas, however, there are stable climatic patterns for long periods.

8. Health Implications

Health implications depend almost entirely on the amount of radioactivity released into the biosphere and its ultimate fate. The amount released depends on the yield of the explosion, the characteristics of the explosive and the geology of the site. It is possible and generally desirable, but perhaps only at added cost, to use explosives which produce a minimum of fission products, residual fissile material and tritium, and minimum activation products within the explosive case and surrounding soil. The fraction of radioactive material released into the atmosphere can be reduced by "overburying" the explosives (and consequently reducing the cratering efficiency of the explosion). All these facts and the meteorological conditions determine the amount of radioactivity released into the atmosphere and its ultimate fate. On the basis of experimental cratering explosions the fraction released can be estimated and combined with transport calculations and assumed meteorological conditions to estimate the expected radioactive contamination in the close-in, intermediate and distant (far out) zones.

Depending on the purpose for which the canal is intended (drinking water, irrigation, navigation, hydroelectric power, etc.) it will be necessary to consider the fate of radioactivity on land, in ground water, in canal water and possibly in the waters of the seas and oceans in conjunction with studies of the dietary habits of affected populations.

9. Environmental Implications

There may be changes in the ecological equilibrium in the neighbourhood of the canal and throughout its connecting waters, particularly when it links previously unconnected ecological systems. There may be changes in the climate due to the large scale of certain canal projects. These changes are however not tied to the use of peaceful nuclear explosions for the project.

10. Major Cost Elements

The nuclear explosives (many will be needed for a single project); drilling and emplacement (large diameter holes often in difficult terrains); evacuation of population; meteorology/waiting time; radiological precautions; seismic damage/blast damage (precautions and compensation); unexpected regulatory delays; unexpected conventional construction (modification of nuclear cratering configurations).

11. Some Economic and Technical Alternatives

Conventional earth moving equipment and conventional explosives. For water transfer tunnelling might be employed.

12. Cost Comparison with Alternatives

Cost savings seem possible, given technical feasibility but further research and development costs to prove technical feasibility would absorb some of this saving. In the Central American sea-level canal study the uncertainties in cost estimates were judged to be large compared with cost differences. The USSR suggests that the cost of constructing a section of the Pechora-Kolva canal by nuclear excavation would be three to three-and-a-half times cheaper than using conventional methods.

13. Special Factors

This is an application above all others which can be of disadvantage to people and countries receiving no direct benefit from the project. Many countries have no need for canal projects large enough to merit consideration of PNE.

The number of such canals constructed in the next 25 years is unlikely to be as many as five. During this time world population will roughly double and the population density problem may become more intense - but need for irrigation, etc. may also increase. Each project, if carried out using PNEs, would involve dozens or even hundreds of nuclear explosives.

Yields are likely to be great. A very low population density or a willingness to evacuate large numbers of people for a period of several months or more and the absence of large numbers of buildings in the immediate area of the route of the canal is almost essential.

14. Conclusions

The uncertainties attaching to the comparative cost effectiveness of nuclear and conventional construction are such that few economic conclusions can be drawn without detailed analyses of specific projects. The available informa-

tion neither establishes nor refutes the possibility that nuclear excavation may allow significant cost savings in specific situations. The number of canal projects where PNE might be used is likely to be small. Should a full cost assessment persuade a country that PNE excavation should be employed, then the number of explosions may run into hundreds and some of the unquantifiable disadvantages may affect third parties. Thus, this application above all others is likely to require considerable international discussion before it is used. Finally, the possibility must be faced that if such a project is started on the basis of current knowledge, construction may have to be halted or completed conventionally in the light of experience gained after relatively few of the planned total number of explosions have occurred.

B. CREATION OF WATER RESERVOIRS

1. Application and Principle

One or more cratering explosions would be used to provide water storage either within the crater volume or behind the upthrust lip at the crater acting as a low dam in a river valley.

2. Basic Objective

The objective of this application is to provide water storage for agricultural and, possibly, for industrial use in areas of the world where adequate water is available for these purposes but where it comes in large quantities either seasonally or infrequently. The storage may also be used as a drainage diversion intermittently to avoid flooding in downstream areas.

3. Concept Description

Single nuclear explosives emplaced at appropriate depths for excavation purposes produce craters approximately hyperbolic in cross-section. The explosion fractures the surrounding material, throwing it upward and outward. Some of the material falls back into the cavity, resulting in what is termed the apparent crater, and the remainder falls outside forming the crater lip. In forming a water reservoir the nuclear explosive would be buried near to the river, which would fill and replenish the reservoir(s). Initially a single reservoir might be formed using the crater lip as a dam but it may then be possible to use the crater itself as a reservoir by explosively or mechanically constructing a suitable channel through the crater lip. Certain conventional work would be necessary to complete the project and allow controlled overflow from the reservoir(s).

4. Technical Status

This application has been proved in principle but some doubt exists as to the long-term integrity of the resulting reservoirs.

Two nuclear excavations have been carried out in the USSR that were directed towards the development of water storage reservoirs through the use of crater lip dams. Project "1003" was a 1.1-kt cratering explosion carried out in a siltstone-type rock which was overlaid with a layer of clay about 22 m thick and a surface layer of loam 3.7 metres thick. The explosion was

emplaced at a depth of 48 metres. An artesian water-table existed at a depth of about 14-20 metres. The crater initially had an apparent depth of 31 metres and an apparent radius of 53.5 metres. As a result of sluffing under the action of the artesian water flowing into the crater, the apparent crater depth had decreased to 20 metres and the apparent radius had increased to 62 metres within two years. Two hours after the nuclear shot, chemical explosive row charges were detonated, excavating a trench through the lip, which could have served as an inlet canal had the crater been made near a river bed. Project "1004" was a nuclear cratering explosion with a yield of over 100 kt. Immediately after the shot the crater had an apparent radius of 204 metres and an apparent depth of 100 metres. The explosive was placed immediately adjacent to a river bed in order that the lip of the crater would block the river and a large water reservoir would be formed. A channel was dug through the lip to flood the crater and interconnect the reservoirs. The filling of the crater with water resulted in substantial readjustment of some of the slopes of the crater. The crater is reported to have stabilized in its configuration and to serve as a useful reservoir.

Another crater lip dam project was proposed by the Soviet Union in 1970 involving the carrying out of two 150-kt nuclear explosions at a depth of 185 metres in a porphyrite medium. The expected radii and depths of the two craters are 180 metres and 105 metres respectively. The crater lips that are expected to form the twin dams are predicted to be 31.5 metres high. The lake behind the lip dams is only expected to be 10 metres deep with a maximum capacity of $30 \times 10^6 \text{ m}^3$. An additional $14 \times 10^6 \text{ m}^3$ of storage capacity would be available inside the craters.

5. Technical Uncertainties

The principal technical uncertainties concern the engineering properties of the resulting reservoirs and dams and the variations of these properties from one geological formation to another; the long-term behaviour of the reservoirs which may need to have a life of tens or even hundreds of years; the nature and extent of conventional earth moving and excavation required to modify the configuration produced by nuclear excavation; the radiation levels from fall-out from cratering nuclear explosions; and the possible radioactive contamination of reservoir water (this latter possibly has been stated to be not a problem for the "1004" reservoirs).

6. Site Specific Factors

- (a) Data on geology are needed for assessing site suitability including reservoir integrity, for predicting crater dimensions and stability and for general project design.
- (b) Data are needed on river flows and on all ground water in the area and its movement in order to assess not only reservoir potential but also the possible contamination of water by tritium and other radionuclides.
- (c) Extensive meteorological data relating to the past are needed for predictions of the transport and deposition of radioactivity from the

cratering explosion, for predicting local anomalies in this deposition due to phenomena such as rain-out and for forecasting the occurrence and stability of weather conditions suitable for the nuclear detonation.

- (d) Evacuation and relocation of inhabitants from the areas surrounding the construction sites are required for protection from radiological and seismic effects. For planning and assessing this evacuation and relocation detailed data are required on the population density, distribution and relevant social, employment and economic statistics of the inhabitants.
- (e) In order to assess the impact of and to plan protective measures with respect to radioactive contamination and seismic damage, data are needed for all possibly affected areas on the current and planned utilization of the areas for such activities as agriculture, fishing, mining and other resource recovery, manufacturing and commerce.

7. Safety Implications

- (a) The meteorological conditions at the time of detonation must be selected to avoid atmosphere refraction effects resulting in window-damaging air blast overpressures at appreciable distances from the explosion site. Close-in (direct) air blast is less restrictive than ground motion.
- (b) The hazards to individuals from seismic effects are low subject to the designation of temporary evacuation areas of a size appropriate to the explosion yield, adequate warning of firing time and adequate instruction of affected population. Damage to property is predictable subject to adequate knowledge of geology and an adequate structure survey.
- (c) There is an immediate radiological hazard due to close-in, intermediate and distant fall-out, possibly resulting in local "hot spots" particularly if precipitation-scavenging occurs. This will necessitate planned evacuation of people from the close-in zone. At greater distances it will be advisable to have contingency arrangements for evacuation if, due to unexpected occurrences, such as the weather varying significantly from that predicted, it seems possible that radiation levels may reach unacceptable values. This requires the provision of extensive radioactivity monitoring facilities.

8. Health Implications

Health implications depend almost entirely on the amount of radioactivity released into the biosphere and its ultimate fate. The amount released depends on the yield of the explosion, the characteristics of the explosive and the geology of the site. It is possible and generally desirable, but perhaps only at added cost, to use explosives which produce a minimum of fission products, residual fissile material and tritium, and minimum activation products within the explosive case and surrounding soil. The fraction of radioactive material released into the atmosphere can be reduced by "overburying" the explosive (and consequently reducing the cratering

efficiency of the explosion). All these facts and the meteorological conditions determine the amount of radioactivity released into the atmosphere and its ultimate fate. On the basis of experimental cratering shots the fraction released can be estimated and combined with transport calculations and assumed meteorological conditions to estimate the expected radioactive contamination in the close-in, intermediate and distant (far out) zones.

Depending on the purpose for which the reservoir is intended (drinking water, irrigation, hydroelectric power, pumped storage, etc.) it will be necessary to consider the fate of radioactivity on land, in ground water and in river and canal water.

9. Environmental Implications

There may be changes in the ecological equilibrium in the neighbourhood of the reservoir.

10. Major Cost Elements

The major cost elements are likely to be those for the provision of nuclear explosive related services; drilling; associated conventional works; safety and environmental programmes; seismic damage compensation or insurance; and weather delays.

11. Some Economic and Technical Alternatives

Conventional construction using chemical explosives and earth moving machinery and possibly involving the construction of coffer dams.

Piping, pumping or channelling water from existing reservoirs, if these are conveniently situated.

12. Cost Comparison with Alternatives

Conventional construction is likely to be cheaper in many areas, particularly where seismic damage/evacuation costs would be high. Any time saved in actual operations involving the use of PNEs may be offset by the need for more detailed planning, the time to secure safety clearances, weather delays and the time to allow radioactivity to decay before post-shot work commences.

13. Special Factors

The construction of reservoirs using nuclear explosives is only likely to be considered in undeveloped areas where the population density is low and there is reasonable rainfall/water flow, but on a seasonal or irregular basis. In the case when the crater is used to store water some kind of pumping arrangement may be needed if the water is to be used for irrigation.

There is no long-term experience of the behaviour of reservoirs constructed by using nuclear explosives to match that available for conventional reservoirs.

14. Conclusions

The cost effectiveness of the application depends very much on the specific site. A significant failure risk must be associated with the application until its technical viability has been demonstrated by the long-term observation of the operation and stability of reservoirs created by nuclear explosions.

C. HARBOUR CONSTRUCTION

1. Application and Principle

Single and multiple cratering explosions would be used to break and move underlying strata to construct navigation channels and berthing basins.

2. Basic Objective

The objective of this application is to:

- (a) Facilitate mineral, industrial and agricultural development by providing access to markets and supplies.
- (b) Upgrade navigational safety and ship shelter; and
- (c) Accommodate the current trend to deeper draught vessels.

3. Concept Description

The basic concept is the creation by a nuclear explosion (or explosions) of an underwater crater. The variations of this concept include the use of a single explosion to clear obstacles or to deepen the approach to a harbour; the use of row explosions to create or to deepen approach channels; the creation of off-shore harbours utilizing crater lips rising above the water surface as protection against the action of wind, waves and swell; the creation of on-shore turning and berthing basins; and combinations of these.

4. Technical Status

The use of nuclear explosions for this application is technically unproved. In the course of nuclear explosives testing in the Pacific Atoll a number of craters (up to 1000 metres in diameter) were produced in coral atolls. Their stability in the following years has led to speculation as to the feasibility of constructing useful harbours with nuclear explosions.

No proposals have been investigated beyond the stage of preliminary paper studies. Project Chariot (1957-1961) was studied as a model of harbour construction by nuclear explosions. Four 20-kt and one 200-kt explosions were to be carried out simultaneously at a remote part of the Alaskan coast to form an entrance channel and a small harbour. The project was dropped, however, partly on the grounds that the site would produce little economic benefit to the region. Another study was made in 1960 by the United States of America of a proposal to excavate an off-shore harbour at Cape Keraudren, Australia. The proposal envisaged creation of a harbour 1000 metres long, 400 to 500 metres wide and 60 to 120 metres deep with five 200-kt explosions. The crater lips were expected to extend some 60 to 90 metres above mean sea level. This project was not pursued beyond this study when plans for developing nearby resources were abandoned.

The creation of such high lips depends upon the rock material being strong and of low porosity. In other types of material, such as coral or sand, underwater explosions would create broader and shallower craters without lips.

5. Technical Uncertainties

The principal technical uncertainties associated with this application relate to: crater behaviour at high yields and in saturated and water overlain media; the long-term engineering stability of craters and lips under wave and wind action; and radiological release fractions and particle size distributions for large explosions, particularly under water and in geologic media for which current experience is not relevant. The radiological outcome is dependent on meteorological and ocean conditions and these are often uncertain.

6. Site Specific Factors

- (a) Data on geology would be necessary, noting the above uncertainties, for assessing site suitability, for predicting crater shape, dimensions and stability and for general project design.
- (b) Data on currents and waves, normal and abnormal, are needed for site assessment and project design. Data on long-shore transport of sediments and on sediment transport by any rivers in the area are necessary for assessing the impact of any sedimentation on a project. Data on sea conditions, particularly currents, are needed for forecasting the transport and impact of sea-water contaminated by radioactive materials.
- (c) Extensive data relating to past meteorology are needed for predicting the transport and deposition of airborne radioactivity, for anticipating possible local anomalies in the deposition, and for forecasting the occurrence and stability of weather conditions suitable for nuclear detonations.
- (d) Data on population, activities and associated structures and constructions in the area are necessary for assessing the radiological and seismic impact, for planning any evacuation and relocation of the inhabitants and for general planning for radiological protection and safety.

7. Safety Implications

- (a) The meteorological conditions at the time of detonation must be selected to avoid atmospheric refraction effects resulting in window-damaging air blast overpressure at appreciable distances from the explosion site. Close-in direct air blast is less restrictive than ground motion.
- (b) The hazards to individuals due to seismic effects are low subject to the designation of temporary evacuation areas of a size appropriate to the explosion yield, adequate warning of firing time and adequate instruction of affected population. Damage to property is predictable subject to adequate knowledge of geology and an adequate structure survey.
- (c) There is an immediate radiological hazard due to close-in, intermediate and distant fall-out, possibly resulting in local "hot spots" particularly if precipitation scavenging occurs. This will necessitate planned evacuation of people from the close-in zone. At greater distances it will be advisable to have contingency arrangements for evacuation if, due to unexpected occurrences, such as the weather varying significantly from

that predicted, it seems possible that radiation levels may reach unacceptable values. This requires the provision of extensive radioactivity monitoring facilities.

- (d) Since contamination of the sea by radioactive materials will occur, detonation plans must take into account sea conditions as well as weather conditions.

8. Health Implications

Health implications depend almost entirely on the amount of radioactivity released into the biosphere and its ultimate fate. The amounts released depend on the yield of the explosion, the characteristics of the explosive and the geology of the site. It is possible and generally desirable, but perhaps at added cost, to use explosives which produce a minimum of fissile products, residual fissile material and tritium, and minimum activation products within the explosive case and surrounding soil. The fraction of radioactive material released into the atmosphere can be reduced by "overcratering" the explosives (and consequently reducing the cratering efficiency of the explosion). All these facts and the meteorological conditions determine the amount of radioactivity released into the atmosphere and its ultimate fate. On the basis of experimental cratering shots the fraction released can be estimated and combined with transport calculations and assumed meteorological conditions to estimate the expected radioactive contamination in the close-in, intermediate and distant (far out) zones.

Contamination of sea-water will persist for a fairly long period after detonation because of the dissolution of materials deposited in the seabed. Hence, sea-water and sea-bed contamination should be taken into account together with the effects on marine food chains. Appropriate environmental monitoring will be necessary.

9. Environmental Implications

There may be changes in the ecological, topographical and hydrographical situation in the neighbourhood of the harbour. These changes are however not tied to the use of peaceful nuclear explosions for the project.

10. Major Cost Elements

These are: nuclear explosive related services; drilling (often off-shore); associated conventional works; safety and environmental programmes; seismic damage compensations; and weather delays.

11. Some Economic and Technical Alternatives

Harbours can be constructed by conventional rock breaking, dredging and excavation methods.

As an alternative loading and unloading might take place off-shore using barges, conveyors or pipelines for transport between the off-shore and on-shore facilities.

12. Cost Comparison with Alternatives

Unless the project involves the breaking and removal of large quantities of hard rock, conventional dredging techniques will almost certainly be more cost effective. In hard rock situations, particularly off-shore, conventional rock breaking techniques will usually not represent a viable economic alternative.

13. Special Factors

The application of PNE is only likely to be considered in relation to new projects where excavation involves hard rock in areas remote from populated regions.

In bad weather off-shore situations, the shorter construction time for the nuclear alternative may represent a potential cost advantage for nuclear excavation as against dredging.

14. Conclusions

Although harbours have been constructed using conventional explosives the PNE approach is technically and economically unproved.

The cost effectiveness of the application depends very much on the specific site. A significant failure risk must be associated with the application until its technical viability has been demonstrated by the long-term observation of the stability of structures created by nuclear explosions under wave and wind action.

D. OTHER EXCAVATION APPLICATIONS

Additional applications for which there is less recent information are briefly described in the following paragraphs. However, no attempt has been made to identify all the relevant technical uncertainties and factors.

(a) Directed Blasting for Dam Construction

The major advantage of the method of constructing water-pressure dams in river valleys by direct blasting of large masses of material is the possibility of building hydro-engineering complexes without first having to divert the rivers into new beds, thus greatly reducing the costs of dam construction and utilization. Sites do exist where dams a few hundred metres high could be raised with the aid of explosions. This would require charge weights of 100-200 kt. On this scale the use of chemical explosions becomes difficult; for example, a cavity of 150 000 m³ would be required for emplacement of a chemical charge of 100 kt. This suggests that the energy released by nuclear explosions might be used for this purpose.

Conventional explosives have been used for a number of years on a modest scale to move large masses of material or to trigger landslides to produce dams. No use of nuclear explosions for this purpose has been reported yet. However, experience which is now available indicates that in large-scale dam construction the chemical explosion may, in some cases, be replaced by nuclear explosions.

(b) The Construction of Road and Railway Cuts

In an attempt to keep pace with the rapid growth of both population and industry, new highways are being built and will have to be built. The use of nuclear explosions has been suggested for highway or railway cut construction. Drainage, one of the greatest concerns of the highway engineer, is one of the problems for which nuclear explosions might provide solutions.

A study, Project Carryall, for the use of nuclear explosions to excavate a large cut for a highway and a railroad, was carried out in 1964 in the United States of America. This cut would have involved removal of 52 million m³ of rock to produce a channel 3.3 kilometres long with a maximum depth at the centre line of approximately 107 metres to the road bed. A total of 22 nuclear explosions would have been used, ranging from 20 to 200 kt in yield, with a total yield of 1730 kt. Emplacement depth would range from 105 metres to 239 metres. In addition, a single 100-kt nuclear explosion would have been used to open a crater to intercept and store water from a large watershed, thus eliminating rather expensive bridge structures under the highway and the railroad.

Roadway construction by nuclear explosions must meet more exacting dimensional requirements than canal or waterway construction. Furthermore, the bottom of the cut must be as smooth as possible.

(c) Aggregate Production

Major engineering works, such as dams or highways, are frequently located in areas remote from sources of aggregate. Nuclear explosions can quickly produce millions of tons of broken rock and might be used to produce aggregate close to construction areas if suitable sites exist.

If a nuclear explosion is properly placed, a retarc results, i.e. all the material above the explosion is broken but not thrown out of the crater. Thus ready access can be gained to all of the broken rock by surface equipment.

It is expected that a 10-kt nuclear explosion emplaced about 120 metres from a sloping free surface would produce 4-6 million tons of aggregate. Larger yields (100 kt) would produce proportionately larger quantities of aggregate. Experience has shown that fragmentation size will depend upon the nature of the rock but will generally be determined by the pre-shot pattern of cracks and planes of weakness. According to data from experiments, radioactive contamination of the aggregate does not pose problems.

(d) Overburden Removal

The strip-mining method is generally used for near-surface flat beds such as clay, phosphate, bauxite, other sedimentary deposits, and low-grade disseminated mineral deposits. The amount of waste overburden removed in such quarrying is enormous. These facts have given rise to the suggestion that nuclear explosions be used for the fast removal of overburden.

A proposal was described in 1970 for a very large overburden project involving the use of nuclear explosions for the mining of a large non-ferrous metal deposit in the USSR. The host rock of the site concerned is siltstone,

argillite, and a calcareous material. A total of $2.3 \times 10^9 \text{ m}^3$ of overburden must be removed to uncover the area, and it has been estimated that about 40% of this overburden could be removed by the use of nuclear explosions. Owing to the depth involved, rows of megaton-sized nuclear explosions would be required.

(e) Removal of Navigation Hazards

There have been instances where large amounts of conventional explosives have been used to remove navigation hazards. One instance is the blowing up of Ripple Rock about 150 km north of Vancouver. There might be instances where such hazards could be removed using nuclear explosives. The limitations would be similar to those appropriate for harbour construction discussed above.

IV. SCIENTIFIC STUDIES INVOLVING PEACEFUL NUCLEAR EXPLOSIONS

The fact that peaceful nuclear explosions can provide a uniquely intense source of plasmas and elementary particles as well as shock waves has, over the years, given rise to many suggestions for scientific experiments requiring such sources. A number of these suggestions have, in fact, been performed with successful results. In general such scientific experiments do not require yields greater than a few tens of kilotons, are not dependent on a specific location for explosion and therefore can be carried out in association with nuclear explosions which are being used for some other purposes.

Two types of scientific experiments which have been carried out in conjunction with nuclear explosions for other purposes and which have had practical and useful results are neutron experiments and seismic experiments:

(a) Neutron Experiments

The large flux of neutrons produced by a nuclear explosion makes possible a wide variety of neutron interaction experiments which are not possible with other sources of neutrons. Since 1958, a number of neutron experiments have been carried out as ancillary activities to nuclear explosions primarily intended for other purposes and have included the following type of measurements:

- Symmetry of fission in ^{235}U resonances;
- Neutron capture excitation functions;
- Fission cross-sections for 23 nuclides;
- Capture, scattering and transmission cross-sections for various nuclides; and
- Production of polarized neutrons.

Neutron experiments suggested for future study include experiments with polarized neutrons, neutron-neutron collision experiments and expanding the data on neutron cross-sections of actinide elements.

(b) Seismic Experiments

A number of nuclear explosions to study seismic phenomena have been

conducted in relation to Test Ban Treaty considerations (for example, Shoal and Salmon). In addition, explosions with other primary objectives have been accompanied by extensive seismic instrumentation. Some of the illuminating and often surprising seismic results which have been obtained include:

- Redetermination of global travel times for seismic waves;
- Redetermination of global distribution of seismic wave amplitudes;
- Definition and re-evaluation of the structure of the earth's crust and mantle;
- Refinement of the knowledge of the earth's core.

APPENDIX 24F



International Atomic Energy Agency

General Conference

GC(V)/INF/39
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Fifth regular session

THE AGENCY'S INSPECTORATE

Memorandum by the Director General

1. The General Conference will recall that in connection with its fourth regular session the Board transmitted to it for information a memorandum on the Agency's inspectors. [1] In that document the Board indicated that until certain issues relevant to the recruitment and sources of members of the Agency's inspectorate had been resolved, it would not consider its examination of the problems connected therewith as complete.
2. The Board reverted to the subject at meetings held in April and June 1961, and on 29 June decided that the Inspector General and all officers of Professional grade of the Division of Inspection would be appointed by the Director General as staff officials of the Agency after he had submitted applications recommended by him to the Board for approval. As a corollary to that decision the Board also decided that its consideration of the establishment of the Agency's inspectorate was concluded, and that the detailed provisions relating to the Agency's inspectors which it had annexed to its memorandum of last year were in effect.
3. As the Board pointed out last year, that Annex - which deals with matters that arise in the application of the Agency's safeguards and health and safety measures - is intended to serve as a guide to the parties concerned in negotiating provisions that are normally included in project agreements, and in agreements for the application of Agency safeguards and the Agency's health and safety measures to bilateral or multilateral arrangements or to a State's own activities in the field of atomic energy, to the extent that such provisions are relevant to each project or arrangement. The provisions of the Annex are not mandatory, and they and other provisions that may be agreed in negotiation will only be given legal effect by the entry into force of the particular agreement which incorporates them.
4. The Board has requested the communication of this memorandum to the General Conference, together with the text of the Annex to its memorandum of last year, for information at the fifth regular session.

[1] GC(IV)/INF/27.

A N N E X

THE AGENCY'S INSPECTORS

I. Designation [1] of Agency inspectors

1. When it is proposed to designate an Agency inspector for a State, the Director General shall inform the State in writing of the name, nationality and grade of the Agency inspector proposed, shall transmit a written certification of his relevant qualifications and shall enter into such other consultations as the State may request. The State shall inform the Director General, within 30 days of receipt of such a proposal, whether it accepts the designation of that inspector. If so, the inspector may be designated as one of the Agency's inspectors for that State, and the Director General shall notify the State concerned of such designation.
2. If a State, either upon proposal of a designation or at any time after a designation has been made, objects to the designation of an Agency inspector for that State, it shall inform the Director General of its objection. In this event, the Director General shall propose to the State an alternative designation or designations. The Director General may refer to the Board, for its appropriate action, the repeated refusal of a State to accept the designation of an Agency inspector if, in his opinion, this refusal would impede the inspections provided for in the relevant project or safeguards agreement.
3. Each State shall as speedily as possible grant or renew appropriate visas, where required, for persons whose designation as Agency inspectors that State has accepted.

II. Visits of Agency inspectors

4. The State shall be given at least one week's notice of each inspection, including the names of the Agency's inspectors, the place and approximate time of their arrival and departure, and the facilities and materials to be inspected. Such notice need not exceed 24 hours for any inspection to investigate any incident requiring a "special inspection". [2]
5. Agency inspectors shall be accompanied by representatives of the State concerned, if the State so requests, provided that the inspectors shall not thereby be delayed or otherwise impeded in the exercise of their functions. Agency inspectors shall use such points of entry into and departure from the State, and such routes and modes of travel within it, as may be designated by the State.
6. Agency inspectors, in locations where this is necessary, shall be provided, on request and for reasonable compensation if agreed on, with appropriate equipment for carrying out inspections and with suitable accommodation and transport.
7. The visits and activities of the Agency's inspectors shall be so arranged as to ensure on the one hand the effective discharge of their functions and on the other hand the minimum possible inconvenience to the State and disturbance to the facilities inspected.
8. Consultations shall take place with the State to ensure that consistent with the effective discharge of the functions of the Agency's inspectors, their activities will be conducted in harmony with the laws and regulations existing in the State.

[1] The term "designation" as used in this Annex refers to the assignment of Agency inspectors to a particular task or tasks and not to the recruitment or appointment of Agency inspectors.

[2] "Special inspections" are provided for in paragraphs 58 and 59 of the Agency's safeguards system (INFCIRC/26); they are also provided for in paragraph 32 of the Agency's health and safety measures (INFCIRC/18).

III. Rights of access and inspection

9. After submitting their credentials, and to the extent relevant to the project or arrangement, Agency inspectors shall have access, depending upon the type of inspection to be carried out, either:
- (a) To all materials, equipment and facilities to which Agency safeguards against diversion are applied under the relevant provisions of document INFCIRC/26; or
 - (b) To all radiation sources, equipment and facilities which can be inspected by those Agency inspectors who are making inspections in relation to the provisions of paragraphs 31 and 32 of the Agency's health and safety measures set forth in document INFCIRC/18.

They shall have access at all times to all places and data and to any person, to the extent provided for in Article XII, A.6 of the Statute. The State shall direct all such persons under its control to co-operate fully with Agency inspectors, and shall indicate the exact location of and identify all such materials, equipment and facilities.

10. With respect to all materials, equipment and facilities to which Agency safeguards against diversion are applied, the Agency's inspectors shall be permitted to carry out their inspections in accordance with the pertinent agreements which may include provisions for:
- (a) Examination of the facility and/or materials to which Agency safeguards are applied,
 - (b) Audit of reports and records;
 - (c) Verification of the amounts of material to which Agency safeguards are applied, by physical inspection, measurement and sampling; and
 - (d) Examination and testing of the measurement instruments.
11. Agency inspectors for health and safety measures may perform inspections in accordance with each individual agreement, which may necessitate:
- (a) Tests of radiation sources, of radiation detection and monitoring instruments and of other equipment or devices in connection with the use, storage, transportation or disposal as waste of radiation sources;
 - (b) Examination of facilities wherein radiation sources are used or stored, of waste disposal facilities and of all records on which reports to the Agency are based; and
 - (c) Examinations related to the evaluation of the radiation exposure of persons who have or may have been over-exposed.

The State shall perform, in a manner prescribed by the Agency, or arrange for the Agency to perform those tests and examinations deemed necessary by the Agency.

12. After an inspection has been carried out, the State concerned shall be duly informed by the Agency of its results. In case the State disagrees with the report of the Agency's inspectors, it shall be entitled to submit a report on the matter to the Board of Governors.

IV. The privileges and immunities of the Agency's inspectors

13. Agency inspectors shall be granted the privileges and immunities necessary for the performance of their functions. Suitable provision shall be included in each project or safeguards agreement for the application, in so far as relevant to the execution of that agreement, of the provisions of the Agreement on the Privileges and Immunities of the International Atomic Energy Agency [3] excepting Articles V and XII thereof, provided that all parties to the project or safeguards agreement so agree.
14. Disputes between a State and the Agency arising out of the exercise of the functions of Agency inspectors will be settled according to an appropriate disputes clause in the pertinent project or safeguards agreement.

[3] INFCIRC/9/Rev.1.



International Atomic Energy Agency

INFORMATION CIRCULAR

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THE AGENCY'S SAFEGUARDS SYSTEM
(1965, AS PROVISIONALLY EXTENDED IN 1966 AND 1968)

1. The Agency's safeguards system, as approved by the Board of Governors in 1965, and provisionally extended in 1966 and 1968, is set forth in this document for the information of all Members.
2. The development of the system from 1961 onwards has been as follows:

System		Set forth in document
Nature	Name	
The first system	The Agency's Safeguards System (1961)	INFCIRC/26
The 1961 system as extended to cover large reactor facilities	The Agency's Safeguards System (1961, as Extended in 1964)	INFCIRC/26 and Add.1
The revised system	The Agency's Safeguards System (1965)	INFCIRC/66
The revised system with additional provisions for reprocessing plants	The Agency's Safeguards System (1965 as Provisionally Extended in 1966)	INFCIRC/66/Rev.1
The revised system with further additional provisions for safeguarded nuclear material in conversion plants and fabrication plants	The Agency's Safeguards System (1965, as Provisionally Extended in 1966 and 1968)	INFCIRC/66/Rev.2

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THE AGENCY'S SAFEGUARDS SYSTEM (1965, AS PROVISIONALLY EXTENDED IN 1966 AND 1968)

I. GENERAL CONSIDERATIONS

A. THE PURPOSE OF THIS DOCUMENT

1. Pursuant to Article II of its Statute the Agency has the task of seeking "to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world". Inasmuch as the technology of nuclear energy for peaceful purposes is closely coupled with that for the production of materials for nuclear weapons, the same Article of the Statute provides that the Agency "shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose".

2. The principal purpose of the present document is to establish a system of controls to enable the Agency to comply with this statutory obligation with respect to the activities of Member States in the field of the peaceful uses of nuclear energy, as provided in the Statute. The authority to establish such a system is provided by Article III.A.5. of the Statute, which authorizes the Agency to "establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose". This Article further authorizes the Agency to "apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State's activities in the field of atomic energy". Article XII.A sets forth the rights and responsibilities that the Agency is to have, to the extent relevant, with respect to any project or arrangement which it is to safeguard.

3. The principles set forth in this document and the procedures for which it provides are established for the information of Member States, to enable them to determine in advance the circumstances and manner in which the Agency would administer safeguards, and for the guidance of the organs of the Agency itself, to enable the Board and the Director General to determine readily what provisions should be included in agreements relating to safeguards and how to interpret such provisions.

4. Provisions of this document that are relevant to a particular project, arrangement or activity in the field of nuclear energy will only become legally binding upon the entry into force of a *safeguards agreement*¹⁾ and to the extent that they are incorporated therein. Such incorporation may be made by reference.

5. Appropriate provisions of this document may also be incorporated in bilateral or multilateral arrangements between Member States, including all those that provide for the transfer to the Agency of responsibility for administering safeguards. The Agency will not assume such responsibility unless the principles of the safeguards and the procedures to be used are essentially consistent with those set forth in this document.

6. Agreements incorporating provisions from the earlier version of the Agency's safeguards system²⁾ will continue to be administered in accordance with such provisions, unless all States parties thereto request the Agency to substitute the provisions of the present document.

7. Provisions relating to types of *principal nuclear facilities*, other than *reactors*, which may produce, process or use safeguarded *nuclear material* will be developed as necessary.

8. The principles and procedures set forth in this document shall be subject to periodic review in the light of the further experience gained by the Agency as well as of technological developments.

1) The use of italics indicates that a term has a specialized meaning in this document and is defined in Part IV.

2) Set forth in documents INFCIRC/26 and Add.1.

B. GENERAL PRINCIPLES OF THE AGENCY'S SAFEGUARDS

The Agency's obligations

9. Bearing in mind Article II of the Statute, the Agency shall implement safeguards in a manner designed to avoid hampering a State's economic or technological development.
10. The safeguards procedures set forth in this document shall be implemented in a manner designed to be consistent with prudent management practices required for the economic and safe conduct of nuclear activities.
11. In no case shall the Agency request a State to stop the construction or operation of any *principal nuclear facility* to which the Agency's safeguards procedures extend, except by explicit decision of the Board.
12. The State or States concerned and the Director General shall hold consultations regarding the application of the provisions of the present document.
13. In implementing safeguards, the Agency shall take every precaution to protect commercial and industrial secrets. No member of the Agency's staff shall disclose, except to the Director General and to such other members of the staff as the Director General may authorize to have such information by reason of their official duties in connection with safeguards, any commercial or industrial secret or any other confidential information coming to his knowledge by reason of the implementation of safeguards by the Agency.
14. The Agency shall not publish or communicate to any State, organization or person any information obtained by it in connection with the implementation of safeguards, except that:
 - (a) Specific information relating to such implementation in a State may be given to the Board and to such Agency staff members as require such knowledge by reason of their official duties in connection with safeguards, but only to the extent necessary for the Agency to fulfil its safeguards responsibilities;
 - (b) Summarized lists of items being safeguarded by the Agency may be published upon decision of the Board; and
 - (c) Additional information may be published upon decision of the Board and if all States directly concerned agree.

Principles of implementation

15. The Agency shall implement safeguards in a State if:
 - (a) The Agency has concluded with the State a *project agreement* under which materials, services, equipment, facilities or information are supplied, and such agreement provides for the application of safeguards; or
 - (b) The State is a party to a bilateral or multilateral arrangement under which materials, services, equipment, facilities or information are supplied or otherwise transferred, and:
 - (i) All the parties to the arrangement have requested the Agency to administer safeguards; and
 - (ii) The Agency has concluded the necessary *safeguards agreement* with the State; or
 - (c) The Agency has been requested by the State to safeguard certain nuclear activities under the latter's jurisdiction, and the Agency has concluded the necessary *safeguards agreement* with the State.
16. In the light of Article XII.A.5 of the Statute, it is desirable that *safeguards agreements* should provide for the continuation of safeguards, subject to the provisions of this document, with respect to produced special fissionable material and to any materials substituted therefor.
17. The principal factors to be considered by the Board in determining the relevance of particular provisions of this document to various types of materials and facilities shall be the form, scope and amount of the assistance supplied, the character of each individual project and the degree to which such

assistance could further any military purpose. The related *safeguards agreement* shall take account of all pertinent circumstances at the time of its conclusion.

18. In the event of any non-compliance by a State with a *safeguards agreement*, the Agency may take the measures set forth in Articles XII.A.7 and XII.C of the Statute.

II. CIRCUMSTANCES REQUIRING SAFEGUARDS

A. NUCLEAR MATERIALS SUBJECT TO SAFEGUARDS

19. Except as provided in paragraphs 21 - 28, *nuclear material* shall be subject to the Agency's safeguards if it is being or has been:

- (a) Supplied under a *project agreement*; or
- (b) Submitted to safeguards under a *safeguards agreement* by the parties to a bilateral or multilateral arrangement; or
- (c) *Unilaterally submitted* to safeguards under a *safeguards agreement*; or
- (d) Produced, processed or used in a *principal nuclear facility* which has been:
 - (i) Supplied wholly or substantially under a *project agreement*; or
 - (ii) Submitted to safeguards under a *safeguards agreement* by the parties to a bilateral or multilateral arrangement; or
 - (iii) *Unilaterally submitted* to safeguards under a *safeguards agreement*; or
- (e) Produced in or by the use of safeguarded *nuclear material*; or
- (f) Substituted, pursuant to paragraph 26(d), for safeguarded *nuclear material*.

20. A *principal nuclear facility* shall be considered as substantially supplied under a *project agreement* if the Board has so determined.

B. EXEMPTIONS FROM SAFEGUARDS

General exemptions

21. *Nuclear material* that would otherwise be subject to safeguards shall be exempted from safeguards at the request of the State concerned, provided that the material so exempted in that State may not at any time exceed:

- (a) 1 kilogram in total of special fissionable material, which may consist of one or more of the following:
 - (i) Plutonium;
 - (ii) Uranium with an *enrichment* of 0.2 (20 %) and above, taken account of by multiplying its weight by its *enrichment*;
 - (iii) Uranium with an *enrichment* below 0.2 (20 %) and above that of natural uranium, taken account of by multiplying its weight by five times the square of its *enrichment*;
- (b) 10 metric tons in total of natural uranium and depleted uranium with an *enrichment* above 0.005 (0.5 %);
- (c) 20 metric tons of depleted uranium with an *enrichment* of 0.005 (0.5 %) or below; and
- (d) 20 metric tons of thorium.

Exemptions related to reactors

22. Produced or used *nuclear material* that would otherwise be subject to safeguards pursuant to paragraph 19(d) or (e) shall be exempted from safeguards if:

- (a) It is plutonium produced in the fuel of a *reactor* whose rate of production does not exceed 100 grams of plutonium per year; or
 - (b) It is produced in a *reactor* determined by the Agency to have a maximum calculated power for continuous operation of less than 3 thermal megawatts, or is used in such a *reactor* and would not be subject to safeguards except for such use, provided that the total power of the *reactors* with respect to which these exemptions apply in any State may not exceed 6 thermal megawatts.
23. Produced special fissionable material that would otherwise be subject to safeguards pursuant only to paragraph 19(c) shall in part be exempted from safeguards if it is produced in a *reactor* in which the ratio of fissionable isotopes within safeguarded *nuclear material* to all fissionable isotopes is less than 0.3 (calculated each time any change is made in the loading of the *reactor* and assumed to be maintained until the next such change). Such fraction of the produced material as corresponds to the calculated ratio shall be subject to safeguards.

C. SUSPENSION OF SAFEGUARDS

24. Safeguards with respect to *nuclear material* may be suspended while the material is transferred, under an arrangement or agreement approved by the Agency, for the purpose of processing, reprocessing, testing, research or development, within the State concerned or to any other Member State or to an international organization, provided that the quantities of *nuclear material* with respect to which safeguards are thus suspended in a State may not at any time exceed;

- (a) 1 *effective kilogram* of special fissionable material;
 - (b) 10 metric tons in total of natural uranium and depleted uranium with an *enrichment* above 0.005 (0.5 %);
 - (c) 20 metric tons of depleted uranium with an *enrichment* of 0.005 (0.5 %) or below; and
 - (d) 20 metric tons of thorium.
25. Safeguards with respect to *nuclear material* in irradiated fuel which is transferred for the purpose of reprocessing may also be suspended if the State or States concerned have, with the agreement of the Agency, placed under safeguards substitute *nuclear material* in accordance with paragraph 26(d) for the period of suspension. In addition, safeguards with respect to plutonium contained in irradiated fuel which is transferred for the purpose of reprocessing may be suspended for a period not to exceed six months if the State or States concerned have, with the agreement of the Agency, placed under safeguards a quantity of uranium whose *enrichment* in the isotope uranium-235 is not less than 0.9 (90 %) and the uranium-235 content of which is equal in weight to such plutonium. Upon expiration of the said six months or the completion of reprocessing, whichever is earlier, safeguards shall, with the agreement of the Agency, be applied to such plutonium and shall cease to apply to the uranium substituted therefor.

D. TERMINATION OF SAFEGUARDS

26. *Nuclear material* shall no longer be subject to safeguards after:

- (a) It has been returned to the State that originally supplied it (whether directly or through the Agency), if it was subject to safeguards only by reason of such supply and if:
 - (i) It was not *improved* while under safeguards; or
 - (ii) Any special fissionable material that was produced in it under safeguards has been separated out, or safeguards with respect to such produced material have been terminated; or
- (b) The Agency has determined that:
 - (i) It was subject to safeguards only by reason of its use in a *principal nuclear facility* specified in paragraph 19(d);
 - (ii) It has been removed from such facility; and
 - (iii) Any special fissionable material that was produced in it under safeguards has been

separated out, or safeguards with respect to such produced material have been terminated; or

- (c) The Agency has determined that it has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards, or has become practicably irrecoverable; or
- (d) The State or States concerned have, with the agreement of the Agency, placed under safeguards, as a substitute, such amount of the same element, not otherwise subject to safeguards, as the Agency has determined contains fissionable isotopes:
 - (i) Whose weight (with due allowance for processing losses) is equal to or greater than the weight of the fissionable isotopes of the material with respect to which safeguards are to terminate; and
 - (ii) Whose ratio by weight to the total substituted element is similar to or greater than the ratio by weight of the fissionable isotopes of the material with respect to which safeguards are to terminate to the total weight of such material;provided that the Agency may agree to the substitution of plutonium for uranium-235 contained in uranium whose *enrichment* is not greater than 0.05 (5.0 %); or
- (e) It has been transferred out of the State under paragraph 28(d), provided that such material shall again be subject to safeguards if it is returned to the State in which the Agency had safeguarded it; or
- (f) The conditions specified in the *safeguards agreement*, pursuant to which it was subject to Agency safeguards, no longer apply, by expiration of the agreement or otherwise.

27. If a State wishes to use safeguarded source material for non-nuclear purposes, such as the production of alloys or ceramics, it shall agree with the Agency on the circumstances under which the safeguards on such material may be terminated.

E. TRANSFER OF SAFEGUARDED NUCLEAR MATERIAL OUT OF THE STATE

28. No safeguarded *nuclear material* shall be transferred outside the jurisdiction of the State in which it is being safeguarded until the Agency has satisfied itself that one or more of the following conditions apply:

- (a) The material is being returned, under the conditions specified in paragraph 26(a), to the State that originally supplied it; or
- (b) The material is being transferred subject to the provisions of paragraph 24 or 25; or
- (c) Arrangements have been made by the Agency to safeguard the material in accordance with this document in the State to which it is being transferred; or
- (d) The material was not subject to safeguards pursuant to a *project agreement* and will be subject, in the State to which it is being transferred, to safeguards other than those of the Agency but generally consistent with such safeguards and accepted by the Agency.

III. SAFEGUARDS PROCEDURES

A. GENERAL PROCEDURES

Introduction

29. The safeguards procedures set forth below shall be followed, as far as relevant, with respect to safeguarded *nuclear materials*, whether they are being produced, processed or used in any *principal nuclear facility* or are outside any such facility. These procedures also extend to facilities containing or to contain such materials, including *principal nuclear facilities* to which the criteria in paragraph 19(d) apply.

Design review

30. The Agency shall review the design of *principal nuclear facilities*, for the sole purpose of satisfying itself that a facility will permit the effective application of safeguards.

31. The design review of a *principal nuclear facility* shall take place at as early a stage as possible. In particular, such review shall be carried out in the case of:

- (a) An Agency project, before the project is approved;
- (b) A bilateral or multilateral arrangement under which the responsibility for administering safeguards is to be transferred to the Agency, or an activity *unilaterally submitted* by a State, before the Agency assumes safeguards responsibilities with respect to the facility;
- (c) A transfer of safeguarded *nuclear material* to a *principal nuclear facility* whose design has not previously been reviewed, before such transfer takes place; and
- (d) A significant modification of a *principal nuclear facility* whose design has previously been reviewed, before such modification is undertaken.

32. To enable the Agency to perform the required design review, the State shall submit to it relevant design information sufficient for the purpose, including information on such basic characteristics of the *principal nuclear facility* as may bear on the Agency's safeguards procedures. The Agency shall require only the minimum amount of information and data consistent with carrying out its responsibility under this section. It shall complete the review promptly after the submission of this information by the State and shall notify the latter of its conclusions without delay.

Records

33. The State shall arrange for the keeping of records with respect to *principal nuclear facilities* and also with respect to all safeguarded *nuclear material* outside such facilities. For this purpose the State and the Agency shall agree on a system of records with respect to each facility and also with respect to such material, on the basis of proposals to be submitted by the State in sufficient time to allow the Agency to review them before the records need to be kept.

34. If the records are not kept in one of the working languages of the Board, the State shall make arrangements to facilitate their examination by inspectors.

35. The records shall consist, as appropriate, of:

- (a) Accounting records of all safeguarded *nuclear material*; and
- (b) Operating records for *principal nuclear facilities*.

36. All records shall be retained for at least two years.

Reports

GENERAL REQUIREMENTS

37. The State shall submit to the Agency reports with respect to the production, processing and use of safeguarded *nuclear material* in or outside *principal nuclear facilities*. For this purpose the State and the Agency shall agree on a system of reports with respect to each facility and also with respect to safeguarded *nuclear material* outside such facilities, on the basis of proposals to be submitted by the State in sufficient time to allow the Agency to review them before the reports need to be submitted. The reports need include only such information as is relevant for the purpose of safeguards.

38. Unless otherwise provided in the applicable *safeguards agreement*, reports shall be submitted in one of the working languages of the Board.

ROUTINE REPORTS

39. Routine reports shall be based on the records compiled in accordance with paragraphs 33-36 and shall consist, as appropriate, of:

- (a) Accounting reports showing the receipt, transfer out, inventory and use of all safeguarded *nuclear material*. The inventory shall indicate the nuclear and chemical composition and physical form of all material and its location on the date of the report; and

- (b) Operating reports showing the use that has been made of each *principal nuclear facility* since the last report and, as far as possible, the programme of future work in the period until the next routine report is expected to reach the Agency.
40. The first routine report shall be submitted as soon as:
- (a) There is any safeguarded *nuclear material* to be accounted for; or
 - (b) The *principal nuclear facility* to which it relates is in a condition to operate.

PROGRESS IN CONSTRUCTION

41. The Agency may, if so provided in a *safeguards agreement*, request information as to when particular stages in the construction of a *principal nuclear facility* have been or are to be reached.

SPECIAL REPORTS

42. The State shall report to the Agency without delay:
- (a) If any unusual incident occurs involving actual or potential loss or destruction of, or damage to, any safeguarded *nuclear material* or *principal nuclear facility*; or
 - (b) If there is good reason to believe that safeguarded *nuclear material* is lost or unaccounted for in quantities that exceed the normal operating and handling losses that have been accepted by the Agency as characteristic of the facility.
43. The State shall report to the Agency, as soon as possible, and in any case within two weeks, any transfer not requiring advance notification that will result in a significant change (to be defined by the Agency in agreement with the State) in the quantity of safeguarded *nuclear material* in a facility, or in a complex of facilities considered as a unit for this purpose by agreement with the Agency. Such report shall indicate the amount and nature of the material and its intended use.

AMPLIFICATION OF REPORTS

44. At the Agency's request the State shall submit amplifications or clarifications of any report, in so far as relevant for the purpose of safeguards.

Inspections

GENERAL PROCEDURES

45. The Agency may inspect safeguarded *nuclear materials* and *principal nuclear facilities*.
46. The purpose of safeguards inspections shall be to verify compliance with *safeguards agreements* and to assist States in complying with such agreements and in resolving any questions arising out of the implementation of safeguards.
47. The number, duration and intensity of inspections actually carried out shall be kept to the minimum consistent with the effective implementation of safeguards, and if the Agency considers that the authorized inspections are not all required, fewer shall be carried out.
48. Inspectors shall neither operate any facility themselves nor direct the staff of a facility to carry out any particular operation.

ROUTINE INSPECTIONS

49. Routine inspections may include, as appropriate:
- (a) Audit of records and reports;
 - (b) Verification of the amount of safeguarded *nuclear material* by physical inspection, measurement and sampling;
 - (c) Examination of *principal nuclear facilities*, including a check of their measuring instruments and operating characteristics; and

3) See para. 57.

- (d) Check of the operations carried out at *principal nuclear facilities* and at *research and development facilities* containing safeguarded nuclear material.

50. Whenever the Agency has the right of access to a *principal nuclear facility* at all times ³⁾, it may perform inspections of which notice as required by paragraph 4 of the *Inspectors Document* need not be given, in so far as this is necessary for the effective application of safeguards. The actual procedures to implement these provisions shall be agreed upon between the parties concerned in the *safeguards agreement*.

INITIAL INSPECTIONS OF PRINCIPAL NUCLEAR FACILITIES

51. To verify that the construction of a *principal nuclear facility* is in accordance with the design reviewed by the Agency, an initial inspection or inspections of the facility may be carried out, if so provided in a *safeguards agreement*:

- (a) As soon as possible after the facility has come under Agency safeguards, in the case of a facility already in operation; or
- (b) Before the facility starts to operate, in other cases.

52. The measuring instruments and operating characteristics of the facility shall be reviewed to the extent necessary for the purpose of implementing safeguards. Instruments that will be used to obtain data on the *nuclear materials* in the facility may be tested to determine their satisfactory functioning. Such testing may include the observation by inspectors of commissioning or routine tests by the staff of the facility, but shall not hamper or delay the construction, commissioning or normal operation of the facility.

SPECIAL INSPECTIONS

53. The Agency may carry out special inspections if:

- (a) The study of a report indicates that such inspection is desirable; or
- (b) Any unforeseen circumstance requires immediate action.

The Board shall subsequently be informed of the reasons for and the results of each such inspection.

54. The Agency may also carry out special inspections of substantial amounts of safeguarded *nuclear material* that are to be transferred outside the jurisdiction of the State in which it is being safeguarded, for which purpose the State shall give the Agency sufficient advance notice of any such proposed transfer.

B. SPECIAL PROCEDURES FOR REACTORS

Reports

55. The frequency of submission of routine reports shall be agreed between the Agency and the State, taking into account the frequency established for routine inspections. However, at least two such reports shall be submitted each year and in no case shall more than 12 such reports be required in any year.

Inspections

56. One of the initial inspections of a *reactor* shall if possible be made just before the reactor first reaches criticality.

57. The maximum frequency of routine inspections of a *reactor* and of the safeguarded *nuclear material* in it shall be determined from the following table:

Whichever is the largest of:		Maximum number of routine inspections annually
(a)	Facility inventory (including loading);	
(b)	Annual <i>throughput</i> ;	
(c)	Maximum potential annual production of special fissionable material (<i>Effective kilograms of nuclear material</i>)	
Up to 1		0
More than 1 and up to 5		1
More than 5 and up to 10		2
More than 10 and up to 15		3
More than 15 and up to 20		4
More than 20 and up to 25		5
More than 25 and up to 30		6
More than 30 and up to 35		7
More than 35 and up to 40		8
More than 40 and up to 45		9
More than 45 and up to 50		10
More than 50 and up to 55		11
More than 55 and up to 60		12
More than 60		Right of access at all times

58. The actual frequency of inspection of a *reactor* shall take account of:

- (a) Whether the State possesses irradiated-fuel reprocessing facilities;
- (b) The nature of the *reactor*; and
- (c) The nature and amount of the *nuclear material* produced or used in the *reactor*.

C. SPECIAL PROCEDURES RELATING TO SAFEGUARDED NUCLEAR MATERIAL OUTSIDE PRINCIPAL NUCLEAR FACILITIES

Nuclear material in research and development facilities

ROUTINE REPORTS

59. Only accounting reports need be submitted in respect of *nuclear material* in *research and development facilities*. The frequency of submission of such routine reports shall be agreed between the Agency and the State, taking into account the frequency established for routine inspections; however, at least one such report shall be submitted each year and in no case shall more than 12 such reports be required in any year.

ROUTINE INSPECTIONS

60. The maximum frequency of routine inspections of safeguarded *nuclear material* in a *research and development facility* shall be that specified in the table in paragraph 57 for the total amount of material in the facility.

Source material in sealed storage

61. The following simplified procedures for safeguarding stockpiled source material shall be applied if a State undertakes to store such material in a sealed storage facility and not to remove it therefrom without previously informing the Agency.

DESIGN OF STORAGE FACILITIES

62. The State shall submit to the Agency information on the design of each sealed storage facility and agree with the Agency on the method and procedure for sealing it.

ROUTINE REPORTS

63. Two routine accounting reports in respect of source material in sealed storage shall be submitted each year.

ROUTINE INSPECTIONS

64. The Agency may perform one routine inspection of each sealed storage facility annually.

REMOVAL OF MATERIAL

65. The State may remove safeguarded source material from a sealed storage facility after informing the Agency of the amount, type and intended use of the material to be removed, and providing sufficient other data in time to enable the Agency to continue safeguarding the material after it has been removed.

Nuclear material in other locations

66. Except to the extent that safeguarded *nuclear material* outside of *principal nuclear facilities* is covered by any of the provisions set forth in paragraphs 59-65, the following procedures shall be applied with respect to such material (for example, source material stored elsewhere than in a sealed storage facility, or special fissionable material used in a sealed neutron source in the field).

ROUTINE REPORTS

67. Routine accounting reports in respect of all safeguarded *nuclear material* in this category shall be submitted periodically. The frequency of submission of such reports shall be agreed between the Agency and the State, taking into account the frequency established for routine inspections; however, at least one such report shall be submitted each year and in no case shall more than 12 such reports be required in any year.

ROUTINE INSPECTIONS

68. The maximum frequency of routine inspections of safeguarded *nuclear material* in this category shall be one inspection annually if the total amount of such material does not exceed five *effective kilograms*, and shall be determined from the table in paragraph 57 if the amount is greater.

IV. DEFINITIONS

69. "Agency" means the International Atomic Energy Agency.

70. "Board" means the Board of Governors of the Agency.

71. "Director General" means the Director General of the Agency.

72. "Effective kilograms" means:

- (a) In the case of plutonium, its weight in kilograms;
- (b) In the case of uranium with an *enrichment* of 0.01 (1 %) and above, its weight in kilograms multiplied by the square of its *enrichment*;
- (c) In the case of uranium with an *enrichment* below 0.01 (1 %) and above 0.005 (0.5 %), its weight in kilograms multiplied by 0.0001; and
- (d) In the case of depleted uranium with an *enrichment* of 0.005 (0.5 %) or below, and in the case of thorium, its weight in kilograms multiplied by 0.00005.

73. "Enrichment" means the ratio of the combined weight of the isotopes uranium-233 and uranium-235 to that of the total uranium in question.

74. "Improved" means, with respect to *nuclear material*, that either:

- (a) The concentration of fissionable isotopes in it has been increased; or
 - (b) The amount of chemically separable fissionable isotopes in it has been increased; or
 - (c) Its chemical or physical form has been changed so as to facilitate further use or processing.
75. "Inspector" means an Agency official designated in accordance with the *Inspectors Document*.
76. "Inspectors Document" means the Annex to the Agency's document GC(V)/INF/39.
77. "Nuclear material" means any source or special fissionable material as defined in Article XX of the Statute.
78. "Principal nuclear facility" means a *reactor*, a plant for processing *nuclear material* irradiated in a *reactor*, a plant for separating the isotopes of a *nuclear material*, a plant for processing or fabricating *nuclear material* (excepting a mine or ore-processing plant) or a facility or plant of such other type as may be designated by the Board from time to time, including associated storage facilities.
79. "Project agreement" means a *safeguards agreement* relating to an Agency project and containing provisions as foreseen in Article XI.F.4(b) of the Statute.
80. "Reactor" means any device in which a controlled, self-sustaining fission chain-reaction can be maintained.
81. "Research and development facility" means a facility, other than a *principal nuclear facility*, used for research or development in the field of nuclear energy.
82. "Safeguards agreement" means an agreement between the Agency and one or more Member States which contains an undertaking by one or more of those States not to use certain items in such a way as to further any military purpose and which gives the Agency the right to observe compliance with such undertaking. Such an agreement may concern:
- (a) An Agency project;
 - (b) A bilateral or multilateral arrangement in the field of nuclear energy under which the Agency may be asked to administer safeguards; or
 - (c) Any of a State's nuclear activities *unilaterally submitted* to Agency safeguards.
83. "Statute" means the Statute of the Agency.
84. "Throughput" means the rate at which *nuclear material* is introduced into a facility operating at full capacity.
85. "Unilaterally submitted" means submitted by a State to Agency safeguards, pursuant to a *safeguards agreement*.

ANNEX I

PROVISIONS FOR REPROCESSING PLANTS

INTRODUCTION

1. The Agency's Safeguards System (1965) is so formulated as to permit application to *principal nuclear facilities* other than *reactors* as foreseen in paragraph 7. This Annex lays down the additional procedures which are applicable to the safeguarding of *reprocessing plants*. However, because of the possible need to revise these procedures in the light of experience, they shall be subject to review at any time and shall in any case be reviewed after two years' experience of their application has been gained.

SPECIAL PROCEDURES

Reports

2. The frequency of submission of routine reports shall be once each calendar month.

Inspections

3. A *reprocessing plant* having an annual *throughput* not exceeding 5 effective kilograms of nuclear material, and the safeguarded nuclear material in it, may be routinely inspected twice a year. A *reprocessing plant* having an annual *throughput* exceeding 5 effective kilograms of nuclear material, and the safeguarded nuclear material in it, may be inspected at all times. The arrangements for inspections set forth in paragraph 50 shall apply to all inspections to be made under this paragraph.¹⁾

4. When a *reprocessing plant* is under Agency safeguards only because it contains safeguarded nuclear material, the inspection frequency shall be based on the rate of delivery of safeguarded nuclear material.

5. The State and the Agency shall co-operate in making all the necessary arrangements to facilitate the taking, shipping or analysis of samples, due account being taken of the limitations imposed by the characteristics of a plant already in operation when placed under Agency safeguards.

Mixtures of safeguarded and unsafeguarded nuclear material

6. By agreement between the State and the Agency, the following special arrangements may be made in the case of a *reprocessing plant* to which the criteria in paragraph 19(d) do not apply, and in which safeguarded and unsafeguarded nuclear materials are present:

- (a) Subject to the provisions of sub-paragraph (b) below, the Agency shall restrict its safeguards procedures to the area in which irradiated fuel is stored, until such time as all or any part of such fuel is transferred out of the storage area into other parts of the plant. Safeguards procedures shall cease to apply to the storage area or plant when either contains no safeguarded nuclear material; and
- (b) Where possible safeguarded nuclear material shall be measured and sampled separately from unsafeguarded material, and at as early a stage as possible. Where separate measurement, sampling or processing are not possible, the whole of the material being processed in that campaign shall be subject to the safeguards procedures set out in this Annex. At the conclusion of the processing the nuclear material that is thereafter to be safeguarded shall be selected by agreement between the State and the Agency from the whole output of the plant resulting from that campaign, due account being taken of any processing losses accepted by the Agency.

DEFINITIONS

7. "Reprocessing plant" ²⁾ means a facility to separate irradiated nuclear materials and fission products, and includes the facility's head-end treatment section and its associated storage and analytical sections.

8. "Campaign" means the period during which the chemical processing equipment in a *reprocessing plant* is operated between two successive wash-outs of the nuclear material present in the equipment.

¹⁾ It is understood that for plants having an annual *throughput* of more than 60 effective kilograms, the right of access at all times would normally be implemented by means of continuous inspection.

²⁾ This term is synonymous with the term "a plant for processing nuclear material irradiated in a reactor" which is used in paragraph 78.

ANNEX II

PROVISIONS FOR SAFEGUARDED NUCLEAR MATERIAL IN CONVERSION PLANTS AND FABRICATION PLANTS

INTRODUCTION

1. The Agency's Safeguards System (1965, as Provisionally Extended in 1966) is so formulated as to permit application to *principal nuclear facilities* other than *reactors* as foreseen in paragraph 7. This Annex lays down the additional procedures which are applicable to safeguarded *nuclear material* in *conversion plants* and *fabrication plants*¹⁾. However, because of the possible need to revise these procedures in the light of experience, they shall be subject to review at any time and shall in any case be reviewed after two years' experience of their application has been gained.

SPECIAL PROCEDURES

Reports

2. The frequency of submission of routine reports shall be once each calendar month.

Inspections

3. A *conversion plant* or *fabrication plant* to which the criteria in paragraph 19(d) apply and the *nuclear material* in it, may be inspected at all times if the plant inventory at any time, or the annual input, of *nuclear material* exceeds five *effective kilograms*. Where neither the inventory at any time, nor the annual input, exceeds five *effective kilograms* of *nuclear material*, the routine inspections shall not exceed two a year. The arrangements for inspection set forth in paragraph 50 shall apply to all inspections to be made under this paragraph²⁾.

4. When a *conversion plant* or *fabrication plant* to which the criteria in paragraph 19(d) do not apply contains safeguarded *nuclear material* the frequency of routine inspections shall be based on the inventory at any time and the annual input of safeguarded *nuclear material*. Where the inventory at any time, or the annual input, of safeguarded *nuclear material* exceeds five *effective kilograms* the plant may be inspected at all times. Where neither the inventory at any time, nor the annual input, exceeds five *effective kilograms* of safeguarded *nuclear material* the routine inspections shall not exceed two a year. The arrangements for inspection set forth in paragraph 50 shall apply to all inspections to be made under this paragraph²⁾.

5. The intensity of inspection of safeguarded *nuclear material* at various steps in a *conversion plant* or *fabrication plant* shall take account of the nature, isotopic composition and amount of safeguarded *nuclear material* in the plant. Safeguards shall be applied in accordance with the general principles set forth in paragraphs 9-14. Emphasis shall be placed on inspection to control uranium of high enrichments and plutonium.

6. Where a plant may handle safeguarded and unsafeguarded *nuclear material*, the State shall notify the Agency in advance of the programme for handling safeguarded batches to enable the Agency to make inspections during these periods, due account being also taken of the arrangements under paragraph 10 below.

7. The State and the Agency shall co-operate in making all the necessary arrangements to facilitate the preparation of inventories of safeguarded *nuclear material* and the taking, shipping and/or analysis of samples, due account being taken of the limitations imposed by the characteristics of a plant already in operation when placed under Agency safeguards.

1) This terminology is intended to be synonymous with the term "a plant for processing or fabricating *nuclear material* (excepting a mine or ore-processing plant)" which is used in paragraph 78.

2) It is understood that for plants having an inventory at any time, or an annual input, of more than 60 *effective kilograms* the right of access at all times would normally be implemented by means of continuous inspection. Where neither the inventory at any time nor the annual input exceeds one *effective kilogram* of *nuclear material* the plant would not normally be subject to routine inspection.

Residues, scrap and waste

8. The State shall ensure that safeguarded *nuclear material* contained in residues, scrap or waste created during conversion or fabrication is recovered, as far as is practicable, in its facilities and within a reasonable period of time. If such recovery is not considered practicable by the State, the State and the Agency shall co-operate in making arrangements to account for and dispose of the material.

Safeguarded and unsafeguarded nuclear material

9. By agreement between the State and the Agency, the following special arrangements may be made in the case of a *conversion plant* or a *fabrication plant* to which the criteria in paragraph 19(d) do not apply, and in which safeguarded and unsafeguarded *nuclear material* are both present:

- (a) Subject to the provisions of sub-paragraph (b) below, the Agency shall restrict its safeguards procedures to the area in which safeguarded *nuclear material* is stored, until such time as all or any part of such *nuclear material* is transferred out of the storage area into other parts of the plant. Safeguards procedures shall cease to be applied to the storage area or plant when it contains no safeguarded *nuclear material*; and
- (b) Where possible, safeguarded *nuclear material* shall be measured and sampled separately from unsafeguarded *nuclear material*, and at as early a stage as possible. Where separate measurement, sampling or processing is not possible, any *nuclear material* containing safeguarded *nuclear material* shall be subject to the safeguards procedures set out in this Annex. At the conclusion of processing, the *nuclear material* that is thereafter to be safeguarded shall be selected, in accordance with paragraph 11 below when applicable, by agreement between the State and the Agency, due account being taken of any processing losses accepted by the Agency.

Blending of nuclear material

10. When safeguarded *nuclear material* is to be blended with either safeguarded or unsafeguarded *nuclear material*, the State shall notify the Agency sufficiently in advance of the programme of blending to enable the Agency to exercise its right to obtain evidence, through inspection of the blending operation or otherwise, that the blending is performed according to the programme.

11. When safeguarded and unsafeguarded *nuclear material* are blended, if the ratio of fissionable isotopes in the safeguarded component going into the blend to all the fissionable isotopes in the blend is 0.3 or greater, and if the concentration of fissionable isotopes in the unsafeguarded *nuclear material* is increased by such blending, then the whole blend shall remain subject to safeguards. In other cases the following procedures shall apply:

- (a) Plutonium/plutonium blending. The quantity of the blend that shall continue to be safeguarded shall be such that its weight, when multiplied by the square of the weight fraction of contained fissionable isotopes, is not less than the weight of originally safeguarded plutonium multiplied by the square of the weight fraction of fissionable isotopes therein, provided however that:
 - (i) In cases where the weight of the whole blend, when multiplied by the square of the weight fraction of contained fissionable isotopes, is less than the weight of originally safeguarded plutonium multiplied by the square of the weight fraction of fissionable isotopes therein, the whole of the blend shall be safeguarded; and
 - (ii) The number of fissionable atoms in the portion of the blend that shall continue to be under safeguards shall in no case be less than the number of fissionable atoms in the originally safeguarded plutonium;
- (b) Uranium/uranium blending. The quantity of the blend that shall continue to be safeguarded shall be such that the number of *effective kilograms* is not less than the number of *effective kilograms* in the originally safeguarded uranium, provided however that:
 - (i) In cases where the number of *effective kilograms* in the whole blend is less than in the safeguarded uranium, the whole of the blend shall be safeguarded; and
 - (ii) The number of fissionable atoms in the portion of the blend that shall continue to

be under safeguards shall in no case be less than the number of fissionable atoms in the originally safeguarded uranium;

- (c) Uranium/plutonium blending. The whole of the resultant blend shall be safeguarded until the uranium and the plutonium constituents are separated. After separation of the uranium and plutonium, safeguards shall apply to the originally safeguarded component; and
- (d) Due account shall be taken of any processing losses agreed upon between the State and the Agency.

DEFINITIONS

12. "Conversion plant" means a facility (excepting a mine or ore-processing plant) to *improve* unirradiated *nuclear material*, or irradiated *nuclear material* that has been separated from fission products, by changing its chemical or physical form so as to facilitate further use or processing. The term *conversion plant* includes the facility's storage and analytical sections. The term does not include a plant intended for separating the isotopes of a *nuclear material*.

13. "Fabrication plant" means a plant to manufacture fuel elements or other components containing *nuclear material* and includes the plant's storage and analytical sections.

THE STRUCTURE AND
CONTENT OF AGREEMENTS
BETWEEN
THE AGENCY AND STATES
REQUIRED IN CONNECTION
WITH THE TREATY
ON THE
NON-PROLIFERATION
OF NUCLEAR WEAPONS

The Board of Governors has requested
the Director General
to use the material reproduced in this booklet
as the basis for negotiating safeguards agreements
between the Agency
and non-nuclear-weapon States
party to the Treaty on the Non-Proliferation
of Nuclear Weapons.

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PART I

BASIC UNDERTAKING

1. The Agreement should contain, in accordance with Article III.1 of the Treaty on the Non-Proliferation of Nuclear Weapons¹⁾, an undertaking by the State to accept safeguards, in accordance with the terms of the 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.

APPLICATION OF SAFEGUARDS

2. The Agreement should provide for the Agency's right and obligation to ensure that safeguards will be applied, in accordance with the terms of the Agreement, on all source or special fissionable material in all peaceful nuclear activities within the territory of the State, 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.

CO-OPERATION BETWEEN THE AGENCY AND THE STATE

3. The Agreement should provide that the Agency and the State shall co-operate to facilitate the implementation of the safeguards provided for therein.

1) Reproduced in document INFCIRC/140.

IMPLEMENTATION OF SAFEGUARDS

4. The Agreement should provide that safeguards shall be implemented in a manner designed:

- (a) To avoid hampering the economic and technological development of the State or international co-operation in the field of peaceful nuclear activities, including international exchange of *nuclear material*²⁾;
- (b) To avoid undue interference in the State's peaceful nuclear activities, and in particular in the operation of *facilities*; and
- (c) To be consistent with prudent management practices required for the economic and safe conduct of nuclear activities.

5. The Agreement should provide that the Agency shall take every precaution to protect commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of the Agreement. The Agency shall not publish or communicate to any State, organization or person any information obtained by it in connection with the implementation of the Agreement, except that specific information relating to such implementation in the State may be given to the Board of Governors and to such Agency staff members as require such knowledge by reason of their official duties in connection with safeguards, but only to the extent necessary for the Agency to fulfil its responsibilities in implementing the Agreement. Summarized information on *nuclear material* being safeguarded by the Agency under the Agreement may be published upon decision of the Board if the States directly concerned agree.

6. The Agreement should provide that in implementing safeguards pursuant thereto the Agency shall take full account of technological developments in the field of safeguards, and shall make every effort to ensure optimum cost-effectiveness and the application of the principle of safeguarding effectively the flow of *nuclear material* subject to safeguards under the Agreement by use of instruments and other techniques at certain *strategic points* to the extent that present or future technology permits. In order to ensure optimum cost-effectiveness, use should be made, for example, of such means as:

- (a) Containment as a means of defining *material balance areas* for accounting purposes;
- (b) Statistical techniques and random sampling in evaluating the flow of *nuclear material*; and
- (c) Concentration of verification procedures on those stages in the nuclear fuel cycle involving the production, processing, use or storage of *nuclear material* from which nuclear weapons or other nuclear explosive devices could readily be made, and minimization of verification procedures in respect of other *nuclear material*, on condition that this does not hamper the Agency in applying safeguards under the Agreement.

2) Terms in italics have a specialized meaning, which is defined in paragraphs 98—116 below.

NATIONAL SYSTEM OF ACCOUNTING FOR AND CONTROL OF NUCLEAR MATERIAL

7. The Agreement should provide that the State shall establish and maintain a system of accounting for and control of all *nuclear material* subject to safeguards under the Agreement, and that such safeguards shall be applied in such a manner as to enable the Agency to verify, in ascertaining that there has been no diversion of *nuclear material* from peaceful uses to nuclear weapons or other nuclear explosive devices, findings of the State's system. The Agency's verification shall include, inter alia, independent measurements and observations conducted by the Agency in accordance with the procedures specified in Part II below. The Agency, in its verification, shall take due account of the technical effectiveness of the State's system.

PROVISION OF INFORMATION TO THE AGENCY

8. The Agreement should provide that to ensure the effective implementation of safeguards thereunder the Agency shall be provided, in accordance with the provisions set out in Part II below, with information concerning *nuclear material* subject to safeguards under the Agreement and the features of *facilities* relevant to safeguarding such material. The Agency shall require only the minimum amount of information and data consistent with carrying out its responsibilities under the Agreement. Information pertaining to *facilities* shall be the minimum necessary for safeguarding *nuclear material* subject to safeguards under the Agreement. In examining design information, the Agency shall, at the request of the State, be prepared to examine on premises of the State design information which the State regards as being of particular sensitivity. Such information would not have to be physically transmitted to the Agency provided that it remained available for ready further examination by the Agency on premises of the State.

AGENCY INSPECTORS

9. The Agreement should provide that the State shall take the necessary steps to ensure that Agency inspectors can effectively discharge their functions under the Agreement. The Agency shall secure the consent of the State to the designation of Agency inspectors to that State. If the State, either upon proposal of a designation or at any other time after a designation has been made, objects to the designation, the Agency shall propose to the State an alternative designation or designations. The repeated refusal of a State to accept the designation of Agency inspectors which would impede the inspections conducted under the Agreement would be considered by the Board upon referral by the Director General with a view to appropriate action. The visits and activities of Agency inspectors shall be so arranged as to reduce to a minimum the possible inconvenience and disturbance to the State and to the peaceful nuclear activities inspected, as well as to ensure protection of industrial secrets or any other confidential information coming to the inspectors' knowledge.

PRIVILEGES AND IMMUNITIES

10. The Agreement should specify the privileges and immunities which shall be granted to the Agency and its staff in respect of their functions under the Agreement. In the case of a State party to the Agreement on the Privileges and Immunities of the Agency³⁾, the provisions thereof, as in force for such State, shall apply. In the case of other States, the privileges and immunities granted should be such as to ensure that:

- (a) The Agency and its staff will be in a position to discharge their functions under the Agreement effectively; and
- (b) No such State will be placed thereby in a more favourable position than States party to the Agreement on the Privileges and Immunities of the Agency.

TERMINATION OF SAFEGUARDS

Consumption or dilution of nuclear material

11. The Agreement should provide that safeguards shall terminate on *nuclear material* subject to safeguards thereunder upon determination by the Agency that it has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards, or has become practicably irrecoverable.

Transfer of nuclear material out of the State

12. The Agreement should provide, with respect to *nuclear material* subject to safeguards thereunder, for notification of transfers of such material out of the State, in accordance with the provisions set out in paragraphs 92—94 below. The Agency shall terminate safeguards under the Agreement on *nuclear material* when the recipient State has assumed responsibility therefor, as provided for in paragraph 91. The Agency shall maintain records indicating each transfer and, where applicable, the re-application of safeguards to the transferred *nuclear material*.

Provisions relating to nuclear material to be used in non-nuclear activities

13. The Agreement should provide that if the State wishes to use *nuclear material* subject to safeguards thereunder in non-nuclear activities, such as the production of alloys or ceramics, it shall agree with the Agency on the circumstances under which the safeguards on such *nuclear material* may be terminated.

3) Reproduced in document INFCIRC/9/Rev. 2.

NON-APPLICATION OF SAFEGUARDS TO NUCLEAR MATERIAL TO BE USED IN NON-PEACEFUL ACTIVITIES

14. The Agreement should provide that if the State intends to exercise its discretion to use *nuclear material* which is required to be safeguarded thereunder in a nuclear activity which does not require the application of safeguards under the Agreement, the following procedures will apply:

- (a) The State shall inform the Agency of the activity, making it clear:
 - (i) That the use of the *nuclear material* in a non-proscribed military activity will not be in conflict with an undertaking the State may have given and in respect of which Agency safeguards apply, that the *nuclear material* will be used only in a peaceful nuclear activity; and
 - (ii) That during the period of non-application of safeguards the *nuclear material* will not be used for the production of nuclear weapons or other nuclear explosive devices;
- (b) The State and the Agency shall make an arrangement so that, only while the *nuclear material* is in such an activity, the safeguards provided for in the Agreement will not be applied. The arrangement shall identify, to the extent possible, the period or circumstances during which safeguards will not be applied. In any event, the safeguards provided for in the Agreement shall again apply as soon as the *nuclear material* is reintroduced into a peaceful nuclear activity. The Agency shall be kept informed of the total quantity and composition of such unsafeguarded *nuclear material* in the State and of any exports of such material; and
- (c) Each arrangement shall be made in agreement with the Agency. The Agency's agreement shall be given as promptly as possible; it shall only relate to the temporal and procedural provisions, reporting arrangements, etc., but shall not involve any approval or classified knowledge of the military activity or relate to the use of the *nuclear material* therein.

FINANCE

15. The Agreement should contain one of the following sets of provisions:

- (a) An agreement with a Member of the Agency should provide that each party thereto shall bear the expenses it incurs in implementing its responsibilities thereunder. However, if the State or persons under its jurisdiction incur extraordinary expenses as a result of a specific request by the Agency, the Agency shall reimburse such expenses provided that it has agreed in advance to do so. In any case the Agency shall bear the cost of any additional measuring or sampling which inspectors may request; or
- (b) An agreement with a party not a Member of the Agency should in application of the provisions of Article XIV.C of the Statute, provide that the party shall reimburse fully to the Agency the safeguards expenses the Agency incurs thereunder. However, if the party or persons

under its jurisdiction incur extraordinary expenses as a result of a specific request by the Agency, the Agency shall reimburse such expenses provided that it has agreed in advance to do so.

THIRD PARTY LIABILITY FOR NUCLEAR DAMAGE

16. The Agreement should provide that the State shall ensure that any protection against third party liability in respect of nuclear damage, including any insurance or other financial security, which may be available under its laws or regulations shall apply to the Agency and its officials for the purpose of the implementation of the Agreement, in the same way as that protection applies to nationals of the State.

INTERNATIONAL RESPONSIBILITY

17. The Agreement should provide that any claim by one party thereto against the other in respect of any damage, other than damage arising out of a nuclear incident, resulting from the implementation of safeguards under the Agreement, shall be settled in accordance with international law.

MEASURES IN RELATION TO VERIFICATION OF NON-DIVERSION

18. The Agreement should provide that if the Board, upon report of the Director General, decides that an action by the State is essential and urgent in order to ensure verification that *nuclear material* subject to safeguards under the Agreement is not diverted to nuclear weapons or other nuclear explosive devices the Board shall be able to call upon the State to take the required action without delay, irrespective of whether procedures for the settlement of a dispute have been invoked.

19. The Agreement should provide that if the Board upon examination of relevant information reported to it by the Director General finds that the Agency is not able to verify that there has been no diversion of *nuclear material* required to be safeguarded under the Agreement to nuclear weapons or other nuclear explosive devices, it may make the reports provided for in paragraph C of Article XII of the Statute and may also take, where applicable, the other measures provided for in that paragraph. In taking such action the Board shall take account of the degree of assurance provided by the safeguards measures that have been applied and shall afford the State every reasonable opportunity to furnish the Board with any necessary reassurance.

INTERPRETATION AND APPLICATION OF THE AGREEMENT AND SETTLEMENT OF DISPUTES

20. The Agreement should provide that the parties thereto shall, at the

request of either, consult about any question arising out of the interpretation or application thereof.

21. The Agreement should provide that the State shall have the right to request that any question arising out of the interpretation or application thereof be considered by the Board ; and that the State shall be invited by the Board to participate in the discussion of any such question by the Board.

22. The Agreement should provide that any dispute arising out of the interpretation or application thereof except a dispute with regard to a finding by the Board under paragraph 19 above or an action taken by the Board pursuant to such a finding which is not settled by negotiation or another procedure agreed to by the parties should, on the request of either party, be submitted to an arbitral tribunal composed as follows: each party would designate one arbitrator, and the two arbitrators so designated would elect a third, who would be the Chairman. If, within 30 days of the request for arbitration, either party has not designated an arbitrator, either party to the dispute may request the President of the International Court of Justice to appoint an arbitrator. The same procedure would apply if, within 30 days of the designation or appointment of the second arbitrator, the third arbitrator had not been elected. A majority of the members of the arbitral tribunal would constitute a quorum, and all decisions would require the concurrence of two arbitrators. The arbitral procedure would be fixed by the tribunal. The decisions of the tribunal would be binding on both parties.

FINAL CLAUSES

Amendment of the Agreement

23. The Agreement should provide that the parties thereto shall, at the request of either of them, consult each other on amendment of the Agreement. All amendments shall require the agreement of both parties. It might additionally be provided, if convenient to the State, that the agreement of the parties on amendments to Part II of the Agreement could be achieved by recourse to a simplified procedure. The Director General shall promptly inform all Member States of any amendment to the Agreement.

Suspension of application of Agency safeguards under other agreements

24. Where applicable and where the State desires such a provision to appear, the Agreement should provide that the application of Agency safeguards in the State under other safeguards agreements with the Agency shall be suspended while the Agreement is in force. If the State has received assistance from the Agency for a project, the State's undertaking in the Project Agreement not to use items subject thereto in such a way as to further any military purpose shall continue to apply.

Entry into force and duration

25. The Agreement should provide that it shall enter into force on the date

on which the Agency receives from the State written notification that the statutory and constitutional requirements for entry into force have been met. The Director General shall promptly inform all Member States of the entry into force.

26. The Agreement should provide for it to remain in force as long as the State is party to the Treaty on the Non-Proliferation of Nuclear Weapons¹⁾.

PART II

INTRODUCTION

27. The Agreement should provide that the purpose of Part II thereof is to specify the procedures to be applied for the implementation of the safeguards provisions of Part I.

OBJECTIVE OF SAFEGUARDS

28. The Agreement should provide that the objective of safeguards is the timely detection of diversion of significant quantities of *nuclear material* from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown, and deterrence of such diversion by the risk of early detection.

29. To this end the Agreement should provide for the use of material accountancy as a safeguards measure of fundamental importance, with containment and surveillance as important complementary measures.

30. The Agreement should provide that the technical conclusion of the Agency's verification activities shall be a statement, in respect of each *material balance area*, of the amount of *material unaccounted for* over a specific period, giving the limits of accuracy of the amounts stated.

NATIONAL SYSTEM OF ACCOUNTING FOR AND CONTROL OF NUCLEAR MATERIAL

31. The Agreement should provide that pursuant to paragraph 7 above the Agency, in carrying out its verification activities, shall make full use of the State's system of accounting for and control of all *nuclear material* subject to safeguards under the Agreement, and shall avoid unnecessary duplication of the State's accounting and control activities.

32. The Agreement should provide that the State's system of accounting for and control of all *nuclear material* subject to safeguards under the Agreement

shall be based on a structure of material balance areas, and shall make provision as appropriate and specified in the Subsidiary Arrangements for the establishment of such measures as:

- (a) A measurement system for the determination of the quantities of *nuclear material* received, produced, shipped, lost or otherwise removed from inventory, and the quantities on inventory;
- (b) The evaluation of precision and accuracy of measurements and the estimation of measurement uncertainty;
- (c) Procedures for identifying, reviewing and evaluating differences in shipper/receiver measurements;
- (d) Procedures for taking a *physical inventory*;
- (e) Procedures for the evaluation of accumulations of unmeasured inventory and unmeasured losses;
- (f) A system of records and reports showing, for each *material balance area*, the inventory of *nuclear material* and the changes in that inventory including receipts into and transfers out of the *material balance area*;
- (g) Provisions to ensure that the accounting procedures and arrangements are being operated correctly; and
- (h) Procedures for the submission of reports to the Agency in accordance with paragraphs 59—69 below.

STARTING POINT OF SAFEGUARDS

33. The Agreement should provide that safeguards shall not apply thereunder to material in mining or ore processing activities.

34. The Agreement should provide that:

- (a) When any material containing uranium or thorium which has not reached the stage of the nuclear fuel cycle described in sub-paragraph (c) below is directly or indirectly exported to a non-nuclear-weapon State, the State shall inform the Agency of its quantity, composition and destination, unless the material is exported for specifically non-nuclear purposes;
- (b) When any material containing uranium or thorium which has not reached the stage of the nuclear fuel cycle described in sub-paragraph (c) below is imported, the State shall inform the Agency of its quantity and composition, unless the material is imported for specifically non-nuclear purposes; and
- (c) When any *nuclear material* of a composition and purity suitable for fuel fabrication or for being isotopically enriched leaves the plant or the process stage in which it has been produced, or when such *nuclear material*, or any other *nuclear material* produced at a later stage in the nuclear fuel cycle, is imported into the State, the *nuclear material* shall become subject to the other safeguards procedures specified in the Agreement.

TERMINATION OF SAFEGUARDS

35. The Agreement should provide that safeguards shall terminate on *nuclear*

material subject to safeguards thereunder under the conditions set forth in paragraph 11 above. Where the conditions of that paragraph are not met, but the State considers that the recovery of safeguarded *nuclear material* from residues is not for the time being practicable or desirable, the Agency and the State shall consult on the appropriate safeguards measures to be applied. It should further be provided that safeguards shall terminate on *nuclear material* subject to safeguards under the Agreement under the conditions set forth in paragraph 13 above, provided that the State and the Agency agree that such *nuclear material* is practicably irrecoverable.

EXEMPTIONS FROM SAFEGUARDS

36. The Agreement should provide that the Agency shall, at the request of the State, exempt *nuclear material* from safeguards, as follows:

- (a) Special fissionable material, when it is used in gram quantities or less as a sensing component in instruments;
- (b) *Nuclear material*, when it is used in non-nuclear activities in accordance with paragraph 13 above, if such *nuclear material* is recoverable; and
- (c) Plutonium with an isotopic concentration of plutonium-238 exceeding 80%.

37. The Agreement should provide that *nuclear material* that would otherwise be subject to safeguards shall be exempted from safeguards at the request of the State, provided that *nuclear material* so exempted in the State may not at any time exceed:

- (a) One kilogram in total of special fissionable material, which may consist of one or more of the following:
 - (i) Plutonium;
 - (ii) Uranium with an *enrichment* of 0.2 (20%) and above, taken account of by multiplying its weight by its *enrichment*; and
 - (iii) Uranium with an *enrichment* below 0.2 (20%) and above that of natural uranium, taken account of by multiplying its weight by five times the square of its *enrichment*;
- (b) Ten metric tons in total of natural uranium and depleted uranium with an *enrichment* above 0.005 (0.5%);
- (c) Twenty metric tons of depleted uranium with an *enrichment* of 0.005 (0.5%) or below; and
- (d) Twenty metric tons of thorium;

or such greater amounts as may be specified by the Board of Governors for uniform application.

38. The Agreement should provide that if exempted *nuclear material* is to be processed or stored together with safeguarded *nuclear material*, provision should be made for the re-application of safeguards thereto.

SUBSIDIARY ARRANGEMENTS

39. The Agreement should provide that the Agency and the State shall make

Subsidiary Arrangements which shall specify in detail, to the extent necessary to permit the Agency to fulfil its responsibilities under the Agreement in an effective and efficient manner, how the procedures laid down in the Agreement are to be applied. Provision should be made for the possibility of an extension or change of the Subsidiary Arrangements by agreement between the Agency and the State without amendment of the Agreement.

40. It should be provided that the Subsidiary Arrangements shall enter into force at the same time as, or as soon as possible after, the entry into force of the Agreement. The State and the Agency shall make every effort to achieve their entry into force within 90 days of the entry into force of the Agreement, a later date being acceptable only with the agreement of both parties. The State shall provide the Agency promptly with the information required for completing the Subsidiary Arrangements. The Agreement should also provide that, upon its entry into force, the Agency shall be entitled to apply the procedures laid down therein in respect of the *nuclear material* listed in the inventory provided for in paragraph 41 below.

INVENTORY

41. The Agreement should provide that, on the basis of the initial report referred to in paragraph 62 below, the Agency shall establish a unified inventory of all *nuclear material* in the State subject to safeguards under the Agreement, irrespective of its origin, and maintain this inventory on the basis of subsequent reports and of the results of its verification activities. Copies of the inventory shall be made available to the State at agreed intervals.

DESIGN INFORMATION

General

42. Pursuant to paragraph 8 above, the Agreement should stipulate that design information in respect of existing *facilities* shall be provided to the Agency during the discussion of the Subsidiary Arrangements, and that the time limits for the provision of such information in respect of new *facilities* shall be specified in the Subsidiary Arrangements. It should further be stipulated that such information shall be provided as early as possible before *nuclear material* is introduced into a new *facility*.

43. The Agreement should specify that the design information in respect of each *facility* to be made available to the Agency shall include, when applicable:

- (a) Identification of the *facility*, stating its general character, purpose, nominal capacity and geographic location, and the name and address to be used for routine business purposes;
- (b) Description of the general arrangement of the *facility* with reference, to the extent feasible, to the form, location and flow of *nuclear*

material and to the general layout of important items of equipment which use, produce or process *nuclear material*;

(c) Description of features of the *facility* relating to material accountancy, containment and surveillance; and

(d) Description of the existing and proposed procedures at the *facility* for *nuclear material* accountancy and control, with special reference to *material balance areas* established by the operator, measurements of flow and procedures for *physical inventory* taking.

44. The Agreement should further provide that other information relevant to the application of safeguards shall be made available to the Agency in respect of each *facility*, in particular on organizational responsibility for material accountancy and control. It should also be provided that the State shall make available to the Agency supplementary information on the health and safety procedures which the Agency shall observe and with which the inspectors shall comply at the *facility*.

45. The Agreement should stipulate that design information in respect of a modification relevant for safeguards purposes shall be provided for examination sufficiently in advance for the safeguards procedures to be adjusted when necessary.

Purposes of examination of design information

46. The Agreement should provide that the design information made available to the Agency shall be used for the following purposes:

(a) To identify the features of *facilities* and *nuclear material* relevant to the application of safeguards to *nuclear material* in sufficient detail to facilitate verification;

(b) To determine *material balance areas* to be used for Agency accounting purposes and to select those *strategic points* which are *key measurement points* and which will be used to determine the *nuclear material* flows and inventories; in determining such *material balance areas* the Agency shall, inter alia, use the following criteria:

(i) The size of the *material balance area* should be related to the accuracy with which the material balance can be established;

(ii) In determining the *material balance area* advantage should be taken of any opportunity to use containment and surveillance to help ensure the completeness of flow measurements and thereby simplify the application of safeguards and concentrate measurement efforts at *key measurement points*;

(iii) A number of *material balance areas* in use at a *facility* or at distinct sites may be combined in one *material balance area* to be used for Agency accounting purposes when the Agency determines that this is consistent with its verification requirements; and

(iv) If the State so requests, a special *material balance area* around a process step involving commercially sensitive information may be established ;

- (c) To establish the nominal timing and procedures for taking of *physical inventory* for Agency accounting purposes;
- (d) To establish the records and reports requirements and records evaluation procedures;
- (e) To establish requirements and procedures for verification of the quantity and location of *nuclear material*; and
- (f) To select appropriate combinations of containment and surveillance methods and techniques and the *strategic points* at which they are to be applied.

It should further be provided that the results of the examination of the design information shall be included in the Subsidiary Arrangements.

Re-examination of design information

47. The Agreement should provide that design information shall be re-examined in the light of changes in operating conditions, of developments in safeguards technology or of experience in the application of verification procedures, with a view to modifying the action the Agency has taken pursuant to paragraph 46 above.

Verification of design information

48. The Agreement should provide that the Agency, in co-operation with the State, may send inspectors to *facilities* to verify the design information provided to the Agency pursuant to paragraphs 42—45 above for the purposes stated in paragraph 46.

INFORMATION IN RESPECT OF NUCLEAR MATERIAL OUTSIDE FACILITIES

49. The Agreement should provide that the following information concerning *nuclear material* customarily used outside *facilities* shall be provided as applicable to the Agency:

- (a) General description of the use of the *nuclear material*, its geographic location, and the user's name and address for routine business purposes; and
- (b) General description of the existing and proposed procedures for *nuclear material* accountability and control, including organizational responsibility for material accountability and control.

The Agreement should further provide that the Agency shall be informed on a timely basis of any change in the information provided to it under this paragraph.

50. The Agreement should provide that the information made available to the Agency in respect of *nuclear material* customarily used outside *facilities* may be used, to the extent relevant, for the purposes set out in subparagraphs 46(b)—(f) above.

RECORDS SYSTEM

General

51. The Agreement should provide that in establishing a national system of accounting for and control of *nuclear material* as referred to in paragraph 7 above, the State shall arrange that records are kept in respect of each *material balance area*. Provision should also be made that the Subsidiary Arrangements shall describe the records to be kept in respect of each *material balance area*.

52. The Agreement should provide that the State shall make arrangements to facilitate the examination of records by inspectors, particularly if the records are not kept in English, French, Russian or Spanish.

53. The Agreement should provide that the records shall be retained for at least five years.

54. The Agreement should provide that the records shall consist, as appropriate, of:

- (a) Accounting records of all *nuclear material* subject to safeguards under the Agreement; and

- (b) Operating records for *facilities* containing such *nuclear material*.

55. The Agreement should provide that the system of measurements on which the records used for the preparation of reports are based shall either conform to the latest international standards or be equivalent in quality to such standards.

Accounting records

56. The Agreement should provide that the accounting records shall set forth the following in respect of each *material balance area*:

- (a) All *inventory changes*, so as to permit a determination of the *book inventory* at any time;

- (b) All measurement results that are used for determination of the *physical inventory*; and

- (c) All *adjustments* and *corrections* that have been made in respect of *inventory changes*, *book inventories* and *physical inventories*.

57. The Agreement should provide that for all *inventory changes* and *physical inventories* the records shall show, in respect of each *batch of nuclear material*: material identification, *batch data* and *source data*. Provision should further be included that records shall account for uranium, thorium and plutonium separately in each *batch of nuclear material*. Furthermore, the date of the *inventory change* and, when appropriate, the originating *material balance area* and the receiving *material balance area* or the recipient, shall be indicated for each *inventory change*.

Operating records

58. The Agreement should provide that the operating records shall set forth as appropriate in respect of each *material balance area*:

- (a) Those operating data which are used to establish changes in the quantities and composition of *nuclear material*;
- (b) The data obtained from the calibration of tanks and instruments and from sampling and analyses, the procedures to control the quality of measurements and the derived estimates of random and systematic error;
- (c) The description of the sequence of the actions taken in preparing for, and in taking, a *physical inventory*, in order to ensure that it is correct and complete; and
- (d) The description of the actions taken in order to ascertain the cause and magnitude of any accidental or unmeasured loss that might occur.

REPORTS SYSTEM

General

59. The Agreement should specify that the State shall provide the Agency with reports as detailed in paragraphs 60—69 below in respect of *nuclear material* subject to safeguards thereunder.

60. The Agreement should provide that reports shall be made in English, French, Russian or Spanish, except as otherwise specified in the Subsidiary Arrangements.

61. The Agreement should provide that reports shall be based on the records kept in accordance with paragraphs 51—58 above and shall consist, as appropriate, of accounting reports and special reports.

Accounting reports

62. The Agreement should stipulate that the Agency shall be provided with an initial report on all *nuclear material* which is to be subject to safeguards thereunder. It should also be provided that the initial report shall be dispatched by the State to the Agency within 30 days of the last day of the calendar month in which the Agreement enters into force, and shall reflect the situation as of the last day of that month.

63. The Agreement should stipulate that for each *material balance area* the State shall provide the Agency with the following accounting reports:

- (a) *Inventory change* reports showing changes in the inventory of *nuclear material*. The reports shall be dispatched as soon as possible and in any event within 30 days after the end of the month in which the *inventory changes* occurred or were established; and
- (b) *Material balance* reports showing the material balance based on a *physical inventory* of *nuclear material* actually present in the *material balance area*. The reports shall be dispatched as soon as possible and in any event within 30 days after the *physical inventory* has been taken.

The reports shall be based on data available as of the date of reporting and may be corrected at a later date as required.

64. The Agreement should provide that *inventory change* reports shall specify identification and *batch data* for each *batch* of *nuclear material*, the date of the *inventory change* and, as appropriate, the originating *material balance area* and the receiving *material balance area* or the recipient. These reports shall be accompanied by concise notes:

- (a) Explaining the *inventory changes*, on the basis of the operating data contained in the operating records provided for under subparagraph 58(a) above; and
- (b) Describing, as specified in the Subsidiary Arrangements, the anticipated operational programme, particularly the taking of a *physical inventory*.

65. The Agreement should provide that the State shall report each *inventory change*, *adjustment* and *correction* either periodically in a consolidated list or individually. The *inventory changes* shall be reported in terms of *batches*; small amounts, such as analytical samples, as specified in the Subsidiary Arrangements, may be combined and reported as one *inventory change*.

66. The Agreement should stipulate that the Agency shall provide the State with semi-annual statements of *book inventory* of *nuclear material* subject to safeguards, for each *material balance area*, as based on the *inventory change* reports for the period covered by each such statement.

67. The Agreement should specify that the material balance reports shall include the following entries, unless otherwise agreed by the Agency and the State:

- (a) Beginning *physical inventory*;
- (b) *Inventory changes* (first increases, then decreases);
- (c) Ending *book inventory*;
- (d) *Shipper/receiver differences*;
- (e) Adjusted ending *book inventory*;
- (f) Ending *physical inventory*; and
- (g) *Material unaccounted for*.

A statement of the *physical inventory*, listing all *batches* separately and specifying material identification and *batch data* for each *batch*, shall be attached to each material balance report.

Special reports

68. The Agreement should provide that the State shall make special reports without delay:

- (a) If any unusual incident or circumstances lead the State to believe that there is or may have been loss of *nuclear material* that exceeds the limits to be specified for this purpose in the Subsidiary Arrangements; or
- (b) If the containment has unexpectedly changed from that specified in the Subsidiary Arrangements to the extent that unauthorized removal of *nuclear material* has become possible.

Amplification and clarification of reports

69. The Agreement should provide that at the Agency's request the State shall supply amplifications or clarifications of any report, in so far as relevant for the purpose of safeguards.

INSPECTIONS

General

70. The Agreement should stipulate that the Agency shall have the right to make inspections as provided for in paragraphs 71—82 below.

Purposes of inspections

71. The Agreement should provide that the Agency may make ad hoc inspections in order to:

- (a) Verify the information contained in the initial report on the *nuclear material* subject to safeguards under the Agreement;
- (b) Identify and verify changes in the situation which have occurred since the date of the initial report; and
- (c) Identify, and if possible verify the quantity and composition of, *nuclear material* in accordance with paragraphs 93 and 96 below, before its transfer out of or upon its transfer into the State.

72. The Agreement should provide that the Agency may make routine inspections in order to:

- (a) Verify that reports are consistent with records;
- (b) Verify the location, identity, quantity and composition of all *nuclear material* subject to safeguards under the Agreement; and
- (c) Verify information on the possible causes of *material unaccounted for*, *shipper/receiver differences* and uncertainties in the *book inventory*.

73. The Agreement should provide that the Agency may make special inspections subject to the procedures laid down in paragraph 77 below:

- (a) In order to verify the information contained in special reports; or
- (b) If the Agency considers that information made available by the State, including explanations from the State and information obtained from routine inspections, is not adequate for the Agency to fulfil its responsibilities under the Agreement.

An inspection shall be deemed to be special when it is either additional to the routine inspection effort provided for in paragraphs 78—82 below, or involves access to information or locations in addition to the access specified in paragraph 76 for ad hoc and routine inspections, or both.

Scope of inspections

74. The Agreement should provide that for the purposes stated in paragraphs 71—73 above the Agency may:

- (a) Examine the records kept pursuant to paragraphs 51—58;
- (b) Make independent measurements of all *nuclear material* subject to safeguards under the Agreement;
- (c) Verify the functioning and calibration of instruments and other measuring and control equipment;

- (d) Apply and make use of surveillance and containment measures; and
 - (e) Use other objective methods which have been demonstrated to be technically feasible.
75. It should further be provided that within the scope of paragraph 74 above the Agency shall be enabled:
- (a) To observe that samples at *key measurement points* for material balance accounting are taken in accordance with procedures which produce representative samples, to observe the treatment and analysis of the samples and to obtain duplicates of such samples;
 - (b) To observe that the measurements of *nuclear material* at *key measurement points* for material balance accounting are representative, and to observe the calibration of the instruments and equipment involved;
 - (c) To make arrangements with the State that, if necessary:
 - (i) Additional measurements are made and additional samples taken for the Agency's use;
 - (ii) The Agency's standard analytical samples are analysed;
 - (iii) Appropriate absolute standards are used in calibrating instruments and other equipment; and
 - (iv) Other calibrations are carried out;
 - (d) To arrange to use its own equipment for independent measurement and surveillance, and if so agreed and specified in the Subsidiary Arrangements, to arrange to install such equipment;
 - (e) To apply its seals and other identifying and tamper-indicating devices to containments, if so agreed and specified in the Subsidiary Arrangements; and
 - (f) To make arrangements with the State for the shipping of samples taken for the Agency's use.

Access for inspections

76. The Agreement should provide that:
- (a) For the purposes specified in sub-paragraphs 71(a) and (b) above and until such time as the *strategic points* have been specified in the Subsidiary Arrangements, the Agency's inspectors shall have access to any location where the initial report or any inspections carried out in connection with it indicate that *nuclear material* is present;
 - (b) For the purposes specified in sub-paragraph 71(c) above the inspectors shall have access to any location of which the Agency has been notified in accordance with sub-paragraphs 92(c) or 95(c) below;
 - (c) For the purposes specified in paragraph 72 above the Agency's inspectors shall have access only to the *strategic points* specified in the Subsidiary Arrangements and to the records maintained pursuant to paragraphs 51—58; and
 - (d) In the event of the State concluding that any unusual circumstances require extended limitations on access by the Agency, the State and the Agency shall promptly make arrangements with a view to

enabling the Agency to discharge its safeguards responsibilities in the light of these limitations. The Director General shall report each such arrangement to the Board.

77. The Agreement should provide that in circumstances which may lead to special inspections for the purposes specified in paragraph 73 above the State and the Agency shall consult forthwith. As a result of such consultations the Agency may make inspections in addition to the routine inspection effort provided for in paragraphs 78—82 below, and may obtain access in agreement with the State to information or locations in addition to the access specified in paragraph 76 above for ad hoc and routine inspections. Any disagreement concerning the need for additional access shall be resolved in accordance with paragraphs 21 and 22; in case action by the State is essential and urgent, paragraph 18 above shall apply.

Frequency and intensity of routine inspections

78. The Agreement should provide that the number, intensity, duration and timing of routine inspections shall be kept to the minimum consistent with the effective implementation of the safeguards procedures set forth therein, and that the Agency shall make the optimum and most economical use of available inspection resources.

79. The Agreement should provide that in the case of *facilities and material balance areas* outside *facilities* with a content or *annual throughput*, whichever is greater, of *nuclear material* not exceeding five *effective kilograms*, routine inspections shall not exceed one per year. For other *facilities* the number, intensity, duration, timing and mode of inspections shall be determined on the basis that in the maximum or limiting case the inspection régime shall be no more intensive than is necessary and sufficient to maintain continuity of knowledge of the flow and inventory of *nuclear material*.

80. The Agreement should provide that the maximum routine inspection effort in respect of *facilities* with a content or *annual throughput* of *nuclear material* exceeding five *effective kilograms* shall be determined as follows:

(a) For reactors and sealed stores, the maximum total of routine inspection per year shall be determined by allowing one sixth of a *man-year of inspection* for each such *facility* in the State;

(b) For other *facilities* involving plutonium or uranium enriched to more than 5%, the maximum total of routine inspection per year shall be determined by allowing for each such *facility* $30 \times \sqrt{E}$ man-days of inspection per year, where E is the inventory or *annual throughput* of *nuclear material*, whichever is greater, expressed in *effective kilograms*. The maximum established for any such *facility* shall not, however, be less than 1.5 *man-years of inspection*; and

(c) For all other *facilities*, the maximum total of routine inspection per year shall be determined by allowing for each such *facility* one third of a *man-year of inspection* plus $0.4 \times E$ man-days of inspection per year, where E is the inventory or *annual throughput* of *nuclear material*, whichever is greater, expressed in *effective kilograms*.

The Agreement should further provide that the Agency and the State may agree to amend the maximum figures specified in this paragraph upon determination by the Board that such amendment is reasonable.

81. Subject to paragraphs 78—80 above the criteria to be used for determining the actual number, intensity, duration, timing and mode of routine inspections of any *facility* shall include:

(a) The form of *nuclear material*, in particular, whether the material is in bulk form or contained in a number of separate items; its chemical composition and, in the case of uranium, whether it is of low or high *enrichment*; and its accessibility;

(b) The effectiveness of the State's accounting and control system, including the extent to which the operators of *facilities* are functionally independent of the State's accounting and control system; the extent to which the measures specified in paragraph 32 above have been implemented by the State; the promptness of reports submitted to the Agency; their consistency with the Agency's independent verification; and the amount and accuracy of the *material unaccounted for*, as verified by the Agency;

(c) Characteristics of the State's nuclear fuel cycle, in particular, the number and types of *facilities* containing *nuclear material* subject to safeguards, the characteristics of such *facilities* relevant to safeguards, notably the degree of containment; the extent to which the design of such *facilities* facilitates verification of the flow and inventory of *nuclear material*; and the extent to which information from different *material balance areas* can be correlated;

(d) International interdependence, in particular, the extent to which *nuclear material* is received from or sent to other States for use or processing; any verification activity by the Agency in connection therewith; and the extent to which the State's nuclear activities are interrelated with those of other States; and

(e) Technical developments in the field of safeguards, including the use of statistical techniques and random sampling in evaluating the flow of *nuclear material*.

82. The Agreement should provide for consultation between the Agency and the State if the latter considers that the inspection effort is being deployed with undue concentration on particular *facilities*.

Notice of inspections

83. The Agreement should provide that the Agency shall give advance notice to the State before arrival of inspectors at *facilities* or *material balance areas* outside *facilities*, as follows:

(a) For ad hoc inspections pursuant to sub-paragraph 71(c) above, at least 24 hours, for those pursuant to sub-paragraphs 71(a) and (b), as well as the activities provided for in paragraph 48, at least one week;

(b) For special inspections pursuant to paragraph 73 above, as promptly as possible after the Agency and the State have consulted as provided

for in paragraph 77, it being understood that notification of arrival normally will constitute part of the consultations; and

(c) For routine inspections pursuant to paragraph 72 above, at least 24 hours in respect of the *facilities* referred to in sub-paragraph 80(b) and sealed stores containing plutonium or uranium enriched to more than 5%, and one week in all other cases.

Such notice of inspections shall include the names of the inspectors and shall indicate the *facilities* and the *material balance areas* outside *facilities* to be visited and the periods during which they will be visited. If the inspectors are to arrive from outside the State the Agency shall also give advance notice of the place and time of their arrival in the State.

84. However, the Agreement should also provide that, as a supplementary measure, the Agency may carry out without advance notification a portion of the routine inspections pursuant to paragraph 80 above in accordance with the principle of random sampling. In performing any unannounced inspections, the Agency shall fully take into account any operational programme provided by the State pursuant to paragraph 64(b). Moreover, whenever practicable, and on the basis of the operational programme, it shall advise the State periodically of its general programme of announced and unannounced inspections, specifying the general periods when inspections are foreseen. In carrying out any unannounced inspections, the Agency shall make every effort to minimize any practical difficulties for *facility* operators and the State, bearing in mind the relevant provisions of paragraphs 44 above and 89 below. Similarly the State shall make every effort to facilitate the task of the inspectors.

Designation of inspectors

85. The Agreement should provide that:

(a) The Director General shall inform the State in writing of the name, qualifications, nationality, grade and such other particulars as may be relevant, of each Agency official he proposes for designation as an inspector for the State;

(b) The State shall inform the Director General within 30 days of the receipt of such a proposal whether it accepts the proposal;

(c) The Director General may designate each official who has been accepted by the State as one of the inspectors for the State, and shall inform the State of such designations; and

(d) The Director General, acting in response to a request by the State or on his own initiative, shall immediately inform the State of the withdrawal of the designation of any official as an inspector for the State.

The Agreement should also provide, however, that in respect of inspectors needed for the purposes stated in paragraph 48 above and to carry out ad hoc inspections pursuant to sub-paragraphs 71(a) and (b) the designation procedures shall be completed if possible within 30 days after the entry into force of the Agreement. If such designation appears impossible within this time limit, inspectors for such purposes shall be designated on a temporary basis.

86. The Agreement should provide that the State shall grant or renew as quickly as possible appropriate visas, where required, for each inspector designated for the State.

Conduct and visits of inspectors

87. The Agreement should provide that inspectors, in exercising their functions under paragraphs 48 and 71—75 above, shall carry out their activities in a manner designed to avoid hampering or delaying the construction, commissioning or operation of *facilities*, or affecting their safety. In particular inspectors shall not operate any *facility* themselves or direct the staff of a *facility* to carry out any operation. If inspectors consider that in pursuance of paragraphs 74 and 75, particular operations in a *facility* should be carried out by the operator, they shall make a request therefor.

88. When inspectors require services available in the State, including the use of equipment, in connection with the performance of inspections, the State shall facilitate the procurement of such services and the use of such equipment by inspectors.

89. The Agreement should provide that the State shall have the right to have inspectors accompanied during their inspections by representatives of the State, provided that inspectors shall not thereby be delayed or otherwise impeded in the exercise of their functions.

STATEMENTS ON THE AGENCY'S VERIFICATION ACTIVITIES

90. The Agreement should provide that the Agency shall inform the State of:

- (a) The results of inspections, at intervals to be specified in the Subsidiary Arrangements; and
- (b) The conclusions it has drawn from its verification activities in the State, in particular by means of statements in respect of each *material balance area*, which shall be made as soon as possible after a *physical inventory* has been taken and verified by the Agency and a material balance has been struck.

INTERNATIONAL TRANSFERS

General

91. The Agreement should provide that *nuclear material* subject or required to be subject to safeguards thereunder which is transferred internationally shall, for purposes of the Agreement, be regarded as being the responsibility of the State:

- (a) In the case of import, from the time that such responsibility ceases to lie with the exporting State, and no later than the time at which the *nuclear material* reaches its destination; and

- (b) In the case of export, up to the time at which the recipient State assumes such responsibility, and no later than the time at which the *nuclear material* reaches its destination.

The Agreement should provide that the States concerned shall make suitable arrangements to determine the point at which the transfer of responsibility will take place. No State shall be deemed to have such responsibility for *nuclear material* merely by reason of the fact that the *nuclear material* is in transit on or over its territory or territorial waters, or that it is being transported under its flag or in its aircraft.

Transfers out of the State

92. The Agreement should provide that any intended transfer out of the State of safeguarded *nuclear material* in an amount exceeding one *effective kilogram*, or by successive shipments to the same State within a period of three months each of less than one *effective kilogram* but exceeding in total one *effective kilogram*, shall be notified to the Agency after the conclusion of the contractual arrangements leading to the transfer and normally at least two weeks before the *nuclear material* is to be prepared for shipping. The Agency and the State may agree on different procedures for advance notification. The notification shall specify:

- (a) The identification and, if possible, the expected quantity and composition of the *nuclear material* to be transferred, and the *material balance area* from which it will come;
- (b) The State for which the *nuclear material* is destined ;
- (c) The dates on and locations at which the *nuclear material* is to be prepared for shipping;
- (d) The approximate dates of dispatch and arrival of the *nuclear material*; and
- (e) At what point of the transfer the recipient State will assume responsibility for the *nuclear material*, and the probable date on which this point will be reached.

93. The Agreement should further provide that the purpose of this notification shall be to enable the Agency if necessary to identify, and if possible verify the quantity and composition of, *nuclear material* subject to safeguards under the Agreement before it is transferred out of the State and, if the Agency so wishes or the State so requests, to affix seals to the *nuclear material* when it has been prepared for shipping. However, the transfer of the *nuclear material* shall not be delayed in any way by any action taken or contemplated by the Agency pursuant to this notification.

94. The Agreement should provide that, if the *nuclear material* will not be subject to Agency safeguards in the recipient State, the exporting State shall make arrangements for the Agency to receive, within three months of the time when the recipient State accepts responsibility for the *nuclear material* from the exporting State, confirmation by the recipient State of the transfer.

Transfers into the State

95. The Agreement should provide that the expected transfer into the State of *nuclear material* required to be subject to safeguards in an amount greater than one *effective kilogram*, or by successive shipments from the same State within a period of three months each of less than one *effective kilogram* but exceeding in total one *effective kilogram*, shall be notified to the Agency as much in advance as possible of the expected arrival of the *nuclear material*, and in any case not later than the date on which the recipient State assumes responsibility therefor. The Agency and the State may agree on different procedures for advance notification. The notification shall specify:

(a) The identification and, if possible, the expected quantity and composition of the *nuclear material*;

(b) At what point of the transfer responsibility for the *nuclear material* will be assumed by the State for the purposes of the Agreement, and the probable date on which this point will be reached ; and

(c) The expected date of arrival, the location to which the *nuclear material* is to be delivered and the date on which it is intended that the *nuclear material* should be unpacked.

96. The Agreement should provide that the purpose of this notification shall be to enable the Agency if necessary to identify, and if possible verify the quantity and composition of, *nuclear material* subject to safeguards which has been transferred into the State, by means of inspection of the consignment at the time it is unpacked. However, unpacking shall not be delayed by any action taken or contemplated by the Agency pursuant to this notification.

Special reports

97. The Agreement should provide that in the case of international transfers a special report as envisaged in paragraph 68 above shall be made if any unusual incident or circumstances lead the State to believe that there is or may have been loss of *nuclear material*, including the occurrence of significant delay during the transfer.

DEFINITIONS

98. "Adjustment" means an entry into an accounting record or a report showing a *shipper/receiver difference* or *material unaccounted for*.

99. "Annual throughput" means, for the purposes of paragraphs 79 and 80 above, the amount of *nuclear material* transferred annually out of a *facility* working at nominal capacity.

100. "Batch" means a portion of *nuclear material* handled as a unit for accounting purposes at a *key measurement point* and for which the composition and quantity are defined by a single set of specifications or measurements. The *nuclear material* may be in bulk form or contained in a number of separate items.

101. "Batch data" means the total weight of each element of *nuclear material*

and, in the case of plutonium and uranium, the isotopic composition when appropriate. The units of account shall be as follows:

- (a) Grams of contained plutonium;
- (b) Grams of total uranium and grams of contained uranium-235 plus uranium-233 for uranium enriched in these isotopes; and
- (c) Kilograms of contained thorium, natural uranium or depleted uranium.

For reporting purposes the weights of individual items in the *batch* shall be added together before rounding to the nearest unit.

102. "Book inventory" of a *material balance area* means the algebraic sum of the most recent *physical inventory* of that *material balance area* and of all *inventory changes* that have occurred since that *physical inventory* was taken.

103. "Correction" means an entry into an accounting record or a report to rectify an identified mistake or to reflect an improved measurement of a quantity previously entered into the record or report. Each correction must identify the entry to which it pertains.

104. "Effective kilogram" means a special unit used in safeguarding *nuclear material*. The quantity in "effective kilograms" is obtained by taking:

- (a) For plutonium, its weight in kilograms;
- (b) For uranium with an *enrichment* of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its *enrichment*;
- (c) For uranium with an *enrichment* below 0.01 (1%) and above 0.005 (0.5%), its weight in kilograms multiplied by 0.0001; and
- (d) For depleted uranium with an *enrichment* of 0.005 (0.5%) or below, and for thorium, its weight in kilograms multiplied by 0.00005.

105. "Enrichment" means the ratio of the combined weight of the isotopes uranium-233 and uranium-235 to that of the total uranium in question.

106. "Facility" means:

- (a) A reactor, a critical facility, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation; or
- (b) Any location where *nuclear material* in amounts greater than one *effective kilogram* is customarily used.

107. "Inventory change" means an increase or decrease, in terms of *batches*, of *nuclear material* in a *material balance area*; such a change shall involve one of the following:

(a) Increases:

- (i) Import;
- (ii) Domestic receipt: receipts from other *material balance areas*, receipts from a non-safeguarded (non-peaceful) activity or receipts at the starting point of safeguards;
- (iii) Nuclear production: production of special fissionable material in a reactor; and
- (iv) De-exemption: reapplication of safeguards on *nuclear material* previously exempted therefrom on account of its use or quantity.

(b) Decreases:

- (i) Export;

- (ii) Domestic shipment: shipments to other *material balance areas* or shipments for a non-safeguarded (non-peaceful) activity;
- (iii) Nuclear loss: loss of *nuclear material* due to its transformation into other element(s) or isotope(s) as a result of nuclear reactions;
- (iv) Measured discard: *nuclear material* which has been measured, or estimated on the basis of measurements, and disposed of in such a way that it is not suitable for further nuclear use;
- (v) Retained waste: *nuclear material* generated from processing or from an operational accident, which is deemed to be unrecoverable for the time being but which is stored;
- (vi) Exemption: exemption of *nuclear material* from safeguards on account of its use or quantity; and
- (vii) Other loss: for example, accidental loss (that is, irretrievable and inadvertent loss of *nuclear material* as the result of an operational accident) or theft.

108. "Key measurement point" means a location where *nuclear material* appears in such a form that it may be measured to determine material flow or inventory. "Key measurement points" thus include, but are not limited to, the inputs and outputs (including measured discards) and storages in *material balance areas*.

109. "Man-year of inspection" means, for the purposes of paragraph 80 above, 300 man-days of inspection, a man-day being a day during which a single inspector has access to a *facility* at any time for a total of not more than eight hours.

110. "Material balance area" means an area in or outside of a *facility* such that:

- (a) The quantity of *nuclear material* in each transfer into or out of each "material balance area" can be determined; and
- (b) The *physical inventory* of *nuclear material* in each "material balance area" can be determined when necessary, in accordance with specified procedures,

in order that the material balance for Agency safeguards purposes can be established.

111. "Material unaccounted for" means the difference between *book inventory* and *physical inventory*.

112. "Nuclear material" means any source or any special fissionable material as defined in Article XX of the Statute. The term source material shall not be interpreted as applying to ore or ore residue. Any determination by the Board under Article XX of the Statute after the entry into force of this Agreement which adds to the materials considered to be source material or special fissionable material shall have effect under this Agreement only upon acceptance by the State.

113. "Physical inventory" means the sum of all the measured or derived estimates of *batch* quantities of *nuclear material* on hand at a given time within a *material balance area*, obtained in accordance with specified procedures.

114. "Shipper/receiver difference" means the difference between the quantity of *nuclear material* in a *batch* as stated by the shipping *material balance area* and as measured at the receiving *material balance area*.

115. "Source data" means those data, recorded during measurement or calibration or used to derive empirical relationships, which identify *nuclear material* and provide *batch data*. "Source data" may include, for example, weight of compounds, conversion factors to determine weight of element, specific gravity, element concentration, isotopic ratios, relationship between volume and manometer readings and relationship between plutonium produced and power generated.

116. "Strategic point" means a location selected during examination of design information where, under normal conditions and when combined with the information from all "strategic points" taken together, the information necessary and sufficient for the implementation of safeguards measures is obtained and verified; a "strategic point" may include any location where key measurements related to material balance accountancy are made and where containment and surveillance measures are executed.

APPENDIX 24I

THE TEXT OF THE AGREEMENT BETWEEN BELGIUM, DENMARK,
THE FEDERAL REPUBLIC OF GERMANY, IRELAND, ITALY,
LUXEMBOURG, THE NETHERLANDS, THE EUROPEAN ATOMIC
ENERGY COMMUNITY AND THE AGENCY IN CONNECTION WITH
THE TREATY ON THE NON-PROLIFERATION OF
NUCLEAR WEAPONS

1. The text [1] of the Agreement, and of the Protocol thereto, between Belgium, Denmark, the Federal Republic of Germany, Ireland, Italy, Luxembourg, the Netherlands, the European Atomic Energy Community and the Agency in implementation of Article III (1) and (4) of the Treaty on the Non-Proliferation of Nuclear Weapons [2] is reproduced in this document for the information of all Members.
2. Members will be informed by an addendum to this document of the entry into force of the Agreement pursuant to the first sentence of Article 25(a) thereof.

[1] The footnote to the text has been added to the present information circular.

[2] Reproduced in document INFCIRC/140.

AGREEMENT BETWEEN THE KINGDOM OF BELGIUM, THE KINGDOM OF DENMARK,
THE FEDERAL REPUBLIC OF GERMANY, IRELAND, THE ITALIAN REPUBLIC,
THE GRAND DUCHY OF LUXEMBOURG, THE KINGDOM OF THE NETHERLANDS,
THE EUROPEAN ATOMIC ENERGY COMMUNITY AND THE
INTERNATIONAL ATOMIC ENERGY AGENCY IN IMPLEMENTATION
OF ARTICLE III. (1) and (4) OF THE TREATY ON THE
NON-PROLIFERATION OF NUCLEAR WEAPONS

WHEREAS the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, Ireland, the Italian Republic, the Grand Duchy of Luxembourg and the Kingdom of the Netherlands (hereinafter referred to as "the States") are signatories of the Treaty on the Non-Proliferation of Nuclear Weapons (hereinafter referred to as "the Treaty") [2] opened for signature at London, Moscow and Washington on 1 July 1968 and which entered into force on 5 March 1970;

RECALLING that pursuant to Article IV(1) of the Treaty nothing in the Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of the Treaty;

RECALLING that according to Article IV(2) of the Treaty all the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy;

RECALLING further that under the terms of the same paragraph the Parties to the Treaty in a position to do so shall also co-operate in contributing alone or together with other States or international organisations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty;

WHEREAS Article III(1) of the Treaty provides that each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency (hereinafter referred to as "the Agency") in accordance with the Statute of the Agency (hereinafter referred to as "the Statute") and the Agency's safeguards system, for the exclusive purpose of verification of the fulfilment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices.

WHEREAS Article III(4) provides that non-nuclear-weapon States Party to the Treaty shall conclude agreements with the Agency to meet the requirements of the said Article either individually or together with other States in accordance with the Statute;

WHEREAS the States are Members of the European Atomic Energy Community (EURATOM) (hereinafter referred to as "the Community") and have assigned to institutions common to the European Communities regulatory, executive and judicial powers which these institutions exercise in their own right in those areas for which they are competent and which may take effect directly within the legal systems of the Member States;

WHEREAS within this institutional framework, the Community has in particular the task of ensuring, through appropriate safeguards, that nuclear materials are not diverted to purposes other than those for which they were intended, and will, from the time of the entry into force of the Treaty within the territories of the States, thus be required to satisfy itself through the system of safeguards established by the EURATOM Treaty, that source and special fissionable material in all peaceful nuclear activities within the territories of the States is not diverted to nuclear weapons or other nuclear explosive devices;

WHEREAS these safeguards include notification to the Community of the basic technical characteristics of nuclear facilities, maintenance and submission of operating records to permit nuclear materials accounting for the Community as a whole, inspections by officials of the Community, and a system of sanctions;

WHEREAS the Community has the task of establishing with other countries and with international organisations relations which may promote progress in the use of nuclear energy for peaceful purposes and is expressly authorised to assume special safeguard obligations in an agreement with a third State or an international organisation;

WHEREAS the Agency's international safeguards system referred to in the Treaty comprises, in particular, provisions for the submission of design information to the Agency, the maintenance of records, the submission of reports on all nuclear material subject to safeguards to the Agency, inspections carried out by the Agency's inspectors, requirements for the establishment and maintenance of a system of accounting for and control of nuclear material by a State, and measures in relation to verification of non-diversion;

WHEREAS the Agency, in the light of its statutory responsibilities and its relationship to the General Assembly and the Security Council of the United Nations, has the responsibility to assure the international community that effective safeguards are being applied under the Treaty;

NOTING that the States which were Members of the Community when they signed the Treaty, made it known on that occasion that safeguards provided for in Article III(1) of the Treaty would have to be set out in a verification agreement between the Community, the States and the Agency and defined in such a way that the rights and obligations of the States and the Community would not be affected;

WHEREAS the Board of Governors of the Agency (hereinafter referred to as "the Board") has approved a comprehensive set of model provisions for the structure and content of agreements between the Agency and States required in connection with the Treaty to be used as the basis for negotiating safeguards agreements between the Agency and non-nuclear-weapon States Party to the Treaty;

WHEREAS the Agency is authorised under Article III, A, 5 of the Statute, to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State's activities in the field of atomic energy;

WHEREAS it is the desire of the Agency, the Community and the States to avoid unnecessary duplication of safeguards activities;

NOW, THEREFORE, the Agency, the Community and the States have agreed as follows:

PART I

BASIC UNDERTAKING

Article 1

The States undertake, pursuant to Article III(1) of the Treaty, to accept safeguards, in accordance with the terms of this Agreement, on all source or special fissionable material in all peaceful nuclear activities within their territories, under their jurisdiction or carried out under their control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.

APPLICATION OF SAFEGUARDS

Article 2

The Agency shall have the right and the obligation to ensure that safeguards will be applied, in accordance with the terms of this Agreement, on all source or special fissionable material in all peaceful nuclear activities within the territories of the States, under their jurisdiction or carried out under their control anywhere for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.

Article 3

- (a) The Community undertakes, in applying its safeguards on source and special fissionable material in all peaceful nuclear activities within the territories of the States, to co-operate with the Agency, in accordance with the terms of this Agreement, with a view to ascertaining that such source and special fissionable material is not diverted to nuclear weapons or other nuclear explosive devices.
- (b) The Agency shall apply its safeguards, in accordance with the terms of this Agreement, in such a manner as to enable it to verify, in ascertaining that there has been no diversion of nuclear material from peaceful uses to nuclear weapons or other nuclear explosive devices, findings of the Community's system of safeguards. The Agency's verification shall include, inter alia, independent measurements and observations conducted by the Agency in accordance with the procedures specified in this Agreement. The Agency, in its verification, shall take due account of the effectiveness of the Community's system of safeguards in accordance with the terms of this Agreement.

CO-OPERATION BETWEEN THE AGENCY, THE COMMUNITY AND THE STATES

Article 4

The Agency, the Community and the States shall co-operate, in so far as each Party is concerned, to facilitate the implementation of the safeguards provided for in this Agreement and shall avoid unnecessary duplication of safeguards activities.

IMPLEMENTATION OF SAFEGUARDS

Article 5

The safeguards provided for in this Agreement shall be implemented in a manner designed:

- (a) To avoid hampering the economic and technological development in the Community or international co-operation in the field of peaceful nuclear activities, including international exchange of nuclear material;
- (b) To avoid undue interference in the peaceful nuclear activities in the Community, and in particular in the operation of facilities; and
- (c) To be consistent with prudent management practices required for the economic and safe conduct of nuclear activities.

Article 6

- (a) The Agency shall take every precaution to protect commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of this Agreement.
- (b)
 - (i) The Agency shall not publish or communicate to any State, organisation or person any information obtained by it in connection with the implementation of this Agreement, except that specific information relating to the implementation thereof may be given to the Board and to such Agency staff members as require such knowledge by reason of their official duties in connection with safeguards, but only to the extent necessary for the Agency to fulfil its responsibilities in implementing this Agreement;
 - (ii) Summarised information on nuclear material subject to safeguards under this Agreement may be published upon decision of the Board if the States directly concerned or the Community, in so far as either Party is individually concerned, agree thereto.

Article 7

- (a) In implementing safeguards under this Agreement, full account shall be taken of technological development in the field of safeguards, and every effort shall be made to ensure optimum cost-effectiveness and the application of the principle of safeguarding effectively the flow of nuclear material subject to safeguards under this Agreement by use of instruments and other techniques at certain strategic points to the extent that present or future technology permits.
- (b) In order to ensure optimum cost-effectiveness, use shall be made, for example, of such means as:
 - (i) Containment as a means of defining material balance areas for accounting purposes;
 - (ii) Statistical techniques and random sampling in evaluating the flow of nuclear material, and
 - (iii) Concentration of verification procedures on those stages in the nuclear fuel cycle involving the production, processing, use or storage of nuclear material from which nuclear weapons or other nuclear explosive devices could readily be made, and minimisation of verification procedures in respect of other nuclear material, on condition that this does not hamper the implementation of this Agreement.

PROVISION OF INFORMATION TO THE AGENCY

Article 8

- (a) In order to ensure the effective implementation of safeguards under this Agreement, the Community shall, in accordance with the provisions set out in this Agreement, provide the Agency with information concerning nuclear material subject to such safeguards and the features of facilities relevant to safeguarding such material.
- (b)
 - (i) The Agency shall require only the minimum amount of information and data consistent with carrying out its responsibilities under this Agreement.
 - (ii) Information pertaining to facilities shall be the minimum necessary for safeguarding nuclear material subject to safeguards under this Agreement.
- (c) If the Community so requests, the Agency shall be prepared to examine on premises of the Community design information which the Community regards as being of particular sensitivity. Such information need not be physically transmitted to the Agency provided that it remains readily available for further examination by the Agency on premises of the Community.

AGENCY INSPECTORS

Article 9

- (a)
 - (i) The Agency shall secure the consent of the Community and the States to the designation of Agency inspectors to the States.
 - (ii) If the Community, either upon proposal of a designation or at any other time after a designation has been made, objects to the designation, the Agency shall propose to the Community and the States an alternative designation or designations.
 - (iii) If, as a result of the repeated refusal of the Community to accept the designation of Agency inspectors, inspections to be conducted under this Agreement would be impeded, such refusal shall be considered by the Board, upon referral by the Director General of the Agency (hereinafter referred to as "the Director General"), with a view to its taking appropriate action.
- (b) The Community and the States concerned shall take the necessary steps to ensure that Agency inspectors can effectively discharge their functions under this Agreement.

- (c) The visits and activities of Agency inspectors shall be so arranged as:
- (i) To reduce to a minimum the possible inconvenience and disturbance to the Community and the States and to the peaceful nuclear activities inspected; and
 - (ii) To ensure protection of industrial secrets or any other confidential information coming to the knowledge of Agency inspectors.

PRIVILEGES AND IMMUNITIES

Article 10

Each State shall apply to the Agency, including its property, funds and assets, and to its inspectors and other officials, performing functions under this Agreement, the relevant provisions of the Agreement on the Privileges and Immunities of the International Atomic Energy Agency [3].

CONSUMPTION OR DILUTION OF NUCLEAR MATERIAL

Article 11

Safeguards under this Agreement shall terminate on nuclear material upon determination by the Community and the Agency that the material has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards, or has become practically irrecoverable.

TRANSFER OF NUCLEAR MATERIAL OUT OF THE STATES

Article 12

The Community shall give the Agency notification of transfers of nuclear material subject to safeguards under this Agreement out of the States, in accordance with the provisions of this Agreement. Safeguards under this Agreement shall terminate on nuclear material when the recipient State has assumed responsibility therefor as provided for in this Agreement. The Agency shall maintain records indicating each transfer and, where applicable, the re-application of safeguards to the transferred nuclear material.

PROVISIONS RELATING TO NUCLEAR MATERIAL TO BE USED IN NON-NUCLEAR ACTIVITIES

Article 13

Where nuclear material subject to safeguards under this Agreement is to be used in non-nuclear activities, such as the production of alloys or ceramics, the Community shall agree with the Agency, before the material is so used, on the circumstances under which the safeguards under this Agreement on such material may be terminated.

NON-APPLICATION OF SAFEGUARDS TO NUCLEAR MATERIAL TO BE USED IN NON-PEACEFUL ACTIVITIES

Article 14

If a State intends to exercise its discretion to use nuclear material which is required to be safeguarded under this Agreement in a nuclear activity which does not require the application of safeguards under this Agreement, the following procedures shall apply:

- (a) The Community and the State shall inform the Agency of the activity, and the State shall make it clear:

[3] INFCIRC/9/Rev. 2.

- (i) That the use of the nuclear material in a non-proscribed military activity will not be in conflict with an undertaking the State may have given and in respect of which Agency safeguards apply, that the material will be used only in a peaceful nuclear activity; and
- (ii) That during the period of non-application of safeguards under this Agreement the nuclear material will not be used for the production of nuclear weapons or other nuclear explosive devices;
- (b) The Agency and the Community shall make an arrangement so that, only while the nuclear material is in such an activity, the safeguards provided for in this Agreement will not be applied. The arrangement shall identify, to the extent possible, the period or circumstances during which such safeguards will not be applied. In any event, the safeguards provided for in this Agreement shall apply again as soon as the nuclear material is reintroduced into a peaceful nuclear activity. The Agency shall be kept informed of the total quantity and composition of such material in the State or in the States concerned and of any transfer of such material out of that State or those States; and
- (c) Each arrangement shall be made in agreement with the Agency. Such agreement shall be given as promptly as possible and shall relate only to such matters as, inter alia, temporal and procedural provisions and reporting arrangements, but shall not involve any approval or classified knowledge of the military activity or relate to the use of the nuclear material therein.

FINANCE

Article 15

The Agency, the Community and the States will bear the expenses incurred by each of them in implementing their respective responsibilities under this Agreement. However, if the Community, the States or persons under their jurisdiction, incur extraordinary expenses as a result of a specific request by the Agency, the Agency shall reimburse such expenses provided that it has agreed in advance to do so. In any case, the Agency shall bear the cost of any additional measuring or sampling which Agency inspectors may request.

THIRD PARTY LIABILITY FOR NUCLEAR DAMAGE

Article 16

The Community and the States shall ensure that any protection against third party liability in respect of nuclear damage, including any insurance or other financial security which may be available under their laws or regulations shall apply to the Agency and its officials for the purpose of the implementation of this Agreement, in the same way as that protection applies to nationals of the States.

INTERNATIONAL RESPONSIBILITY

Article 17

Any claim by the Community or a State against the Agency or by the Agency against the Community or a State in respect of any damage resulting from the implementation of safeguards under this Agreement, other than damage arising out of a nuclear incident, shall be settled in accordance with international law.

MEASURES IN RELATION TO VERIFICATION OF NON-DIVERSION

Article 18

If the Board, upon report of the Director General, decides that an action by the Community or a State, in so far as either Party is individually concerned, is essential and urgent in order to ensure verification that nuclear material subject to safeguards under this

Agreement is not diverted to nuclear weapons or other nuclear explosive devices, the Board may call upon the Community or that State to take the required action without delay, irrespective of whether procedures have been invoked pursuant to Article 22 for the settlement of a dispute.

Article 19

If the Board, upon examination of relevant information reported to it by the Director General, finds that the Agency is not able to verify that there has been no diversion of nuclear material required to be safeguarded under this Agreement, to nuclear weapons or other nuclear explosive devices, it may make the reports provided for in Article XII(C) of the Statute and may also take, where applicable, the other measures provided for in that paragraph. In taking such action, the Board shall take account of the degree of assurance provided by the safeguards measures that have been applied and shall offer the Community or the State, in so far as either Party is individually concerned, every reasonable opportunity to furnish the Board with any necessary reassurance.

INTERPRETATION AND APPLICATION OF THE AGREEMENT AND SETTLEMENT OF DISPUTES

Article 20

At the request of the Agency, the Community or a State, there shall be consultations about any question arising out of the interpretation or application of this Agreement.

Article 21

The Community and the States shall have the right to request that any question arising out of the interpretation or application of this Agreement be considered by the Board. The Board shall invite the Community and the State concerned to participate in the discussion of any such question by the Board.

Article 22

Any dispute arising out of the interpretation or application of this Agreement except a dispute with regard to a finding by the Board under Article 19 or an action taken by the Board pursuant to such a finding, which is not settled by negotiation or another procedure agreed to by the Agency, the Community and the States shall, at the request of any one of them, be submitted to an arbitral tribunal composed of five arbitrators. The Community and the States shall designate two arbitrators and the Agency shall also designate two arbitrators, and the four arbitrators so designated shall elect a fifth, who shall be the Chairman. If, within thirty days of the request for arbitration, the Community and the States, or the Agency, have not designated two arbitrators each, the Community or the Agency may request the President of the International Court of Justice to appoint these arbitrators. The same procedure shall apply if, within thirty days of the designation or appointment of the fourth arbitrator, the fifth arbitrator has not been elected. A majority of the members of the arbitral tribunal shall constitute a quorum, and all decisions shall require the concurrence of at least three arbitrators. The arbitral procedure shall be fixed by the tribunal. The decisions of the tribunal shall be binding on the Agency, the Community, and the States concerned.

ACCESSION

Article 23

- (a) This Agreement shall come into force for non-nuclear-weapon States Party to the Treaty which become Members of the Community, upon:
 - (i) Notification to the Agency by the State concerned that its procedures with respect to the coming into force of this Agreement have been completed; and
 - (ii) Notification to the Agency by the Community that it is in a position to apply its safeguards in respect of that State for the purposes of this Agreement.

- (b) Where the State concerned has concluded other agreements with the Agency for the application of Agency safeguards, upon the coming into force of this Agreement for that State, the application of Agency safeguards under such agreements shall be suspended while this Agreement is in force; provided, however, that the State's undertaking in those agreements not to use items which are subject thereto in such a way as to further any military purpose shall continue to apply.

AMENDMENT OF THE AGREEMENT

Article 24

- (a) The Agency, the Community and the States shall, at the request of any one of them, consult on amendment to this Agreement.
- (b) All amendments shall require the agreement of the Agency, the Community and the States.
- (c) The Director General shall promptly inform all Member States of the Agency of any amendment to this Agreement.

ENTRY INTO FORCE AND DURATION

Article 25

- (a) This Agreement shall enter into force on the date upon which the Agency receives from the Community and the States written notification that their own requirements for entry into force have been met. The Director General shall promptly inform all Member States of the Agency of the entry into force of this Agreement.
- (b) This Agreement shall remain in force as long as the States are Parties to the Treaty.

PROTOCOL

Article 26

The Protocol attached to this Agreement shall be an integral part thereof. The term "Agreement" as used in this instrument means the Agreement and the Protocol together.

PART II

INTRODUCTION

Article 27

The purpose of this part of the Agreement is to specify, as required, the procedures to be applied in the implementation of the safeguards provisions of Part I.

OBJECTIVE OF SAFEGUARDS

Article 28

The objective of the safeguards procedures set forth in this Agreement is the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown, and deterrence of such diversion by the risk of early detection.

Article 29

For the purpose of achieving the objective set forth in Article 28, material accountancy shall be used as a safeguards measure of fundamental importance, with containment and surveillance as important complementary measures.

Article 30

The technical conclusion of the Agency's verification activities shall be a statement, in respect of each material balance area, of the amount of material unaccounted for over a specific period, and giving the limits of accuracy of the amounts stated.

THE COMMUNITY'S SYSTEM OF SAFEGUARDS

Article 31

Pursuant to Article 3, the Agency, in carrying out its verification activities, shall make full use of the Community's system of safeguards.

Article 32

The Community's system of accounting for and control of nuclear material under this Agreement shall be based on a structure of material balance areas. The Community, in applying its safeguards, will make use of and, to the extent necessary, make provision for, as appropriate and specified in the Subsidiary Arrangements such measures as:

- (a) A measurement system for the determination of the quantities of nuclear material received, produced, shipped, lost or otherwise removed from inventory, and the quantities on inventory;
- (b) The evaluation of precision and accuracy of measurements and the estimation of measurement uncertainty;
- (c) Procedures for identifying, reviewing and evaluating differences in shipper/receiver measurements;
- (d) Procedures for taking a physical inventory;
- (e) Procedures for the evaluation of accumulations of unmeasured inventory and unmeasured losses;
- (f) A system of records and reports showing, for each material balance area, the inventory of nuclear material and the changes in that inventory including receipts into and transfers out of the material balance area;
- (g) Provisions to ensure that the accounting procedures and arrangements are being operated correctly; and
- (h) Procedures for the provision of reports to the Agency in accordance with Articles 59 to 63 and 67 to 69.

Article 33

Safeguards under this Agreement shall not apply to material in mining or ore processing activities.

Article 34

- (a) When any material containing uranium or thorium which has not reached the stage of the nuclear fuel cycle described in paragraph (c) is directly or indirectly exported to a non-nuclear-weapon State not Party to this Agreement, the Community shall inform the Agency of its quantity, composition and destination, unless the material is exported for specifically non-nuclear purposes;
- (b) When any material containing uranium or thorium which has not reached the stage of the nuclear fuel cycle described in paragraph (c) is imported into the States, the Community shall inform the Agency of its quantity and composition, unless the material is imported for specifically non-nuclear purposes; and
- (c) When any nuclear material of a composition and purity suitable for fuel fabrication or for isotopic enrichment leaves the plant or the process stage in which it has been

produced, or when such nuclear material, or any other nuclear material produced at a later stage in the nuclear fuel cycle, is imported into the States, the nuclear material shall become subject to the other safeguards procedures specified in this Agreement.

TERMINATION OF SAFEGUARDS

Article 35

- (a) Safeguards under this Agreement shall terminate on nuclear material, under the conditions set forth in Article 11. Where the conditions of that Article are not met, but the Community considers that the recovery of nuclear material subject to safeguards under this Agreement from residues is not for the time being practicable or desirable, the Agency and the Community shall consult on the appropriate safeguards measures to be applied.
- (b) Safeguards under this Agreement shall terminate on nuclear material, under the conditions set forth in Article 13, provided that the Agency and the Community agree that such nuclear material is practicably irrecoverable.

EXEMPTIONS FROM SAFEGUARDS

Article 36

At the request of the Community, the Agency shall exempt nuclear material from safeguards under this Agreement, as follows:

- (a) Special fissionable material, when it is used in gram quantities or less as a sensing component in instruments;
- (b) Nuclear material, when it is used in non-nuclear activities in accordance with Article 13, if such nuclear material is recoverable; and
- (c) Plutonium with an isotopic concentration of plutonium-238 exceeding 80%.

Article 37

At the request of the Community the Agency shall exempt from safeguards under this Agreement nuclear material that would otherwise be subject to such safeguards, provided that the total quantity of nuclear material which has been exempted in the States in accordance with this Article may not at any time exceed:

- (a) One kilogram in total of special fissionable material, which may consist of one or more of the following:
 - (i) Plutonium;
 - (ii) Uranium with an enrichment of 0.2 (20%) and above, taken account of by multiplying its weight by its enrichment; and
 - (iii) Uranium with an enrichment below 0.2 (20%) and above that of natural uranium, taken account of by multiplying its weight by five times the square of its enrichment;
- (b) Ten metric tons in total of natural uranium and depleted uranium with an enrichment above 0.005 (0.5%);
- (c) Twenty metric tons of depleted uranium with an enrichment of 0.005 (0.5%) or below; and
- (d) Twenty metric tons of thorium;

or such greater amounts as may be specified by the Board for uniform application.

Article 38

If exempted nuclear material is to be processed or stored together with nuclear material subject to safeguards under this Agreement, provision shall be made for the re-application of such safeguards thereto.

SUBSIDIARY ARRANGEMENTS

Article 39

The Community shall make Subsidiary Arrangements with the Agency which shall specify in detail, to the extent necessary to permit the Agency to fulfil its responsibilities under this Agreement in an effective and efficient manner, how the procedures laid down in this Agreement are to be applied. The Subsidiary Arrangements may be extended or changed by agreement between the Agency and the Community without amendment of this Agreement.

Article 40

The Subsidiary Arrangements shall enter into force at the same time as, or as soon as possible after, the entry into force of this Agreement. The Agency, the Community and the States shall make every effort to achieve their entry into force within ninety days of the entry into force of this Agreement; an extension of that period shall require agreement between the Agency, the Community and the States. The Community shall provide the Agency promptly with the information required for completing the Subsidiary Arrangements. Upon the entry into force of this Agreement, the Agency shall have the right to apply the procedures laid down therein in respect of the nuclear material listed in the inventory provided for in Article 41, even if the Subsidiary Arrangements have not yet entered into force.

INVENTORY

Article 41

On the basis of the initial report referred to in Article 62, the Agency shall establish a unified inventory of all nuclear material in the States subject to safeguards under this Agreement, irrespective of its origin, and shall maintain this inventory on the basis of subsequent reports and of the results of its verification activities. Copies of the inventory shall be made available to the Community at intervals to be agreed.

DESIGN INFORMATION

General provisions

Article 42

Pursuant to Article 8, design information in respect of existing facilities shall be provided to the Agency by the Community during the discussion of the Subsidiary Arrangements. The time limits for the provision of design information in respect of the new facilities shall be specified in the Subsidiary Arrangements and such information shall be provided as early as possible before nuclear material is introduced into a new facility.

Article 43

The design information to be provided to the Agency shall include, in respect of each facility, when applicable:

- (a) The identification of the facility, stating its general character, purpose, nominal capacity and geographic location, and the name and address to be used for routine business purposes;
- (b) A description of the general arrangement of the facility with reference, to the extent feasible, to the form, location and flow of nuclear material and to the general layout of important items of equipment which use, produce or process nuclear material;

- (c) A description of features of the facility relating to material accountancy, containment and surveillance; and
- (d) A description of the existing and proposed procedures at the facility for nuclear material accountancy and control, with special reference to material balance areas established by the operator, measurements of flow and procedures for physical inventory taking.

Article 44

Other information relevant to the application of safeguards under this Agreement shall also be provided to the Agency in respect of each facility, if so specified in the Subsidiary Arrangements. The Community shall provide the Agency with supplementary information on the health and safety procedures which the Agency shall observe and with which Agency inspectors shall comply at the facility.

Article 45

The Agency shall be provided by the Community with design information in respect of a modification relevant for purposes of safeguards under this Agreement, for examination, and shall be informed of any change in the information provided to it under Article 44, sufficiently in advance for the safeguards procedures to be applied under this Agreement to be adjusted when necessary.

Article 46

Purpose of examination of design information

The design information provided to the Agency shall be used for the following purposes:

- (a) To identify the features of facilities and nuclear material relevant to the application of safeguards to nuclear material in sufficient detail to facilitate verification;
- (b) To determine material balance areas to be used for accounting purposes under this Agreement and to select those strategic points which are key measurement points and which will be used to determine flow and inventory of nuclear material; in determining such material balance areas the following criteria shall, inter alia, be used:
 - (i) The size of the material balance area shall be related to the accuracy with which the material balance can be established;
 - (ii) In determining the material balance area advantage shall be taken of any opportunity to use containment and surveillance to help ensure the completeness of flow measurements and thereby to simplify the application of safeguards and to concentrate measurement efforts at key measurement points;
 - (iii) A special material balance area may be established at the request of the Community or of the State concerned around a process step involving commercially sensitive information;
- (c) To establish the nominal timing and procedures for taking of physical inventory of nuclear material for accounting purposes under this Agreement;
- (d) To establish the records and reports requirements and records evaluation procedures;
- (e) To establish requirements and procedures for verification of the quantity and location of nuclear material; and
- (f) To select appropriate combinations of containment and surveillance methods and techniques and the strategic points at which they are to be applied.

The results of the examination of the design information, as agreed upon between the Agency and the Community, shall be included in the Subsidiary Arrangements.

Article 47

Re-examination of design information

Design information shall be re-examined in the light of changes in operating conditions, of developments in safeguards technology or of the experience in the application of verification procedures, with a view to modifying action taken pursuant to Article 46.

Article 48

Verification of design information

The Agency, in co-operation with the Community and the State concerned may send inspectors to facilities to verify the design information provided to the Agency pursuant to Articles 42 to 45 for the purposes stated in Article 46.

INFORMATION IN RESPECT OF NUCLEAR MATERIAL OUTSIDE FACILITIES

Article 49

The Agency shall be provided by the Community with the following information when nuclear material is to be customarily used outside facilities, as applicable:

- (a) A general description of the use of the nuclear material, its geographic location, and the user's name and address for routine business purposes; and
- (b) A general description of the existing and proposed procedures for nuclear material accountancy and control, as specified in the Subsidiary Arrangements.

The Agency shall be informed by the Community, on a timely basis, of any change in the information provided to it under this Article.

Article 50

The information provided to the Agency pursuant to Article 49 may be used, to the extent relevant, for the purposes set out in Article 46 (b) to (f).

RECORDS SYSTEM

General provisions

Article 51

The Community shall arrange that records are kept in respect of each material balance area. The records to be kept shall be described in the Subsidiary Arrangements.

Article 52

The Community shall make arrangements to facilitate the examination of records by Agency inspectors, particularly if the records are not kept in English, French, Russian or Spanish.

Article 53

Records shall be retained for at least five years.

Article 54

Records shall consist, as appropriate, of:

- (a) Accounting records of all nuclear material subject to safeguards under this Agreement; and
- (b) Operating records for facilities containing such nuclear material.

Article 55

The system of measurements on which the records used for the preparation of reports are based shall either conform to the latest international standards or be equivalent in quality to such standards.

Accounting records

Article 56

The accounting records shall set forth the following in respect of each material balance area:

- (a) All inventory changes, so as to permit a determination of the book inventory at any time;
- (b) All measurement results that are used for determination of the physical inventory; and
- (c) All adjustments and corrections that have been made in respect of inventory changes, book inventories and physical inventories.

Article 57

For all inventory changes and physical inventories the records shall show, in respect of each batch of nuclear material: material identification, batch data and source data. The records shall account for uranium, thorium and plutonium separately in each batch of nuclear material. For each inventory change, the date of the inventory change and, when appropriate, the originating material balance area and the receiving material balance area or the recipient, shall be indicated.

Article 58

Operating records

The operating records shall set forth, as appropriate, in respect of each material balance area:

- (a) Those operating data which are used to establish changes in the quantities and composition of nuclear material;
- (b) The data obtained from the calibration of tanks and instruments and from sampling and analyses, the procedures to control the quality of measurements and the derived estimates of random and systematic error;
- (c) A description of the sequence of the actions taken in preparing for, and in taking, a physical inventory, in order to ensure that it is correct and complete; and
- (d) A description of the actions taken in order to ascertain the cause and magnitude of any accidental or unmeasured loss that might occur.

REPORTS SYSTEM

General provisions

Article 59

The Community shall provide the Agency with reports as detailed in Articles 60 to 65 and 67 to 69 in respect of nuclear material subject to safeguards under this Agreement.

Article 60

Reports shall be made in English, French, Russian or Spanish, except as otherwise specified in the Subsidiary Arrangements.

Article 61

Reports shall be based on the records kept in accordance with Articles 51 to 58 and shall consist, as appropriate, of accounting reports and special reports.

Accounting reports

Article 62

The Agency shall be provided by the Community with an initial report on all nuclear material subject to safeguards under this Agreement. The initial report shall be dispatched to the Agency within thirty days of the last day of the calendar month in which this Agreement enters into force, and shall reflect the situation as of the last day of that month.

Article 63

The Community shall provide the Agency with the following accounting reports for each material balance area:

- (a) Inventory change reports showing all changes in the inventory of nuclear material. The reports shall be dispatched as soon as possible and in any event within the time limits specified in the Subsidiary Arrangements; and
- (b) Material balance reports showing the material balance based on a physical inventory of nuclear material actually present in the material balance area. The reports shall be dispatched as soon as possible and in any event within the time limits specified in the Subsidiary Arrangements.

The reports shall be based on data available as of the date of reporting and may be corrected at a later date, as required.

Article 64

Inventory change reports shall specify identification and batch data for each batch of nuclear material, the date of the inventory change and, as appropriate, the originating material balance area and the receiving material balance area or the recipient. These reports shall be accompanied by concise notes:

- (a) Explaining the inventory changes, on the basis of the operating data contained in the operating records provided for under Article 58(a); and
- (b) Describing, as specified in the Subsidiary Arrangements, the anticipated operational programme, particularly the taking of a physical inventory.

Article 65

The Community shall report each inventory change, adjustment and correction, either periodically in a consolidated list or individually. Inventory changes shall be reported in terms of batches. As specified in the Subsidiary Arrangements, small changes in inventory of nuclear material, such as transfers of analytical samples, may be combined in one batch and reported as one inventory change.

Article 66

The Agency shall provide the Community, for the use of the interested parties, with semi-annual statements of book inventory of nuclear material subject to safeguards under this Agreement, for each material balance area, as based on the inventory change reports for the period covered by each such statement.

Article 67

Material balance reports shall include the following entries unless otherwise agreed by the Agency and the Community:

- (a) Beginning physical inventory;

- (b) Inventory changes (first increases, then decreases);
- (c) Ending book inventory;
- (d) Shipper/receiver differences;
- (e) Adjusted ending book inventory;
- (f) Ending physical inventory; and
- (g) Material unaccounted for.

A statement of the physical inventory, listing all batches separately and specifying material identification and batch data for each batch, shall be attached to each material balance report.

Article 68

Special reports

The Community shall make special reports without delay:

- (a) If any unusual incident or circumstances lead the Community to believe that there is or may have been loss of nuclear material that exceeds the limits specified for this purpose in the Subsidiary Arrangements; or
- (b) If the containment has unexpectedly changed from that specified in the Subsidiary Arrangements to the extent that unauthorized removal of nuclear material has become possible.

Article 69

Amplification and clarification of reports

If the Agency so requests, the Community shall provide it with amplifications or clarifications of any report, in so far as relevant for the purpose of safeguards under this Agreement.

INSPECTIONS

Article 70

General provisions

The Agency shall have the right to make inspections as provided for in this Agreement.

Purpose of inspections

Article 71

The Agency may make ad hoc inspections in order to:

- (a) Verify the information contained in the initial report on the nuclear material subject to safeguards under this Agreement and identify and verify changes in the situation which have occurred between the date of the initial report and the date of the entry into force of the Subsidiary Arrangements in respect of a given facility; and
- (b) Identify, and if possible verify the quantity and composition of nuclear material subject to safeguards under this Agreement in accordance with Articles 93 and 96, before its transfer out of or upon its transfer into the States except for transfers within the Community.

Article 72

The Agency may make routine inspections in order to:

- (a) Verify that reports are consistent with records;
- (b) Verify the location, identity, quantity and composition of all nuclear material subject to safeguards under this Agreement; and
- (c) Verify information on the possible causes of material unaccounted for, shipper/receiver differences and uncertainties in the book inventory.

Article 73

Subject to the procedures laid down in Article 77, the Agency may make special inspections:

- (a) In order to verify the information contained in special reports; or
- (b) If the Agency considers that information made available by the Community including explanations from the Community and information obtained from routine inspections, is not adequate for the Agency to fulfil its responsibilities under this Agreement.

An inspection shall be deemed to be special when it is either additional to the routine inspection effort provided for in this Agreement or involves access to information or locations in addition to the access specified in Article 76 for ad hoc and routine inspections, or both.

Scope of inspections

Article 74

For the purposes specified in Articles 71 to 73, the Agency may:

- (a) Examine the records kept pursuant to Articles 51 to 58;
- (b) Make independent measurements of all nuclear material subject to safeguards under this Agreement;
- (c) Verify the functioning and calibration of instruments and other measuring and control equipment;
- (d) Apply and make use of surveillance and containment measures; and
- (e) Use other objective methods which have been demonstrated to be technically feasible.

Article 75

Within the scope of Article 74, the Agency shall be enabled:

- (a) To observe that samples at key measurement points for material balance accountancy are taken in accordance with procedures which produce representative samples, to observe the treatment and analysis of the samples and to obtain duplicates of such samples;
- (b) To observe that the measurements of nuclear material at key measurement points for material balance accountancy are representative, and to observe the calibration of the instruments and equipment involved;
- (c) To make arrangements with the Community and to the extent necessary with the State concerned that, if necessary:
 - (i) Additional measurements are made and additional samples taken for the Agency's use;

- (ii) The Agency's standard analytical samples are analysed;
- (iii) Appropriate absolute standards are used in calibrating instruments and other equipment; and
- (iv) Other calibrations are carried out;
- (d) To arrange to use its own equipment for independent measurement and surveillance, and if so agreed and specified in the Subsidiary Arrangements to arrange to install such equipment;
- (e) To apply its seals and other identifying and tamper-indicating devices to containments, if so agreed and specified in the Subsidiary Arrangements; and
- (f) To make arrangements with the Community or the State concerned for the shipping of samples taken for the Agency's use.

Access for inspections

Article 76

- (a) For the purposes specified in Article 71(a) and until such time as the strategic points have been specified in the Subsidiary Arrangements, the Agency inspectors shall have access to any location where the initial report or any inspections carried out in connection with it indicate that nuclear material subject to safeguards under this Agreement is present;
- (b) For the purposes specified in Article 71(b) the Agency inspectors shall have access to any location of which the Agency has been notified in accordance with Articles 92(d)(iii) or 95(d)(iii);
- (c) For the purposes specified in Article 72 the inspectors shall have access only to the strategic points specified in the Subsidiary Arrangements and to the records maintained pursuant to Articles 51 to 58; and
- (d) In the event of the Community concluding that any unusual circumstances require extended limitations on access by the Agency, the Community and the Agency shall promptly make arrangements with a view to enabling the Agency to discharge its safeguards responsibilities in the light of these limitations. The Director General shall report each such arrangement to the Board.

Article 77

In the circumstances which may lead to special inspections for the purposes specified in Article 73 the Community and the Agency shall consult forthwith. As a result of such consultations the Agency may:

- (a) Make inspections in addition to the routine inspection effort provided for in this Agreement; and
- (b) Obtain access, in agreement with the Community, to information or locations in addition to those specified in Article 76. Any disagreement shall be resolved in accordance with Articles 21 and 22. In case action by the Community or a State, in so far as either Party is individually concerned, is essential and urgent, Article 18 shall apply.

Frequency and intensity of routine inspections

Article 78

The number, intensity and duration of routine inspections, applying optimum timing, shall be kept to the minimum consistent with the effective implementation of the safeguards procedures set forth in this Agreement, and optimum and most economical use of available inspection resources under the Agreement shall be made.

Article 79

The Agency may carry out one routine inspection per year in respect of facilities and material balance areas outside facilities with a content or annual throughput, whichever is greater, of nuclear material not exceeding five effective kilograms.

Article 80

The number, intensity, duration, timing and mode of routine inspections in respect of facilities with a content or annual throughput of nuclear material exceeding five effective kilograms shall be determined on the basis that in the maximum or limiting case the inspection regime shall be no more intensive than is necessary and sufficient to maintain continuity of knowledge of the flow and inventory of nuclear material, and the maximum routine inspection effort in respect of such facilities shall be determined as follows:

- (a) For reactors and sealed storage installations the maximum total of routine inspection per year shall be determined by allowing one sixth of a man-year of inspection for each such facility;
- (b) For facilities, other than reactors or sealed storage installations, involving plutonium or uranium enriched to more than 5%, the maximum total of routine inspection per year shall be determined by allowing for each such facility $30 \times \sqrt{E}$ man-days of inspection per year, where E is the inventory or annual throughput of nuclear material, whichever is greater, expressed in effective kilograms. The maximum established for any such facility shall not, however, be less than 1.5 man-years of inspection; and
- (c) For facilities not covered by paragraphs (a) or (b), the maximum total of routine inspection per year shall be determined by allowing for each such facility one third of a man-year of inspection plus $0.4 \times E$ man-days of inspection per year, where E is the inventory or annual throughput of nuclear material, whichever is greater, expressed in effective kilograms.

The Parties to this Agreement may agree to amend the figures for the maximum inspection effort specified in this Article, upon determination by the Board that such amendment is reasonable.

Article 81

Subject to Articles 78 to 80 the criteria to be used for determining the actual number, intensity, duration, timing and mode of routine inspections in respect of any facility shall include:

- (a) The form of the nuclear material, in particular, whether the nuclear material is in bulk form or contained in a number of separate items; its chemical composition and, in the case of uranium, whether it is of low or high enrichment; and its accessibility;
- (b) The effectiveness of the Community's safeguards, including the extent to which the operators of facilities are functionally independent of the Community's safeguards; the extent to which the measures specified in Article 32 have been implemented by the Community; the promptness of reports provided to the Agency; their consistency with the Agency's independent verification; and the amount and accuracy of the material unaccounted for, as verified by the Agency;
- (c) Characteristics of the nuclear fuel cycle in the States, in particular, the number and types of facilities containing nuclear material subject to safeguards under this Agreement, the characteristics of such facilities relevant to safeguards under this Agreement, notably the degree of containment; the extent to which the design of such facilities facilitates verification of the flow and inventory of nuclear material; and the extent to which information from different material balance areas can be correlated;
- (d) International interdependence, in particular, the extent to which nuclear material is received from or sent to other States for use or processing; any verification

activities by the Agency in connection therewith; and the extent to which the nuclear activities in each State are interrelated with those in other States; and

- (e) Technical developments in the field of safeguards, including the use of statistical techniques and random sampling in evaluating the flow of nuclear material.

Article 82

The Agency and the Community shall consult if the latter considers that the inspection effort is being deployed with undue concentration on particular facilities.

Notice of inspections

Article 83

The Agency shall give advance notice to the Community and to the States concerned before arrival of Agency inspectors at facilities or material balance areas outside facilities, as follows:

- (a) For ad hoc inspections pursuant to Article 71(b), at least 24 hours; for those pursuant to Article 71(a) as well as the activities provided for in Article 48, at least one week;
- (b) For special inspections pursuant to Article 73, as promptly as possible after the Agency and the Community have consulted as provided for in Article 77, it being understood that notification of arrival normally will constitute part of the consultations; and
- (c) For routine inspections pursuant to Article 72, at least 24 hours in respect of the facilities referred to in Article 80(b) and sealed storage installations containing plutonium or uranium enriched to more than 5%, and one week in all other cases.

Such notice of inspections shall include the names of the Agency inspectors and shall indicate the facilities and the material balance areas outside facilities to be visited and the period during which they will be visited. If the Agency inspectors are to arrive from outside the States, the Agency shall also give advance notice of the place and time of their arrival in the States.

Article 84

Notwithstanding the provisions of Article 83, the Agency may, as a supplementary measure, carry out without advance notification a portion of the routine inspections pursuant to Article 80 in accordance with the principle of random sampling. In performing any unannounced inspections, the Agency shall fully take into account any operational programme provided to it pursuant to Article 64(b). Moreover, whenever practicable, and on the basis of the operational programme it shall advise the Community and the State concerned periodically of its general programme of announced and unannounced inspections, specifying the general periods when inspections are foreseen. In carrying out any unannounced inspections, the Agency shall make every effort to minimize any practical difficulties for the Community and the State concerned and for facility operators, bearing in mind the relevant provisions of Articles 44 and 89. Similarly the Community and the State concerned shall make every effort to facilitate the task of Agency inspectors.

Designation of Agency inspectors

Article 85

The following procedures shall apply to the designation of Agency inspectors:

- (a) The Director General shall inform the Community and the States in writing of the name, qualifications, nationality, grade and such other particulars as may be relevant, of each Agency official he proposes for designation as an Agency inspectors for the States;
- (b) The Community shall inform the Director General within thirty days of the receipt of such a proposal whether the proposal is accepted;

- (c) The Director General may designate each official who has been accepted by the Community and the States as one of the Agency inspectors for the States, and shall inform the Community and the States of such designations; and
- (d) The Director General, acting in response to a request by the Community or on his own initiative, shall immediately inform the Community and the States of the withdrawal of the designation of any official as an Agency inspector for the States.

However, in respect of Agency inspectors needed for the activities provided for in Article 48 and to carry out ad hoc inspections pursuant to Article 71(a) the designation procedures shall be completed if possible within thirty days after the entry into force of this Agreement. If such designation appears impossible within this time limit, Agency inspectors for such purposes shall be designated on a temporary basis.

Article 86

The States shall grant or renew as quickly as possible appropriate visas, where required, for each Agency inspector designated pursuant to Article 85.

Conduct and visits of Agency inspectors

Article 87

Agency inspectors, in exercising their functions under Articles 48 and 71 to 75, shall carry out their activities in a manner designed to avoid hampering or delaying the construction, commissioning or operation of facilities, or affecting their safety. In particular, Agency inspectors shall not operate any facility themselves or direct the staff of a facility to carry out any operation. If Agency inspectors consider that in pursuance of Articles 74 and 75, particular operations in a facility should be carried out by the operator, they shall make a request therefor.

Article 88

When Agency inspectors require services available in a State, including the use of equipment, in connection with the performance of inspections, the State concerned and the Community shall facilitate the procurement of such services and the use of such equipment by Agency inspectors.

Article 89

The Community and the States concerned shall have the right to have Agency inspectors accompanied during their inspections by its inspectors and their representatives respectively, provided that Agency inspectors shall not thereby be delayed or otherwise impeded in the exercise of their functions.

STATEMENT ON THE AGENCY'S VERIFICATION ACTIVITIES

Article 90.

The Agency shall inform the Community for the use of the interested parties of:

- (a) The results of its inspections, at intervals to be specified in the Subsidiary Arrangements; and
- (b) The conclusions it has drawn from its verification activities.

TRANSFERS INTO OR OUT OF THE STATES

Article 91

General provisions

Nuclear material subject or required to be subject to safeguards under this Agreement which is transferred into or out of the States shall, for purposes of this Agreement, be

regarded as being the responsibility of the Community and of the State concerned:

- (a) In the case of transfers into the States, from the time that such responsibility ceases to lie with the State from which the material is transferred, and no later than the time at which the material reaches its destination; and
- (b) In the case of transfers out of the States up to the time at which the recipient State has such responsibility, and no later than the time at which the nuclear material reaches its destination.

The point at which the transfer of responsibility will take place shall be determined in accordance with suitable arrangements to be made by the Community and the State concerned, on the one hand, and the State to which or from which the nuclear material is transferred, on the other hand. Neither the Community nor a State shall be deemed to have such responsibility for nuclear material merely by reason of the fact that the nuclear material is in transit on or over a State's territory, or that it is being transported on a ship under a State's flag or in the aircraft of a State.

Transfers out of the States

Article 92

- (a) The Community shall notify the Agency of any intended transfer out of the States of nuclear material subject to safeguards under this Agreement if the shipment exceeds one effective kilogram, or, for facilities which normally transfer significant quantities to the same State in shipments each not exceeding one effective kilogram, if so specified in the Subsidiary Arrangements.
- (b) Such notification shall be given to the Agency after the conclusion of the contractual arrangements leading to the transfer and within the time limit specified in the Subsidiary Arrangements.
- (c) The Agency and the Community may agree on different procedures for advance notification.
- (d) The notification shall specify:
 - (i) The identification and, if possible, the expected quantity and the composition of the nuclear material to be transferred, and the material balance area from which it will come;
 - (ii) The State for which the nuclear material is destined;
 - (iii) The dates on and locations at which the nuclear material is to be prepared for shipping;
 - (iv) The approximate dates of dispatch and arrival of the nuclear material; and
 - (v) At what point of the transfer the recipient State will assume responsibility for the nuclear material for the purpose of this Agreement, and the probable date on which that point will be reached.

Article 93

The notification referred to in Article 92 shall be such as to enable the Agency to make, if necessary, an ad hoc inspection to identify, and if possible verify the quantity and composition of the nuclear material before it is transferred out of the States, except for transfers within the Community and, if the Agency so wishes or the Community so requests, to affix seals to the nuclear material when it has been prepared for shipping. However, the transfer of the nuclear material shall not be delayed in any way by any action taken or contemplated by the Agency pursuant to such a notification.

Article 94

If nuclear material will not be subject to Agency safeguards in the recipient State the Community shall make arrangements for the Agency to receive within three months of the

time when the recipient State accepts responsibility for the nuclear material, confirmation by the recipient State of the transfer.

Transfers into the States

Article 95

- (a) The Community shall notify the Agency of any expected transfer into the States of nuclear material required to be subject to safeguards under this Agreement if the shipment exceeds one effective kilogram, or, for facilities to which significant quantities are normally transferred from the same State in shipments each not exceeding one effective kilogram, if so specified in the Subsidiary Arrangements.
- (b) The Agency shall be notified as much in advance as possible of the expected arrival of the nuclear material, and in any case within the time limits specified in the Subsidiary Arrangements.
- (c) The Agency and the Community may agree on different procedures for advance notification.
- (d) The notification shall specify:
 - (i) The identification and, if possible, the expected quantity and composition of the nuclear material;
 - (ii) At what point of the transfer the Community and the State concerned will have responsibility for the nuclear material for the purpose of this Agreement, and the probable date on which that point will be reached; and
 - (iii) The expected date of arrival, the location where, and the date on which, the nuclear material is intended to be unpacked.

Article 96

The notification referred to in Article 95 shall be such as to enable the Agency to make, if necessary, an ad hoc inspection to identify, and if possible verify the quantity and composition of, the nuclear material transferred into the States, except for transfers within the Community, at the time the consignment is unpacked. However, unpacking shall not be delayed by any action taken or contemplated by the Agency pursuant to such a notification.

Article 97

Special reports

The Community shall make a special report as envisaged in Article 68 if any unusual incident or circumstances lead the Community to believe that there is or may have been loss of nuclear material, including the occurrence of significant delay, during a transfer into or out of the States.

DEFINITIONS

Article 98

For the purposes of this Agreement:

1. A. Community means both:

- (a) The legal person created by the Treaty establishing the European Atomic Energy Community (EURATOM), Party to this Agreement; and
- (b) The territories to which the EURATOM Treaty applies.

B. States means the non-nuclear-weapon States Members of the Community, Party to this Agreement.

2. A. Adjustment means an entry into an accounting record or a report showing a shipper/receiver difference or material unaccounted for.
- B. Annual throughput means, for the purposes of Articles 79 and 80, the amount of nuclear material transferred annually out of a facility working at nominal capacity.
- C. Batch means a portion of nuclear material handled as a unit for accounting purposes at a key measurement point and for which the composition and quantity are defined by a single set of specifications or measurements. The nuclear material may be in bulk form or contained in a number of separate items.
- D. Batch data means the total weight of each element of nuclear material and, in the case of plutonium and uranium, the isotopic composition when appropriate. The units of account shall be as follows:
- (a) Grams of contained plutonium;
 - (b) Grams of total uranium and grams of contained uranium-235 plus uranium-233 for uranium enriched in these isotopes; and
 - (c) Kilograms of contained thorium, natural uranium or depleted uranium.
- For reporting purposes the weights of individual items in the batch shall be added together before rounding to the nearest unit.
- E. Book inventory of a material balance area means the algebraic sum of the most recent physical inventory of that material balance area and of all inventory changes that have occurred since that physical inventory was taken.
- F. Correction means an entry into an accounting record or a report to rectify an identified mistake or to reflect an improved measurement of a quantity previously entered into the record or report. Each correction must identify the entry to which it pertains.
- G. Effective kilogram means a special unit used in safeguarding nuclear material. The quantity in effective kilograms is obtained by taking:
- (a) For plutonium, its weight in kilograms;
 - (b) For uranium with an enrichment of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its enrichment;
 - (c) For uranium with an enrichment below 0.01 (1%) and above 0.005 (0.5%), its weight in kilograms multiplied by 0.0001; and
 - (d) For depleted uranium with an enrichment of 0.005 (0.5%) or below, and for thorium, its weight in kilograms multiplied by 0.00005.
- H. Enrichment means the ratio of the combined weight of the isotopes uranium-233 and uranium-235 to that of the total uranium in question.
- I. Facility means:
- (a) A reactor, a critical facility, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation; or
 - (b) Any location where nuclear material in amounts greater than one effective kilogram is customarily used.
- J. Inventory change means an increase or decrease, in terms of batches, of nuclear material in a material balance area; such a change shall involve one of the following:

(a) Increases:

- (i) Import;
- (ii) Domestic receipt: receipts from within the States: from other material balance areas; from a non-safeguarded (non-peaceful) activity; at the starting point of safeguards;
- (iii) Nuclear production: production of special fissionable material in a reactor; and
- (iv) De-exemption: reapplication of safeguards on nuclear material previously exempted therefrom on account of its use or quantity.

(b) Decreases:

- (i) Export;
- (ii) Domestic shipment: shipments within the States to other material balance areas or for a non-safeguarded (non-peaceful) activity;
- (iii) Nuclear loss: loss of nuclear material due to its transformation into other element(s) or isotope(s) as a result of nuclear reactions;
- (iv) Measured discard: nuclear material which has been measured, or estimated on the basis of measurements, and disposed of in such a way that it is not suitable for further nuclear use,
- (v) Retained waste: nuclear material generated from processing or from an operational accident, which is deemed to be unrecoverable for the time being but which is stored;
- (vi) Exemption: exemption of nuclear material from safeguards on account of its use or quantity; and
- (vii) Other loss: for example, accidental loss (that is, irretrievable and inadvertent loss of nuclear material as the result of an operational accident) or theft.

K. Key measurement point means a location where nuclear material appears in such a form that it may be measured to determine material flow or inventory. Key measurement points thus include, but are not limited to, the inputs and outputs (including measured discards) and storages in material balance areas.

L. Man-year of inspection means, for the purposes of Article 80, 300 man-days of inspection, a man-day being a day during which a single inspector has access to a facility at any time for a total of not more than eight hours.

M. Material balance area means an area in or outside of a facility such that:

- (a) The quantity of nuclear material in each transfer into or out of each material balance area can be determined; and
- (b) The physical inventory of nuclear material in each material balance area can be determined when necessary in accordance with specified procedures,

in order that the material balance for Agency safeguards purposes can be established.

N. Material unaccounted for means the difference between book inventory and physical inventory.

O. Nuclear material means any source or any special fissionable material as defined in Article XX of the Statute. The term "source material" shall not be interpreted as applying to ore or ore residue. Any determination by the Board under Article XX of the Statute after the entry into force of this Agreement which adds to

the materials considered to be source material or special fissionable material shall have effect under this Agreement only upon acceptance by the Community and the States.

- P. Physical inventory means the sum of all the measured or derived estimates of batch quantities of nuclear material on hand at a given time within a material balance area, obtained in accordance with specified procedures.
- Q. Shipper/receiver difference means the difference between the quantity of nuclear material in a batch as stated by the shipping material balance area and as measured at the receiving material balance area.
- R. Source data means those data, recorded during measurement or calibration or used to derive empirical relationships, which identify nuclear material and provide batch data. Source data may include, for example, weight of compounds, conversion factors to determine weight of element, specific gravity, element concentration, isotopic ratios, relationship between volume and manometer readings and relationship between plutonium produced and power generated.
- S. Strategic point means a location selected during examination of design information where, under normal conditions and when combined with the information from all strategic points taken together, the information necessary and sufficient for the implementation of safeguards measures is obtained and verified; a strategic point may include any location where key measurements related to material balance accountancy are made and where containment and surveillance measures are executed.

PROTOCOL

Article 1

This Protocol amplifies certain provisions of the Agreement and, in particular, specifies the conditions and means according to which co-operation in the application of the safeguards provided for under the Agreement shall be implemented in such a way as to avoid unnecessary duplication of the Community's safeguards activities.

Article 2

The Community shall collect the information on facilities and on nuclear material outside facilities to be provided to the Agency under the Agreement on the basis of the agreed indicative questionnaire annexed to the Subsidiary Arrangements.

Article 3

The Agency and the Community shall carry out jointly the examination of design information provided for in Article 46(a) to (f) of the Agreement and shall include the agreed results thereof in the Subsidiary Arrangements. The verification of design information provided for in Article 48 of the Agreement shall be carried out by the Agency in co-operation with the Community.

Article 4

When providing the Agency with the information referred to in Article 2 of this Protocol, the Community shall also transmit information on the inspection methods which it proposes to use and the complete proposals, including estimates of inspection efforts for the routine inspection activities, for Attachments to the Subsidiary Arrangements for facilities and material balance areas outside facilities.

Article 5

The preparation of the Attachments to the Subsidiary Arrangements shall be performed together by the Community and the Agency.

Article 6

The Community shall collect the reports from the operators, keep centralised accounts on the basis of these reports and proceed with the technical and accounting control and analysis of the information received.

Article 7

Upon completion of the tasks referred to in Article 6 of this Protocol the Community shall, on a monthly basis, produce and provide the Agency with the inventory change reports within the time limits specified in the Subsidiary Arrangements.

Article 8

Further, the Community shall transmit to the Agency the material balance reports and physical inventory listings with frequency depending on the frequency of physical inventory taking as specified in the Subsidiary Arrangements.

Article 9

The form and format of reports referred to in Articles 7 and 8 of this Protocol, as agreed between the Agency and the Community, shall be specified in the Subsidiary Arrangements.

Article 10

The routine inspection activities of the Community and of the Agency, including the inspections referred to in Article 84 of the Agreement, for the purposes of the Agreement, shall be co-ordinated pursuant to the provisions of Articles 11 to 23 of this Protocol.

Article 11

Subject to Articles 79 and 80 of the Agreement, in determining the actual number, intensity, duration, timing and mode of the Agency inspections in respect of each facility, account shall be taken of the inspection effort carried out by the Community in the framework of its multinational system of safeguards pursuant to the provisions of this Protocol.

Article 12

Inspection efforts under the Agreement for each facility shall be determined by the use of the criteria of Article 81 of the Agreement. Such criteria shall be implemented by using the rules and methods set forth in the Subsidiary Arrangements which have been used for the calculation of the inspection efforts in respect of specific examples attached to the Subsidiary Arrangements. These rules and methods shall be reviewed from time to time, pursuant to Article 7 of the Agreement, to take into account new technological developments in the field of safeguards and experience gained.

Article 13

Such inspection efforts, expressed as agreed estimates of the actual inspection efforts to be applied, shall be set out in the Subsidiary Arrangements together with relevant descriptions of verification approaches and scopes of inspections to be carried out by the Community and by the Agency. These inspection efforts shall constitute, under normal operating conditions and under the conditions set out below, the actual maximum inspection efforts at the facility under the Agreement:

- (a) The continued validity of the information on Community safeguards provided for in Article 32 of the Agreement, as specified in the Subsidiary Arrangements;
- (b) The continued validity of the information provided to the Agency in accordance with Article 2 of this Protocol;
- (c) The continued provision by the Community of the reports pursuant to Articles 60 and 61, 63 to 65 and 67 to 69 of the Agreement, as specified in the Subsidiary Arrangements;
- (d) The continued application of the co-ordination arrangements for inspections pursuant to Articles 10 to 23 of this Protocol, as specified in the Subsidiary Arrangements; and
- (e) The application by the Community of its inspection effort with respect to the facility, as specified in the Subsidiary Arrangements, pursuant to this Article.

Article 14

- (a) Subject to the conditions of Article 13 of this Protocol, the Agency inspections shall be carried out simultaneously with the inspection activities of the Community. Agency inspectors shall be present during the performance of certain of the Community inspections.
- (b) Subject to the provisions of paragraph (a), whenever the Agency can achieve the purposes of its routine inspections set out in the Agreement, the Agency inspectors shall implement the provisions of Articles 74 and 75 of the Agreement through the observation of the inspection activities of the Community inspectors, provided, however, that:
 - (i) With respect to inspection activities of Agency inspectors to be implemented other than through the observation of the inspection activities of the Community inspectors, which can be foreseen, these shall be specified in the Subsidiary Arrangements; and
 - (ii) In the course of an inspection, Agency inspectors may carry out inspection activities other than through the observation of the inspection activities of the Community inspectors where they find this to be essential and urgent, if the Agency could not otherwise achieve the purposes of its routine inspections and this was unforeseeable.

Article 15

The general scheduling and planning of the Community inspections under the Agreement shall be established by the Community in co-operation with the Agency.

Article 16

Arrangements for the presence of Agency inspectors during the performance of certain of the Community inspections shall be agreed in advance by the Agency and the Community for each type of facility, and to the extent necessary, for individual facilities.

Article 17

In order to enable the Agency to decide, based on requirements for statistical sampling, as to its presence at a particular Community inspection, the Community shall provide the Agency with an advance statement of the numbers, types and contents of items to be inspected according to the information available to the Community from the operator of the facility.

Article 18

Technical procedures in general for each type of facility and, to the extent necessary, for individual facilities, shall be agreed in advance by the Agency and the Community, in particular with respect to:

- (a) The determination of techniques for random selection of statistical samples; and
- (b) The checking and identification of standards.

Article 19

The co-ordination arrangements for each type of facility set out in the Subsidiary Arrangements shall serve as a basis for the co-ordination arrangements to be specified in each Facility Attachment.

Article 20

The specific co-ordination actions on matters specified in the Facility Attachments pursuant to Article 19 of this Protocol shall be taken between Community and Agency officials designated for that purpose.

Article 21

The Community shall transmit to the Agency its working papers for those inspections at which Agency inspectors were present and inspection reports for all other Community inspections performed under the Agreement.

Article 22

The samples of nuclear material for the Agency shall be drawn from the same randomly selected batches of items as for the Community and shall be taken together with Community samples, except when the maintenance of or reduction to the lowest practical level of the Agency inspection effort requires independent sampling by the Agency, as agreed in advance and specified in the Subsidiary Arrangements.

Article 23

The frequencies of physical inventories to be taken by facility operators and to be verified for safeguards purposes will be in accordance with those laid down as guidelines in the Subsidiary Arrangements. If additional activities under the Agreement in relation to physical inventories are considered to be essential, they will be discussed in the Liaison Committee provided for in Article 25 of this Protocol and agreed before implementation.

Article 24

Whenever the Agency can achieve the purposes of its ad hoc inspections set out in the Agreement through observation of the inspection activities of Community inspectors, it shall do so.

Article 25

- (a) With a view to facilitating the application of the Agreement and of this Protocol, a Liaison Committee shall be established, composed of representatives of the Community and of the Agency.
- (b) The Committee shall meet at least once a year:
 - (i) To review, in particular, the performance of the co-ordination arrangements provided for in this Protocol, including agreed estimates of inspection efforts;
 - (ii) To examine the development of safeguards methods and techniques; and
 - (iii) To consider any questions which have been referred to it by the periodic meetings referred to in paragraph (c).
- (c) The Committee shall meet periodically at a lower level to discuss, in particular and to the extent necessary, for individual facilities, the operation of the co-ordination arrangements provided for in this Protocol, including, in the light of technical and operational developments, up-dating of agreed estimates of inspection efforts with respect to changes in throughput, inventory and facility operational programmes, and the application of inspection procedures in different types of routine inspection activities and in general terms, statistical sampling requirements. Any questions which could not be settled would be referred to the meetings mentioned in paragraph (b).
- (d) Without prejudice to urgent actions which might be required under the Agreement, should problems arise in the application of Article 13 of this Protocol, in particular when the Agency considered that the conditions specified therein had not been met, the Committee would meet as soon as possible at the suitable level in order to assess the situation and to discuss the measures to be taken. If a problem could not be settled, the Committee may make appropriate proposals to the Parties, in particular with the view to modifying the estimates of inspection efforts for routine inspection activities.
- (e) The Committee shall elaborate proposals, as necessary, with respect to questions which require the agreement of the Parties.

DONE at Brussels in duplicate, on the fifth day of April in the year one thousand nine hundred and seventy-three in the English and French languages, both texts being equally authentic.

For the GOVERNMENT OF THE KINGDOM OF BELGIUM:

(signed) J. van der Meulen
Ambassador
Permanent Representative to
the European Communities

For the GOVERNMENT OF THE KINGDOM OF DENMARK:

(signed) Niels Erbslø
Ambassador
Permanent Representative to
the European Communities

For the GOVERNMENT OF THE FEDERAL REPUBLIC OF GERMANY

(signed) Hans-Georg Sachs
Ambassador
Permanent Representative to
the European Communities

For the GOVERNMENT OF IRELAND:

(signed) Sean P. Kennan
Ambassador
Permanent Representative to
the European Communities

For the GOVERNMENT OF THE ITALIAN REPUBLIC:

(signed) Bombassei de Vettor
Ambassador
Permanent Representative to
the European Communities

For the GOVERNMENT OF THE GRAND DUCHY OF LUXEMBOURG:

(signed) J. Dondelinger
Ambassador
Permanent Representative
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For the GOVERNMENT OF THE KINGDOM OF THE NETHERLANDS:

(signed) Sassen
Ambassador
Permanent Representative to
the European Communities

For the EUROPEAN ATOMIC ENERGY COMMUNITY:

(signed) Ralf Dahrendorf
Member of the Commission of
the European Communities

For the INTERNATIONAL ATOMIC ENERGY AGENCY:

(signed) Sigvard Eklund
Director General

THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL

INFCIRC/225/Rev.1

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PREFACE

Physical protection against theft or unauthorized diversion of nuclear materials and against sabotage of nuclear facilities by individuals or groups is acquiring growing importance.

Although the responsibility for the establishment and operation of a comprehensive physical protection system for nuclear materials and facilities within a State rests entirely with the Government of that State, it is not a matter of indifference to other States whether and to what extent that responsibility is being fulfilled. Physical protection therefore has become a matter of international concern and co-operation. The need for international co-operation becomes evident in situations where the effectiveness of physical protection in one State depends on the taking of adequate measures also by other States to deter or defeat hostile actions against nuclear facilities and materials, particularly when such materials are transported across national frontiers.

The IAEA has recognized that it may be called upon to play a role in promoting the physical protection of nuclear materials and facilities. The first efforts resulted in the publication in 1972 of "Recommendations for the Physical Protection of Nuclear Material" which was prepared by a panel of experts convened by the Director General. These recommendations were revised by a group of experts in co-operation with the IAEA Secretariat and published in 1975 in the INFCIRC series. This publication¹ has been favourably received by Member States.

At its nineteenth Regular Session in 1975 the General Conference² in a measure of endorsement noted with satisfaction the publication of the booklet entitled "The Physical Protection of Nuclear Material"³ containing "recommendations and explanations as to

¹ Subsequently issued as document INFCIRC/225(Corrected).

² Resolution GC(XIX)/RES/328.

what can be done by Member States to establish their national systems for the physical protection of nuclear facilities and materials or to improve the quality and effectiveness of such systems.” The Resolution also welcomed the intention of the Director General “to review and bring up to date those recommendations regularly to reflect advances made in the state of the art or the introduction of new types of facilities.”

The Advisory Group on Physical Protection of Nuclear Material convened by the Director General³ in February 1977 indicated certain modifications which should be incorporated in the text of document INFCIRC/225(Corrected) to clarify the aims of the document. These modifications mainly concern the table on the categorization of nuclear material and have been introduced into this revised edition.

The recommendations as presented in this IAEA document reflect a broad consensus among Member States on the desirable requirements of physical protection of nuclear material. It is hoped that they will provide helpful guidance for Member States.

Sigvard Eklund
Director General

³ Experts and observers from following countries took part in the meeting of the Advisory Group on Physical Protection of Nuclear Material in Vienna from 28 February to 4 March 1977: Austria, Australia, Canada, Egypt, France, the Federal Republic of Germany, the German Democratic Republic, India, Iran, Japan, Pakistan, Sweden, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

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7. DEFINITIONS

1. INTRODUCTION

1.1. The measures for the physical protection of nuclear material in use, transit and storage presented herein are recommended for use by States as required in their physical protection systems.

1.2. The State's physical protection system should take into account the existing and relevant measures of the State's system of accounting for and control of nuclear material¹. The recommended physical protection measures are intended for all nuclear facilities and shipments. It is recognized, however, that research type facilities outside the nuclear fuel cycle and corresponding shipments may not be able to meet the recommendations. In such cases the State's physical protection system may make specific exceptions on a case-by-case basis.

1.3. The recommended measures are in all cases additional to, and not a substitute for, other measures established for safety purposes for nuclear material in use, transit and storage.

1.4. The recommended measures are based on the current state of the art in physical protection hardware and systems and on current types of nuclear facilities. It is essential that they be reviewed and updated from time to time to reflect advances made in the state of the art or introduction of new types of facilities. Further, the design of a physical protection system for a specific facility is expected to vary from these recommendations when prevailing circumstances indicate a need for a different level of physical protection.

¹ See The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, para.7 (INFCIRC/153 (Corrected)).

2. OBJECTIVES

2.1. The objectives of the State's physical protection system should be:

- (a) To establish conditions which would minimize the possibilities for unauthorized removal of nuclear material or for *sabotage*², and
- (b) To provide information and technical assistance in support of rapid and comprehensive measures by the State to locate and recover missing nuclear material.

2.2 The objectives of the Agency are:

- (a) To provide a set of recommendations on requirements for the physical protection of nuclear material in use, transit and storage. The recommendations are provided for consideration by the competent authorities in the States. Such recommendations provide guidance but are not mandatory upon a State and do not infringe the sovereign rights of States; and
- (b) To be in a position to give advice to a State's authorities in respect of their physical protection systems at the request of the State. The intensity and the form of assistance required are, however, matters to be agreed upon between the State and the Agency.

It should be noted that the Agency has no responsibility either for the provision of a State's physical protection system or for the supervision, control or implementation of such a system. The Agency may informally advise the State on results of observations made during its normal safeguards activities³. Further assistance by the Agency will be provided only when so requested by the State.

3. ELEMENTS OF A STATE'S SYSTEM OF PHYSICAL PROTECTION OF NUCLEAR MATERIAL

3.1. GENERAL

3.1.1. A State's system of physical protection of nuclear material should include the elements described in Sections 3.2.—3.4. below.

3.2. REGULATIONS

3.2.1. Responsibility, authority and sanctions

3.2.1.1. The responsibility for the establishment, implementation and maintenance of a physical protection system within a State rests entirely with that State.

3.2.1.2. The State should promulgate and review regularly its comprehensive regulations for the physical protection of nuclear material whether in State or private possession.

3.2.1.3. If the elements of the State's system of physical protection are divided between

² Terms in *italics* are defined in Section 7 below.

³ Document INFCIRC/153, para.68 provides that a State shall make special reports to the Agency without delay in the case of possible loss of nuclear material within the State. Similarly para.97 provides for reporting to the Agency in case of possible loss of nuclear material during international transfers. Corresponding provisions are included in safeguards agreements between the Agency and States which are not based upon this document (see document INFCIRC/66/Rev.2, para.42).

two or more authorities, arrangements should be made for overall co-ordination. A State can delegate the administration of physical protection measures either to a national body, or to duly authorized persons. It will be implicit in case of delegation that the State has satisfied itself that the physical protection arrangements conform to the requirements laid down by the State. The duly authorized persons should be fully responsible for the continuing confirmation of complete compliance with the physical protection measures.

3.2.1.4. In the case of international transfer of nuclear material the responsibility for physical protection measures should be the subject of agreement between the States concerned.

3.2.1.5. Sanctions are not in themselves a necessary part of a State's physical protection system; they can, however, provide support to it.

3.2.2. Licensing

3.2.2.1. The State should license activities only when they comply with its physical protection regulations. It should be noted that other regulations such as those relating to radiological safety may also apply.

3.2.3. Categorization of nuclear material

3.2.3.1. The State should regulate the categorization of nuclear material in order to ensure an appropriate relationship between the material concerned and the protective measures. This categorization should be based on the potential hazard of the material, which itself depends on: the type of material, i.e. plutonium, uranium, thorium; isotopic composition, i.e. content of fissile isotopes; physical and chemical form; radiation level; and quantity.

3.2.4. Physical protection requirements for nuclear material in use, transit and storage

3.2.4.1. The regulations should define requirements for the physical protection of nuclear material in use, transit and storage. They should take into account the category of nuclear material, its location (use, transit, storage) and the particular circumstances prevailing either in the State or along the transportation route.

3.2.5. System of information

3.2.5.1. The State's system of physical protection should include an information system which enables the State to be informed of any change at nuclear sites or transportation of nuclear material which may affect implementation of physical protection measures.

3.2.5.2. In addition, the State's physical protection system should have access to information from the State's system of accounting for and control of nuclear material.

3.3. IMPLEMENTATION OF THE PHYSICAL PROTECTION MEASURES PRESCRIBED BY THE REGULATIONS

3.3.1. Physical protection measures can be implemented by the State itself, the operator or any other entity duly authorized by the State.

3.4. CONTROL OF COMPLIANCE WITH THE PRESCRIBED PHYSICAL PROTECTION MEASURES

3.4.1. The State's system of physical protection should make provisions for periodic review of the licensed activities, and whenever a significant change takes place, to ensure continuous compliance with physical protection regulations.

4. ASSIGNMENT OF NUCLEAR ACTIVITIES TO PHYSICAL PROTECTION CATEGORIES

4.1. BASIS FOR CONCERN

4.1.1. The possibility exists that the theft of plutonium, highly enriched uranium or uranium-233 could lead to the construction of a nuclear explosive device by a technically competent group. The theft of plutonium or other radioactive materials could also lead to the use of these materials as radiological contaminants. Finally, one or more individuals could carry out an act of *sabotage* against a facility involved in the nuclear fuel cycle or against a shipment of nuclear material in such a manner as to create a radiological hazard to the public. None of these possibilities can, however, be quantitatively assessed.

4.2. ATTRACTIVENESS OF NUCLEAR MATERIAL FOR UNAUTHORIZED REMOVAL AND OF FACILITIES FOR *SABOTAGE*

4.2.1. There are several kinds of facilities to be examined. Fuel fabrication facilities, reactors, and fuel reprocessing facilities, as examples, are discussed below.

4.2.2. Fuel fabrication facilities, to the extent that they process low-enriched fuel elements, do not contain nuclear material of great attractiveness to a potential thief. Such material cannot be used to fabricate a nuclear explosive device nor can it be used effectively as a medium of dispersing radioactivity. Additionally, *sabotage* to such facilities does not have the potential of creating a serious radiological hazard to the public. However, when such facilities use highly enriched uranium for fabricating fuel elements, the material becomes highly attractive to a potential thief as the basis for fabrication of a nuclear explosive device. When the facility processes plutonium fuel, the material is very attractive to a potential thief both for fabricating a nuclear explosive device and also for making a radiological dispersal device. Additionally, *sabotage* of a facility having plutonium material in process does have a potential for serious radiological hazard to the public.

4.2.3. At power reactors using natural or low-enriched uranium fuel only, the principal attractiveness relates only to possible *sabotage*, which could prove a radiological hazard to the public.

4.2.4. At power reactors using plutonium or highly enriched uranium fuel, the fuel material is attractive to a potential thief only before it is sealed in the reactors.

4.2.5. In reprocessing facilities the product end of the operation contains those materials which are particularly attractive to a potential thief. The entire facility is an attractive target to a saboteur.

4.3. CATEGORIZATION OF NUCLEAR MATERIAL FOR PROTECTIVE PURPOSES

4.3.1. The mechanism for determining the physical protection measures necessary for different types of facilities in the nuclear fuel cycle uses the nuclear material itself as the basis of the control. The nuclear material should be categorized in accordance with the indications given in Section 3.2.3.1. above in order to determine the physical protection category in a facility, which may consist of several buildings. It is possible that the State's physical protection authority may identify a single building which is part of the facility and which serves, e.g., as a laboratory, in a lower category than the remaining buildings in the facility.

4.3.2. The State's physical protection authority should assess the threat situation in the State and take account of the location and safety design of the facility for which categorization would be made and for which a physical protection system would be developed.

4.3.3. The table overleaf gives a categorization of the different types of nuclear material taking into account the above considerations. This categorization has been used throughout this document.

TABLE: CATEGORIZATION OF NUCLEAR MATERIAL^e

Material	Form	Category		
		I	II	III
1. Plutonium ^{a,f}	Unirradiated ^b	2 kg or more	Less than 2 kg but more than 500 g	500 g or less ^c
2. Uranium-235 ^d	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 ^c
	— uranium enriched to 10% ²³⁵ U but less than 20%	—	10 kg or more	Less than 10 kg ^c
	— uranium enriched above natural, but less than 10% ²³⁵ U	—	—	10 kg or more
3. Uranium-233	Unirradiated ^b	2 kg or more	Less than 2 kg but more than 500 g	500 g or less ^c

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

^b 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.

^c Less than a radiologically significant quantity should be exempted.

^d Natural uranium, depleted uranium and thorium and quantities of uranium enriched to less than 10% not falling in Category III should be protected in accordance with prudent management practice.

^e Irradiated fuel should be protected as Category I, II or III nuclear material depending on the category of the fresh fuel. However, fuel which by virtue of its original fissile material content is included as Category I or II before irradiation should only be reduced one Category level, while the radiation level from the fuel exceeds 100 rads/h at one meter unshielded.

^f The State's competent authority should determine if there is a credible threat to disperse plutonium malevolently. The State should then apply physical protection requirements for category I, II or III of nuclear material, as it deems appropriate and without regard to the plutonium quantity specified under each category herein, to the plutonium isotopes in those quantities and forms determined by the State to fall within the scope of the credible dispersal threat.

5. REQUIREMENTS FOR PHYSICAL PROTECTION OF NUCLEAR MATERIAL IN USE AND STORAGE

5.1. GENERAL

5.1.1. The concept of physical protection is one which requires a designed mixture of hardware (security devices), procedures (including the organization of guards and the performance of their duties) and facility design (including layout). The physical protection system is designed specifically for each facility after taking into account the geographical location and the State's assessment of the threat.

5.1.2. Achievement of the objectives of the physical protection system should be assisted by:

- (a) Limiting access to nuclear material or facilities to a minimum number of individuals. To accomplish this aim the State's physical protection authority can designate special areas as vital areas. A vital area is an area of a plant or a facility which is potentially vulnerable to *sabotage* with consequences of radiation exposure to the public. In designating such areas, consideration should be given to the plant safety design, the location of the plant and the *sabotage* threat circumstances. Access to vital areas should be limited and controlled; and
- (b) Requiring predetermination of the trustworthiness of all individuals regularly permitted access to nuclear material or facilities.

5.2. REQUIREMENTS FOR CATEGORY I MATERIAL IN USE AND STORAGE

5.2.1. Category I material should be used or stored within an inner area which is within a *protected area*.

5.2.2. All persons entering the *protected area* should be issued either with special passes or with badges, appropriately registered, and access to the *protected area* should be kept to the minimum necessary.

5.2.3. Access to inner areas should be limited to persons whose trustworthiness has been predetermined and to persons in their escort. Access to inner areas should be kept to the minimum necessary.

5.2.4. Badging of persons entering *protected* or inner areas should follow the general outline below:

- Type I: Employees whose duties permit or require continual access to inner areas.
- Type II: Other employees who are permitted access to the *protected area*.
- Type III: Temporary repair, service or construction workmen should be escorted by a Type I badged employee at all times when they may have access to inner areas, and by a Type II badged employee when they have access to *protected areas*.
- Type IV: Visitors should be escorted by a Type II badged employee at all times in the *protected area*, and by a Type I badged employee when they have access to inner areas.

Visitor-escort ratios should be limited. Passes and badges should be designed so as to make counterfeiting extremely difficult.

5.2.5. All persons and packages entering or leaving inner areas should be subject to search

to prevent the introduction of articles of *sabotage* or the unauthorized removal of nuclear material. Instruments for the detection of nuclear material and metals can be used for such searches.

5.2.6. Entry of private motor vehicles into *protected areas* should be minimized and limited to authorized parking areas. Private motor vehicles should be prohibited from inner areas.

5.2.7. Whenever persons are present in inner areas, those areas should be under constant *surveillance*. The *surveillance* can be effected by mutual observation between two or more co-workers (e.g. two-man rule).

5.2.8. All employees should be frequently (about annually) informed of the importance of effective physical protection measures and be trained in their implementation. Notices on the subject should be conspicuously posted throughout the facility.

5.2.9. Every nuclear material handler should be required to conform to procedures for transferring custody of the nuclear material to the succeeding handler. Additionally, nuclear material handlers should endeavour to ascertain on reporting for duty that no interference with or unauthorized removal of nuclear material has taken place, and report to a senior authority whenever they have reason to suspect that a discrepancy exists.

5.2.10. A record should be kept of all persons having access to or possession of keys or key-cards concerned with the containment or storage of nuclear material. Arrangements should be made for:

- (a) The checking and custody of keys or key-cards, particularly to minimize the possibility of duplication; and
- (b) The changing of combination settings at suitable intervals.

Locks should be changed when compromised.

5.2.11. Movements of nuclear material within the inner area and the *protected area* should be the responsibility of the operator who should apply all prudent and necessary physical protection measures. Movements out of or between two *protected areas* should be treated in full compliance with the requirements for nuclear material in transit, after taking account of prevailing conditions.

5.2.12. The perimeter of the *protected area* should normally consist of a *physical barrier* in addition to and outside of the building walls. However, where the walls of a building are of such solid construction as to be designated, as a result of a *security survey*, as being the perimeter of a *protected area*, a supplementary *surveillance* system should be provided outside the building walls. Clear areas should be provided at the perimeter of the *protected area* with illumination sufficient for observation.

5.2.13. Inner areas should be so arranged that the number of entries and exits is minimized (ideally only one). All emergency exits should be fitted with *alarms*. All external windows should be permanently locked, alarmed and covered with firmly embedded bars. Inner areas should not be sited close to public thoroughfares.

5.2.14. Storage areas should be of the "strong room" type in design and should be located within an inner area. They should be provided with *alarms* and adequate locks and the issue of keys or key-cards should be closely controlled. Access to storage should be strictly limited to assigned persons and to others only when under their escort. Where nuclear material is stored overnight in work areas, or in a sub-storage structure within a work area, specially authorized procedures should be used to protect the area. *Alarms*, *patrols* or TV monitors can satisfy this requirement.

5.2.15. A 24-hour guarding service should be provided. The *guard* should report at

scheduled intervals to local police or other public security forces during non-working hours. If *guards* are not armed appropriate arrangements should be made by the State for adequately armed external emergency teams to arrive rapidly enough to counter armed attack.

5.2.16. An external and an internal *patrol* should be provided.

5.2.17. Independent duplicated transmission systems for two-way voice communication should be provided for activities involving detection, assessment and response. This should include links between *guards*, their headquarters and reserve forces.

5.2.18. Independent duplicated transmission systems, including independent power supplies, should be provided between the sensors and display areas (audible and/or visual) of *alarms*.

5.2.19. Emergency plans of action should be prepared to counter effectively any possible threats, including attempted unauthorized removal of nuclear material or *sabotage*. Such plans should provide for the training of facility personnel in their actions in case of alarm or emergency. In addition, personnel trained in the facility should be prepared to meet all necessary demands of physical protection and recovery of nuclear material and should act in full co-ordination with external emergency teams and safety response teams, who should also be appropriately trained.

5.2.20. Arrangements should be made to ensure that during emergency evacuation conditions (including drills) nuclear material is not removed in an unauthorized manner. Such unauthorized removal can be prevented by, for example, keeping persons under continuous *surveillance* and searching them. Instruments for the detection of nuclear material and metals can be used for such searches.

5.2.21. A *security survey* should be made at least annually (or whenever a significant change in the facility, or its function, takes place) by the State's designated physical protection authority to evaluate the effectiveness of the physical protection measures, and to identify necessary changes in measures so as to optimize their effectiveness in particular situations at the facility. Furthermore, plant operators should maintain checks on the efficient functioning of the physical protection measures.

5.3. REQUIREMENTS FOR CATEGORY II MATERIAL IN USE AND STORAGE

5.3.1. Category II material should be used, or stored within a *protected area*.

5.3.2. All persons entering the *protected area* should be issued either with special passes or with badges, appropriately registered, and access to the *protected area* should be kept to the minimum necessary.

5.3.3. Access to the *protected area* should be limited to persons whose trustworthiness has been predetermined and to persons in their escort.

5.3.4. Badging should follow the general outline below:

Type I: Employees whose duties permit continual access to the *protected area*.

Type II: Temporary repair, service or construction workmen and visitors; these should be escorted by a Type I badged employee at all times when they may have access to the *protected area* (except where their trustworthiness has been predetermined).

Visitor-escort ratios should be limited. Passes and badges should be designed so as to make counterfeiting extremely difficult.

5.3.5. From time to time persons and packages entering or leaving the *protected area* should be searched.

5.3.6. Vehicles and all large objects entering the *protected area* should be checked to ensure that no unauthorized persons and articles of *sabotage* are introduced.

5.3.7. Entry of private motor vehicles into the *protected area* should be minimized and limited to authorized parking areas.

5.3.8. All employees should be frequently (about annually) informed of the importance of effective physical protection measures and be trained in their implementation. Notices on the subject should be conspicuously posted throughout the facility.

5.3.9. Every nuclear material handler should be required to conform to procedures for transferring custody of the nuclear material to the succeeding handler. Additionally, nuclear material handlers should endeavour to ascertain on reporting for duty that no interference with or unauthorized removal of nuclear material has taken place, and report to a senior authority whenever they have reason to suspect that a discrepancy exists.

5.3.10. A record should be kept of all persons having access to or possession of keys or key-cards concerned with the containment or storage of nuclear material. Arrangements should be made for:

- (a) The checking and custody of keys or key-cards, particularly to minimize the possibility of duplication; and
- (b) The changing of combination settings at suitable intervals.

Locks should be changed when compromised.

5.3.11. Movements of nuclear material within a *protected area* should be the responsibility of the operator who should apply all prudent and necessary physical protection measures. Movements out of or between two *protected areas* should be treated in full compliance with the requirements for nuclear material in transit, after taking account of prevailing conditions.

5.3.12. The perimeter of the *protected area* should normally consist of a *physical barrier* in addition to and outside of the building walls. However, where the walls of a building are of such solid construction as to be designated, as a result of a *security survey*, as being the perimeter of a *protected area*, a supplementary *surveillance* system should be provided outside the building walls. Clear areas should be provided at the perimeter of the *protected area* with illumination sufficient for observation.

5.3.13. Emergency plans of action should be prepared to counter effectively any possible threats, including attempted unauthorized removal of nuclear material or *sabotage*. Such plans should provide for the training of facility personnel in their actions in case of alarm or emergency. They should also provide for appropriate response by *guards* or off-site emergency teams to attempted intrusion into the *protected area*. In addition, personnel trained in the facility should be prepared to meet all necessary demands of physical protection and recovery of nuclear material and should act in full co-ordination with external emergency teams and safety response teams, who should also be appropriately trained.

5.3.14. Arrangements should be made to ensure that during emergency evacuation conditions (including drills) nuclear material is not removed in an unauthorized manner. Such unauthorized removal may be prevented by, for example, keeping persons under continuous *surveillance* and searching them. Instruments for the detection of nuclear material and metals can be used for such searches.

5.3.15. A *security survey* should be made at least annually (or whenever a significant change in the facility or its function takes place) by the State's designated physical protection authority to evaluate the effectiveness of the physical protection measures, and to identify necessary changes in measures so as to optimize their effectiveness in particular

situations at the facility. Furthermore, plant operators should maintain checks on the efficient functioning of the physical protection measures.

5.4. REQUIREMENTS FOR CATEGORY III MATERIAL IN USE AND STORAGE

5.4.1. Category III material should be used or stored within an area to which access is controlled.

5.4.2. All employees should be frequently (about annually) informed of the importance of effective physical protection measures and be trained in their implementation. Notices on the subject should be conspicuously posted throughout the facility.

5.4.3. Movements of nuclear material should be the responsibility of the operator, who should apply all prudent and necessary physical protection measures.

5.4.4. Provision should be made for detecting unauthorized intrusion and for appropriate action by *guards* or off-site emergency teams to attempted intrusions.

5.4.5. Emergency plans of action should be prepared to counter effectively any possible threats, including attempted unauthorized removal of nuclear material or *sabotage*. Such plans should provide for the training of facility personnel in their actions in case of alarm or emergency. They should also provide for appropriate response by *guards* or off-site emergency teams to attempted intrusion.

5.4.6. A *security survey* should be made initially and whenever a significant change in the facility or its function takes place by the State's designated physical protection authority to evaluate the effectiveness of the physical protection measures, and to identify necessary changes in measures so as to optimize their effectiveness in particular situations at the facility. Furthermore, plant operators should maintain checks on the efficient functioning of the physical protection measures.

6. REQUIREMENTS FOR PHYSICAL PROTECTION OF NUCLEAR MATERIAL IN TRANSIT

6.1. GENERAL

6.1.1. The transport of nuclear material is probably the operation most vulnerable to an attempted act of unauthorized removal of nuclear material or *sabotage*. Therefore it is important that the protection provided should be "in depth" and that particular attention should be given to the recovery system.

6.1.2. Achievement of the objectives of physical protection should be assisted by:

- (a) Minimizing the total time during which the nuclear material remains in transit;
- (b) Minimizing the number and duration of nuclear material transfers, i.e. transfer from one conveyance to another, transfer to and from temporary storage and temporary storage while awaiting the arrival of a vehicle, etc.;
- (c) Avoiding the use of regular movement schedules; and
- (d) Requiring predetermination of the trustworthiness of all individuals involved in transport of nuclear material.

6.1.3. Transit operations should not be advertised if this could lead to a decrease in the degree of physical protection. This requires great restraint in the use of any special marking on vehicles, and also in the use of open channels for transmission of messages concerning shipments of nuclear material. When a message is required by safeguards or

radiological safety regulations, consideration should be given to measures such as coding and appropriate routing to the extent practicable; care should be exercised in the handling of such information. These considerations should apply also to any subsequent communications.

6.2. REQUIREMENTS FOR CATEGORY I MATERIAL IN TRANSIT

6.2.1. Advance notification to receiver

6.2.1.1. The shipper should give the receiver advance notification of the planned shipment specifying the mode of transport (road/rail/sea/air), the estimated time of arrival of the shipment and the exact point of handover if this is to be done at some intermediate point before the ultimate destination.

6.2.1.2. The receiver should confirm his readiness to accept delivery immediately (and hand-over, if applicable) at the expected time, prior to commencement of the shipment.

6.2.2. Advance authorization

6.2.2.1. In cases where physical protection is adequately covered by regulations, advance authorization for routine shipments is not required.

6.2.2.2. In all cases not covered by existing regulations, of going beyond limits specified in such regulations, the consent of a national control authority to a transport operation should be sought in advance. This implies the performance of a *security survey* in advance. The consent to a transport operation can include specific limitations and conditions related to the particular circumstances and to whatever emergency plans have been prepared.

6.2.3. Selection of transportation and routing

6.2.3.1. In choosing the route, consideration should be given to the security of passage, in particular, arranging the route in such a way as to avoid areas of natural disasters or civil disorders. The mode of transport for any given consignment should be such as to keep to a minimum the number of cargo transfers and the length of time the cargo remains in transit. The co-operation of the carrier concerning the implementation of physical protection measures should be ensured in advance.

6.2.3.2. Before shipment the shipper should ensure that the arrangements are in accordance with the physical protection regulations of the receiving State and of other States which are transited.

6.2.4. Provision of locks and seals

6.2.4.1. Unless there are overriding safety considerations, the packages containing nuclear material should be carried in closed, locked vehicles, compartments or freight containers. However, carriage of packages weighing more than 2000 kg that are locked or sealed should be allowed in open vehicles. Subject to safety considerations, the package should be tied down or attached to the vehicle or freight container.

6.2.4.2. Checks should be made before despatch to confirm the integrity of the locks and seals on the package, vehicle, compartment or freight container.

6.2.5. Search of load vehicle

6.2.5.1. There should be a detailed search of the load vehicle prior to loading and shipment, to ensure that *sabotage* devices have not been implanted or that *sabotage* has not been initiated.

6.2.6. Written instructions

6.2.6.1. Transport authorities with physical protection responsibilities in transit should

be given written instructions detailing their responsibilities and should be provided with a standard form of written authority.

6.2.6.2. Transport authorities should be consulted on the route, approved stopping places, destination hand-over arrangements, identification of persons authorized to take delivery, accident procedures, and reporting procedures, both routine and emergency.

6.2.7. Measures after shipment

6.2.7.1. The receiver should check the integrity of the packages, locks and seals and accept the shipment immediately upon arrival. He should notify the shipper of the arrival of the shipment immediately or of non-arrival within a reasonable interval after the estimated time of arrival at its destination. In addition, the *escort* or *guard* should be instructed to report by radio or telephone to the shipper or shipper/receiver designee his arrival at his destination and each overnight stopping place and place of hand-over of the shipment.

6.2.8. Communication

6.2.8.1. Domestic physical protection measures should include provision of continuous two-way radio communication or frequent telephone communication between the vehicle and the shipper, receiver and/or shipper/receiver designee.

6.2.9. Emergency action

6.2.9.1. Arrangements should be made to provide an adequately sized and trained team to deal with domestic emergencies. The emergency teams should reach the scene of an incident in transit either while the act of unauthorized removal of nuclear material or *sabotage* is in process so that they can prevent its successful completion, or immediately after its completion, when the possibility of recovery is most favourable. The emergency teams should be sited at strategic locations within the State.

6.2.10. Escorts or guards

6.2.10.1. *Escorts* or *guards* should accompany each shipment to give the alarm, to expedite handling at transfer points and to help avoid misrouting. The *escorts* or *guards* should ensure continuous *surveillance* in the case of road transport. If the packages, vehicle, cargo hold or compartment are locked and sealed, frequent and periodic examination of seals together with continuous *surveillance* of the cargo hold when the vehicle is not in motion should be allowed in place of package *surveillance*.

6.2.11. Advance agreement on responsibilities for international shipments

6.2.11.1. In the case of transit between two States sharing a common frontier, the State's responsibility for physical protection and the point at which physical protection responsibilities are transferred from one State to another should be the subject of an agreement between the States. However, with respect to the maintenance of communication regarding the continuing integrity of the shipment and with respect to the responsibility for carrying out physical protection measures and the recovery actions in the event that a shipment becomes lost, the agreement between the States should provide that this responsibility will rest with the shipping State up to the frontier and will then be transferred to the receiving State.

6.2.11.2. When international shipments transit the territory of States other than the sending State and the receiving State, the arrangements between the sending and receiving States should identify the other States involved in such transit with a view to securing in advance their co-operation and assistance for adequate physical protection measures and for the recovery actions on the territory of such States in case of loss of an international shipment thereon.

6.2.11.3. States should consider the possibility of establishing a convention whereby they would aid each other in physical protection and in particular in the recovery of nuclear material in cases where such aid were needed.

6.2.12. Arrangements for international transit

6.2.12.1. In addition to the international agreements mentioned above, in contracts or agreements between shippers and receivers involving international transit of material, the point at which responsibility for physical protection is transferred from the shipper to the receiver should be clearly stated.

6.2.12.2. When the contract or agreement involving international transit provides for delivery to a destination in the receiving State in the vehicle of the shipping State, this contract or agreement should provide that information be supplied in time to enable the receiver to make adequate physical protection arrangements.

6.3. REQUIREMENTS FOR CATEGORY I MATERIAL RELATED TO THE MODE OF TRANSPORT

6.3.1. General

6.3.1.1. In addition to the requirements mentioned above, there should be further detailed requirements for Category I material related to the mode of transport as set out below.

6.3.2. Shipment by road

6.3.2.1. The load vehicle should preferably be specially designed to resist attack and also preferably be equipped with a vehicle disabling system.

6.3.2.2. A single designated vehicle should be used exclusively for each consignment (i.e. full load concept). The load vehicle should carry a second man to act as *escort* or *guard* for that vehicle.

6.3.2.3. The load vehicle should be accompanied by a vehicle manned by one or more *guards*.

6.3.2.4. The *guards* should check the seals and locks at each stop and maintain continuous *surveillance* during refreshment stops and the like.

6.3.2.5. If the journey cannot be completed in one day, prior arrangements should be made for overnight stay at an approved stopping place. During such overnight stays the load vehicle should be immobilized or parked in a locked and guarded building or compound.

6.3.2.6. There should be two-way radio communication between the load vehicle and the escort vehicle in addition to communication between these vehicles and the shipper, receiver or shipper/receiver designee.

6.3.2.7. Alternative routing should be planned in advance, so that any decision to change routes can be implemented at short notice.

6.3.3. Shipment by rail

6.3.3.1. Shipment should be in a goods train or in a separate wagon attached to a passenger train.

6.3.3.2. Shipment should be accompanied by one or more *escorts* or *guards*, who should travel in the carriage nearest to the shipment wagon and keep it under *surveillance* and check locks and seals at stopping places. The *escort* or *guard* should maintain communication by two-way radio or by telephone at scheduled stopping places.

6.3.4. Shipment by sea

6.3.4.1. Each shipment should be accompanied by one or more *escorts* or *guards*.

6.3.4.2. The shipment should be placed in a secure compartment or container which is locked and sealed. Locks and seals should be periodically inspected in transit.

6.3.5. Shipment by air

6.3.5.1. Shipment should be by designated charter cargo aircraft or designated scheduled cargo aircraft and should be accompanied by one or more *escorts* or *guards*.

6.4. REQUIREMENTS FOR CATEGORY II MATERIAL IN TRANSIT

6.4.1. Advance notification to receiver

6.4.1.1. The shipper should give the receiver advance notification of the planned shipment specifying the mode of transport (road/rail/sea/air), estimated time of arrival of the shipment and the exact point of hand-over if this is to be done at some intermediate point before the ultimate destination.

6.4.1.2. The receiver should confirm his readiness to accept delivery immediately (and hand-over, if applicable) at the expected time, prior to commencement of shipment.

6.4.2. Selection of transportation and routing

6.4.2.1. In choosing the route, consideration should be given to the security of passage, in particular, arranging the route in such a way as to avoid areas of natural disasters or civil disorders. The transport method for any given consignment should be such as to keep to a minimum the number of cargo transfers and the length of time the cargo remains in transit. The co-operation of the carrier concerning the implementation of physical protection measures should be ensured in advance.

6.4.3. Provision of locks and seals

6.4.3.1. Unless there are overriding safety considerations, the packages containing material should be carried in closed locked vehicles, compartments or freight containers. However, carriage of packages weighing more than 2000 kg that are locked or sealed shall be allowed. Subject to safety considerations, the package should be tied down or attached to the vehicle or freight container.

6.4.3.2. Checks should be made before dispatch to confirm the integrity of the locks and seals on the package, vehicle, compartment or freight container.

6.4.4. Search of load vehicle

6.4.4.1. There should be a detailed search of the load vehicle prior to loading and shipment to ensure that sabotage devices have not been implanted or that *sabotage* has not been initiated.

6.4.5. Written instructions

6.4.5.1. Transport authorities with physical protection responsibilities in transit should be given written instructions detailing their responsibilities and should be provided with a standard form of written authority.

6.4.5.2. Transport authorities should be consulted on the route, approved stopping places, destination hand-over arrangements, identification of persons authorized to take delivery, accident procedures, and reporting procedures, both routine and emergency.

6.4.6. Measures after shipment

6.4.6.1. The receiver should check the integrity of the packages, locks and seals and accept the shipment immediately upon arrival. He should notify the shipper of the arrival of the shipment immediately or of non-arrival within a reasonable interval after the estimated time of arrival at its destination.

6.4.7. Communication

6.4.7.1. Domestic physical protection measures should include provision of frequent telephone communication between the vehicle and the shipper, receiver and/or shipper/receiver designee.

6.4.8. Advance agreement on responsibilities for international shipments

6.4.8.1. In the case of transit between two States sharing a common frontier, the State's responsibility for physical protection and the point at which physical protection responsibilities are transferred from one State to another should be the subject of an agreement between the States. However, with respect to the maintenance of communication regarding the continuing integrity of the shipment and with respect to the responsibility for carrying out physical protection measures and the recovery actions in the event that a shipment becomes lost, the agreement between the States should provide that this responsibility will rest with the shipping State up to the frontier and will then be transferred to the receiving State.

6.4.8.2. When international shipments transit the territory of States other than the sending State and the receiving State, the arrangements between the sending and receiving States should identify the other States involved in such transit with a view to securing in advance their co-operation and assistance for adequate physical protection measures and for the recovery actions on the territory of such States in case of loss of an international shipment thereon.

6.4.8.3. States should consider the possibility of establishing a convention whereby they would aid each other in physical protection and in particular in the recovery of nuclear material in cases where such aid were needed.

6.4.9. Arrangements for international transit

6.4.9.1. In addition to the international agreements mentioned above, in contracts or agreements between shippers and receivers involving international transit of material, the point at which responsibility for physical protection is transferred from the shipper to the receiver should be clearly stated.

6.4.9.2. When the contract or agreement involving international transit provides for delivery to a destination in the receiving State in a vehicle of the shipping State, this contract or agreement should provide that information be supplied in time to enable the receiver to make adequate physical protection arrangements.

6.5. REQUIREMENTS FOR CATEGORY III MATERIAL IN TRANSIT

6.5.1. Advance notification to receiver

6.5.1.1. The shipper should give the receiver advance notification of the planned shipment specifying the mode of transport (road/rail/sea/air), the estimated time of arrival of the shipment and the exact point of hand-over if this is to be done at some intermediate point before the ultimate destination.

6.5.1.2. The receiver should confirm his readiness immediately to accept delivery (and hand-over, if applicable) at the expected time, prior to commencement of the shipment.

6.5.2. Provision of locks and seals

6.5.2.1. Where practicable, locks and seals should be applied to vehicles or freight containers.

6.5.3. Search of load vehicle

6.5.3.1. There should be a detailed search of the load vehicle prior to loading and ship-

ment, to ensure that *sabotage* devices have not been implanted or that *sabotage* has not been initiated.

6.5.4. Measures after shipment

6.5.4.1. The receiver should notify the shipper of the arrival of the shipment immediately or of non-arrival within a reasonable interval after the estimated time of arrival at the destination.

6.5.5. Advance agreement on responsibilities for international shipments

6.5.5.1. In the case of transit between two States sharing a common frontier, the State's responsibility for physical protection and the point at which physical protection responsibilities are transferred from one State to another should be the subject of an agreement between the States. However, with respect to the maintenance of communication regarding the continuing integrity of the shipment and with respect to the responsibility for carrying out physical protection measures and the recovery actions in the event that a shipment becomes lost, the agreement between the States should provide that this responsibility will rest with the shipping State up to the frontier and will then be transferred to the receiving State.

6.5.5.2. When international shipments transit the territory of States other than the sending State and the receiving State, the arrangements between the sending and receiving States should identify the other States involved in such transit with a view to securing in advance their co-operation and assistance for adequate physical protection measures and for the recovery actions on the territory of such States in case of loss of an international shipment thereon.

6.5.5.3. States should consider the possibility of establishing a convention whereby they would aid each other in physical protection and in particular in the recovery of nuclear material in cases where such aid were needed.

7. DEFINITIONS

7.1. *ALARM*: A technical device for the purpose of sensing intrusion or interference. Such a device should be independent of any power supply failure. It should be arranged to signal any interference with its function.

7.2. *ESCORT OR GUARD*: A person for whom a prior trustworthiness determination has been made entrusted with *surveillance* or access control. His duties should be specified by the *security survey*.

7.3. *PATROL*: A person or persons (who may be *guards*) scheduled to inspect barriers, seals or other features at regular or irregular intervals.

7.4. *PHYSICAL BARRIER*: A fence or wall or a similar impediment approved by a *security survey*.

7.5. *PROTECTED AREA*: An area under constant *surveillance* (by a *guard* or by electronic means) surrounded by a *physical barrier* and having a limited number of controlled admittance points and approved by a *security survey*. Where the wall(s) of a building serves as part (or all) of the perimeter of a *protected area*, all emergency exits on the perimeter wall should be alarmed. All perimeter wall windows should be permanently locked, alarmed and covered with firmly embedded bars.

7.6. *SABOTAGE*: Any deliberate act directed against a plant, facility, nuclear material transport vehicle or nuclear material which could directly or indirectly endanger the public health and safety by exposure to radiation.

7.7. *SECURITY SURVEY*: A critical examination made by competent officers, in order to evaluate, approve and specify physical protection measures.

7.8. *SURVEILLANCE*: Close *surveillance* to be achieved by observers, and/or photo electric, closed-circuit television, sonic detectors, electronic, photographic or other means.

A N N E X I

CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL

THE STATES PARTIES TO THIS CONVENTION,

RECOGNIZING the right of all States to develop and apply nuclear energy for peaceful purposes and their legitimate interests in the potential benefits to be derived from the peaceful application of nuclear energy,

CONVINCED of the need for facilitating international co-operation in the peaceful application of nuclear energy,

DESIRING to avert the potential dangers posed by the unlawful taking and use of nuclear material,

CONVINCED that offences relating to nuclear material are a matter of grave concern and that there is an urgent need to adopt appropriate and effective measures to ensure the prevention, detection and punishment of such offences,

AWARE OF THE NEED FOR international co-operation to establish, in conformity with the national law of each State Party and with this Convention, effective measures for the physical protection of nuclear material,

CONVINCED that this Convention should facilitate the safe transfer of nuclear material,

STRESSING also the importance of the physical protection of nuclear material in domestic use, storage and transport,

RECOGNIZING the importance of effective physical protection of nuclear material used for military purposes, and understanding that such material is and will continue to be accorded stringent physical protection,

HAVE AGREED as follows:

Article 1

For the purposes of this Convention:

- (a) "nuclear material" means plutonium except that with isotopic concentration exceeding 80% in plutonium-238; uranium-233; uranium enriched in the isotopes 235 or 233; uranium containing the mixture of isotopes as occurring in nature other than in the form of ore or ore-residue; any material containing one or more of the foregoing;
- (b) "uranium enriched in the isotope 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature;

- (c) "international nuclear transport" means the carriage of a consignment of nuclear material by any means of transportation intended to go beyond the territory of the State where the shipment originates beginning with the departure from a facility of the shipper in that State and ending with the arrival at a facility of the receiver within the State of ultimate destination.

Article 2

1. This Convention shall apply to nuclear material used for peaceful purposes while in international nuclear transport.
2. With the exception of articles 3 and 4 and paragraph 3 of article 5, this Convention shall also apply to nuclear material used for peaceful purposes while in domestic use, storage and transport.
3. Apart from the commitments expressly undertaken by States Parties in the articles covered by paragraph 2 with respect to nuclear material used for peaceful purposes while in domestic use, storage and transport, nothing in this Convention shall be interpreted as affecting the sovereign rights of a State regarding the domestic use, storage and transport of such nuclear material.

Article 3

Each State Party shall take appropriate steps within the framework of its national law and consistent with international law to ensure as far as practicable that, during international nuclear transport, nuclear material within its territory, or on board a ship or aircraft under its jurisdiction insofar as such ship or aircraft is engaged in the transport to or from that State, is protected at the levels described in Annex I.

Article 4

1. Each State Party shall not export or authorize the export of nuclear material unless the State Party has received assurances that such material will be protected during the international nuclear transport at the levels described in Annex I.
2. Each State Party shall not import or authorize the import of nuclear material from a State not party to this Convention unless the State Party has received assurances that such material will during the international nuclear transport be protected at the levels described in Annex I.
3. A State Party shall not allow the transit of its territory by land or internal waterways or through its airports or seaports of nuclear material between States that are not parties to this Convention unless the State Party has received assurances as far as practicable that this nuclear material will be protected during international nuclear transport at the levels described in Annex I.

4. Each State Party shall apply within the framework of its national law the levels of physical protection described in Annex I to nuclear material being transported from a part of that State to another part of the same State through international waters or airspace.

5. The State Party responsible for receiving assurances that the nuclear material will be protected at the levels described in Annex I according to paragraphs 1 to 3 shall identify and inform in advance States which the nuclear material is expected to transit by land or internal waterways, or whose airports or seaports it is expected to enter.

6. The responsibility for obtaining assurances referred to in paragraph 1 may be transferred, by mutual agreement, to the State Party involved in the transport as the importing State.

7. Nothing in this article shall be interpreted as in any way affecting the territorial sovereignty and jurisdiction of a State, including that over its airspace and territorial sea.

Article 5

1. States Parties shall identify and make known to each other directly or through the International Atomic Energy Agency their central authority and point of contact having responsibility for physical protection of nuclear material and for co-ordinating recovery and response operations in the event of any unauthorized removal, use or alteration of nuclear material or in the event of credible threat thereof.

2. In the case of theft, robbery or any other unlawful taking of nuclear material or of credible threat thereof, States Parties shall, in accordance with their national law, provide co-operation and assistance to the maximum feasible extent in the recovery and protection of such material to any State that so requests. In particular:

- (a) a State Party shall take appropriate steps to inform as soon as possible other States, which appear to it to be concerned, of any theft, robbery or other unlawful taking of nuclear material or credible threat thereof and to inform, where appropriate, international organizations;
- (b) as appropriate, the States Parties concerned shall exchange information with each other or international organizations with a view to protecting threatened nuclear material, verifying the integrity of the shipping container, or recovering unlawfully taken nuclear material and shall:
 - (i) co-ordinate their efforts through diplomatic and other agreed channels;
 - (ii) render assistance, if requested;
 - (iii) ensure the return of nuclear material stolen or missing as a consequence of the above-mentioned events.

The means of implementation of this co-operation shall be determined by the States Parties concerned.

3. States Parties shall co-operate and consult as appropriate, with each other directly or through international organizations, with a view to obtaining guidance on the design, maintenance and improvement of systems of physical protection of nuclear material in international transport.

Article 6

1. States Parties shall take appropriate measures consistent with their national law to protect the confidentiality of any information which they receive in confidence by virtue of the provisions of this Convention from another State Party or through participation in an activity carried out for the implementation of this Convention. If States Parties provide information to international organizations in confidence, steps shall be taken to ensure that the confidentiality of such information is protected.

2. States Parties shall not be required by this Convention to provide any information which they are not permitted to communicate pursuant to national law or which would jeopardize the security of the State concerned or the physical protection of nuclear material.

Article 7

1. The intentional commission of:

- (a) an act without lawful authority which constitutes the receipt, possession, use, transfer, alteration, disposal or dispersal of nuclear material and which causes or is likely to cause death or serious injury to any person or substantial damage to property;
- (b) a theft or robbery of nuclear material;
- (c) an embezzlement or fraudulent obtaining of nuclear material;
- (d) an act constituting a demand for nuclear material by threat or use of force or by any other form of intimidation;
- (e) a threat:
 - (i) to use nuclear material to cause death or serious injury to any person or substantial property damage, or
 - (ii) to commit an offence described in sub-paragraph (b) in order to compel a natural or legal person, international organization or State to do or to refrain from doing any act;
- (f) an attempt to commit any offence described in paragraphs (a), (b) or (c); and
- (g) an act which constitutes participation in any offence described in paragraphs (a) to (f)

shall be made a punishable offence by each State Party under its national law.

2. Each State Party shall make the offences described in this article punishable by appropriate penalties which take into account their grave nature.

Article 8

1. Each State Party shall take such measures as may be necessary to establish its jurisdiction over the offences set forth in article 7 in the following cases:

- (a) when the offence is committed in the territory of that State or on board a ship or aircraft registered in that State;
- (b) when the alleged offender is a national of that State.

2. Each State Party shall likewise take such measures as may be necessary to establish its jurisdiction over these offences in cases where the alleged offender is present in its territory and it does not extradite him pursuant to article 11 to any of the States mentioned in paragraph 1.

3. This Convention does not exclude any criminal jurisdiction exercised in accordance with national law.

4. In addition to the States Parties mentioned in paragraphs 1 and 2, each State Party may, consistent with international law, establish its jurisdiction over the offences set forth in article 7 when it is involved in international nuclear transport as the exporting or importing State.

Article 9

Upon being satisfied that the circumstances so warrant, the State Party in whose territory the alleged offender is present shall take appropriate measures, including detention, under its national law to ensure his presence for the purpose of prosecution or extradition. Measures taken according to this article shall be notified without delay to the States required to establish jurisdiction pursuant to article 8 and, where appropriate, all other States concerned.

Article 10

The State Party in whose territory the alleged offender is present shall, if it does not extradite him, submit, without exception whatsoever and without undue delay, the case to its competent authorities for the purpose of prosecution, through proceedings in accordance with the laws of that State.

Article 11

1. The offences in article 7 shall be deemed to be included as extraditable offences in any extradition treaty existing between States Parties. States Parties undertake to

include those offences as extraditable offences in every future extradition treaty to be concluded between them.

2. If a State Party which makes extradition conditional on the existence of a treaty receives a request for extradition from another State Party with which it has no extradition treaty, it may at its option consider this Convention as the legal basis for extradition in respect of those offences. Extradition shall be subject to the other conditions provided by the law of the requested State.

3. States Parties which do not make extradition conditional on the existence of a treaty shall recognize those offences as extraditable offences between themselves subject to the conditions provided by the law of the requested State.

4. Each of the offences shall be treated, for the purpose of extradition between States Parties, as if it had been committed not only in the place in which it occurred but also in the territories of the States Parties required to establish their jurisdiction in accordance with paragraph 1 of article 8.

Article 12

Any person regarding whom proceedings are being carried out in connection with any of the offences set forth in article 7 shall be guaranteed fair treatment at all stages of the proceedings.

Article 13

1. States Parties shall afford one another the greatest measure of assistance in connection with criminal proceedings brought in respect of the offences set forth in article 7, including the supply of evidence at their disposal necessary for the proceedings. The law of the State requested shall apply in all cases.

2. The provisions of paragraph 1 shall not affect obligations under any other treaty, bilateral or multilateral, which governs or will govern, in whole or in part, mutual assistance in criminal matters.

Article 14

1. Each State Party shall inform the depositary of its laws and regulations which give effect to this Convention. The depositary shall communicate such information periodically to all States Parties.

2. The State Party where an alleged offender is prosecuted shall, wherever practicable, first communicate the final outcome of the proceedings to the States directly concerned. The State Party shall also communicate the final outcome to the depositary who shall inform all States.

3. Where an offence involves nuclear material used for peaceful purposes in domestic use, storage or transport, and both the alleged offender and the nuclear material remain in the territory of the State Party in which the offence was committed, nothing in this

Convention shall be interpreted as requiring that State Party to provide information concerning criminal proceedings arising out of such an offence.

Article 15

The Annexes constitute an integral part of this Convention.

Article 16

1. A conference of States Parties shall be convened by the depositary five years after the entry into force of this Convention to review the implementation of the Convention and its adequacy as concerns the preamble, the whole of the operative part and the annexes in the light of the then prevailing situation.
2. At intervals of not less than five years thereafter, the majority of States Parties may obtain, by submitting a proposal to this effect to the depositary, the convening of further conferences with the same objective.

Article 17

1. In the event of a dispute between two or more States Parties concerning the interpretation or application of this Convention, such States Parties shall consult with a view to the settlement of the dispute by negotiation, or by any other peaceful means of settling disputes acceptable to all parties to the dispute.
2. Any dispute of this character which cannot be settled in the manner prescribed in paragraph 1 shall, at the request of any party to such dispute, be submitted to arbitration or referred to the International Court of Justice for decision. Where a dispute is submitted to arbitration, if, within six months from the date of the request, the parties to the dispute are unable to agree on the organization of the arbitration, a party may request the President of the International Court of Justice or the Secretary-General of the United Nations to appoint one or more arbitrators. In case of conflicting requests by the parties to the dispute, the request to the Secretary-General of the United Nations shall have priority.
3. Each State Party may at the time of signature, ratification, acceptance or approval of this Convention or accession thereto declare that it does not consider itself bound by either or both of the dispute settlement procedures provided for in paragraph 2. The other States Parties shall not be bound by a dispute settlement procedure provided for in paragraph 2, with respect to a State Party which has made a reservation to that procedure.
4. Any State Party which has made a reservation in accordance with paragraph 3 may at any time withdraw that reservation by notification to the depositary.

Article 18

1. This Convention shall be open for signature by all States at the Headquarters of the International Atomic Energy Agency in Vienna and at the Headquarters of the United Nations in New York from 3 March 1980 until its entry into force.
2. This Convention is subject to ratification, acceptance or approval by the signatory States.
3. After its entry into force, this Convention will be open for accession by all States.
4. (a) This Convention shall be open for signature or accession by international organizations and regional organizations of an integration or other nature, provided that any such organization is constituted by sovereign States and has competence in respect of the negotiation, conclusion and application of international agreements in matters covered by this Convention.

(b) In matters within their competence, such organizations shall, on their own behalf, exercise the rights and fulfil the responsibilities which this Convention attributes to States Parties.

(c) When becoming party to this Convention such an organization shall communicate to the depositary a declaration indicating which States are members thereof and which articles of this Convention do not apply to it.

(d) Such an organization shall not hold any vote additional to those of its Member States.
5. Instruments of ratification, acceptance, approval or accession shall be deposited with the depositary.

Article 19

1. This Convention shall enter into force on the thirtieth day following the date of deposit of the twenty first instrument of ratification, acceptance or approval with the depositary.
2. For each State ratifying, accepting, approving or acceding to the Convention after the date of deposit of the twenty first instrument of ratification, acceptance or approval, the Convention shall enter into force on the thirtieth day after the deposit by such State of its instrument of ratification, acceptance, approval or accession.

Article 20

1. Without prejudice to article 16 a State Party may propose amendments to this Convention. The proposed amendment shall be submitted to the depositary who shall circulate it immediately to all States Parties. If a majority of States Parties request the depositary to convene a conference to consider the proposed amendments, the depositary shall invite all States Parties to attend such a conference to begin not sooner than

thirty days after the invitations are issued. Any amendment adopted at the conference by a two-thirds majority of all States Parties shall be promptly circulated by the depositary to all States Parties.

2. The amendment shall enter into force for each State Party that deposits its instrument of ratification, acceptance or approval of the amendment on the thirtieth day after the date on which two thirds of the States Parties have deposited their instruments of ratification, acceptance or approval with the depositary. Thereafter, the amendment shall enter into force for any other State Party on the day on which that State Party deposits its instrument of ratification, acceptance or approval of the amendment.

Article 21

1. Any State Party may denounce this Convention by written notification to the depositary.
2. Denunciation shall take effect one hundred and eighty days following the date on which notification is received by the depositary.

Article 22

The depositary shall promptly notify all States of:

- (a) each signature of this Convention;
- (b) each deposit of an instrument of ratification, acceptance, approval or accession;
- (c) any reservation or withdrawal in accordance with article 17;
- (d) any communication made by an organization in accordance with paragraph 4(c) of article 18;
- (e) the entry into force of this Convention;
- (f) the entry into force of any amendment to this Convention; and
- (g) any denunciation made under article 21.

Article 23

The original of this Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Director General of the International Atomic Energy Agency who shall send certified copies thereof to all States.

IN WITNESS WHEREOF, the undersigned, being duly authorized, have signed this Convention, opened for signature at Vienna and at New York on 3 March 1980.

ANNEX I

Levels of Physical Protection to be Applied in International Transport of Nuclear Material as Categorized in Annex II

1. Levels of physical protection for nuclear material during storage incidental to international nuclear transport include:
 - (a) For Category III materials, storage within an area to which access is controlled;
 - (b) For Category II materials, storage within 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;
 - (c) For Category I material, storage within 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 object the detection and prevention of any assault, unauthorized access or unauthorized removal of material.
2. Levels of physical protection for nuclear material during international transport include:
 - (a) For Category II and III materials, transportation shall take place under special precautions including prior arrangements among sender, receiver, and carrier, and prior agreement between natural or legal persons subject to the jurisdiction and regulation of exporting and importing States, specifying time, place and procedures for transferring transport responsibility;
 - (b) For Category I materials, transportation shall take place under special precautions identified above for transportation of Category II and III materials,

and in addition, under constant surveillance by escorts and under conditions which assure close communication with appropriate response forces;

- (c) For natural uranium other than in the form of ore or ore-residue, transportation protection for quantities exceeding 500 kilograms U shall include advance notification of shipment specifying mode of transport, expected time of arrival and confirmation of receipt of shipment.

ANNEX II

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 500 g	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-233	Unirradiated ^{b/}	2 kg or more	Less than 2 kg but more than 500 g	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/}	

- ^{a/} All plutonium except that with isotopic concentration exceeding 80% in plutonium-238.
- ^{b/} 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 metre unshielded.
- ^{c/} Quantities not falling in Category III and natural uranium should be protected in accordance with prudent management practice.
- ^{d/} 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.
- ^{e/} 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 metre unshielded.

State of Adherence to the NPT
and the Conclusion of the Safeguard Agreements

Nations which are parties to the Treaty on the Non-Proliferation of Nuclear Weapons as of January 1, 1980:

Afghanistan	Federal Republic
Australia	of Germany
Austria	Ghana
The Bahamas	Greece
Bangladesh	Grenada
Belgium	Guatemala
Benin	Guinea-Bissau
Bolivia	Haiti
Botswana	Holy See
Bulgaria	Honduras
Burundi	Hungary
Cambodia	Iceland
Cameroon	Indonesia
Canada	Iran
Cape Verde	Iraq
Central African	Ireland
Republic	Italy
Chad	Ivory Coast
China*	Jamaica
Congo	Japan
Costa Rica	Jordan
Cyprus	Kenya
Czechoslovakia	Republic of Korea
Denmark	Laos
Dominican Republic	Lebanon
Ecuador	Lesotho
El Salvador	Liberia
Ethiopia	Libya
Fiji	Liechtenstein
Finland	Luxembourg
Gabon	Madagascar
The Gambia	Malaysia
German Democratic	Maldives
Republic	

List of NPT parties (continued):

Mali	Sri Lanka
Malta	Sudan
Mauritius	Surinam
Mexico	Swaziland
Mongolia	Sweden
Morocco	Switzerland
Nepal	Syria
Netherlands	Thailand
New Zealand	Togo
Nicaragua	Tongo
Nigeria	Tunisia
Norway	Tuvalu
Panama	USSR
Paraguay	United Kingdom
Peru	United States
Philippines	Upper Volta
Poland	Uruguay
Portugal	Venezuela
Romania	Republic of Vietnam
Rwanda	Western Samoa
San Marino	People's Democratic
Senegal	Republic of Yemen
Sierra Leone	Yugoslavia
Singapore	Zaire
Somalia	

*On January 27, 1970, an instrument of ratification was deposited in the name of the "Republic of China." Effective January 1, 1979, the United States recognized the People's Republic of China as the sole legal government of China. The authorities on Taiwan state that they will continue to abide by the provisions of the Treaty and the United States regards them as bound by its obligations.

APPENDIX 26 B

States Which Have Signed But Have Not
Yet Ratified the NPT
as of 1 January 1980

Barbados

Columbia

Egypt, the Arab Republic of

Kuwait

Trinidad and Tobago

Turkey

Yemen Arab Republic

THE CONCLUSION OF THE SAFEGUARDS AGREEMENTS
REQUIRED BY THE NPT AS OF 1 AUGUST 1979*

As of 1 August 1979 the International Atomic Energy Agency had negotiated safeguards agreements with **76** non-nuclear weapon States party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). There were safeguards agreements in force with **64** of these States. Safeguards agreements with a further **12** non-nuclear weapon States which had been approved by the IAEA Board of Governors were awaiting entry into force. The date in parentheses after the name of the State indicates the time by which the NPT safeguards agreement should have entered or should enter into force.

LEGEND:

Bold: States having NPT safeguards agreements in force.

Italics: States not having NPT safeguards agreements in force.

*****: Safeguards agreement approved (completed) and awaiting entry into force.

NON-NUCLEAR WEAPON STATES PARTY TO NPT

- | | |
|---|---|
| 1. Afghanistan | 23. Ethiopia |
| 2. Australia | 24. Fiji |
| 3. Austria | 25. Finland |
| 4. <i>Bahamas (10 January 75)</i> | 26. <i>Gabon * (7 August 75)</i> |
| 5. Belgium | 27. Gambia |
| 6. <i>Benin (30 April 74)</i> | 28. German Democratic Republic |
| 7. <i>Bolivia * (5 March 72)</i> | 29. Germany, Federal Republic of |
| 8. <i>Botswana (5 March 72)</i> | 30. Ghana |
| 9. Bulgaria | 31. Greece |
| 10. <i>Burundi (19 September 72)</i> | 32. <i>Grenada (19 February 76)</i> |
| 11. Canada | 33. <i>Guatemala * (22 March 72)</i> |
| 12. <i>Central African Empire (25 April 72)</i> | 34. <i>Guinea Bissau (20 February 78)</i> |
| 13. <i>Chad (10 September 72)</i> | 35. <i>Haiti * (2 June 72)</i> |
| 14. <i>Congo (23 April 80)</i> | 36. Holy See |
| 15. <i>Costa Rica * (5 March 72)</i> | 37. Honduras |
| 16. Cyprus | 38. Hungary |
| 17. Czechoslovakia | 39. Iceland |
| 18. <i>Democratic Kampuchea (2 December 73)</i> | 40. Iran |
| 19. Denmark | 41. Iraq |
| 20. Dominican Republic | 42. Ireland |
| 21. Ecuador | 43. Italy |
| 22. El Salvador | 44. <i>Ivory Coast (6 September 74)</i> |

* IAEA Bulletin, Vol. 21, No. 4, Aug. 1979, pp. 62-63

45. Jamaica
46. Japan
47. Jordan
48. Kenya (5 March 72)
49. Korea, Republic of
50. Lao People's Democratic Republic (5 March 72)
51. Lebanon
52. Lesotho
53. Liberia (5 March 72)
54. Libyan Arab Jamahiriya (26 November 76)
55. Liechtenstein * (20 October 79)
56. Luxembourg
57. Madagascar
58. Malaysia
59. Maldives
60. Mali (5 March 72)
61. Malta (5 March 72)
62. Mauritius
63. Mexico
64. Mongolia
65. Morocco
66. Nepal
67. Netherlands
68. New Zealand
69. Nicaragua
70. Nigeria (5 March 72)
71. Norway
72. Panama (13 July 78)
73. Paraguay
74. Peru * (5 March 72)
75. Philippines
76. Poland
77. Portugal
78. Romania
79. Rwanda (20 November 76)
80. Samoa
81. San Marino * (5 March 72)
82. Senegal * (17 June 72)
83. Sierra Leone * (26 August 76)
84. Singapore
85. Somalia (5 March 72)
86. Sri Lanka (5 September 80)
87. Sudan
88. Suriname
89. Swaziland
90. Sweden
91. Switzerland
92. Syrian Arab Republic (5 March 72)
93. Thailand
94. Togo (5 March 72)
95. Tonga * (7 January 73)
96. Tunisia (5 March 72)
97. United Republic of Cameroon (5 March 72)
98. Upper Volta (5 March 72)
99. Uruguay
100. Venezuela * (26 March 77)
101. Viet Nam¹
102. Yugoslavia
103. Zaire
- [104. ("Republic of China" — 5 March 72)]²

¹ While the Socialist Republic of Viet Nam is reviewing its position with regard to the NPT, the safeguards agreement which entered into force on 9 January 1974 is deemed to remain in force.

² The "Republic of China" has ratified the NPT.

Glossary*Accelerator

A machine designed to impart a large kinetic energy to charged particles such as electrons, protons, nuclei - by accelerating them, usually electrically, to high velocities.

Adjustment

An entry into an accounting record or a report showing a shipper/receiver difference or material unaccounted for.

Alpha particle

A positively charged particle emitted in the radioactive decay of some heavy nuclei, for example uranium and radium; identical with the helium- γ nucleus.

Annual throughput

The amount of nuclear material transferred annually out of a facility working at nominal capacity.

Atom : Atomic structure

The atom is the smallest amount of an element which has the chemical properties of that element. The atom consists of a comparatively massive central nucleus carrying a positive electric charge, around which electrons move in orbits at relatively great distances away. According to present theory the nucleus is made up from protons and neutrons. The number of protons present is the atomic number of the element and determines the charge on the nucleus - and hence its chemical properties. The sum of the number of protons and neutrons is

* The glossary is not exhaustive of all the technical terms used in the text of the study. Most of the terms listed here are those which either have not been defined in the text itself or which need to be more precisely defined.

1 IAEA Statute, Article XX.

2 IAEA Doc. INFCIRC/66/Rev. 2, 16 Sept. 1968.

3 INFCIRC/153.

4 Glossary of Atomic Terms (London : Technical Writers Section, Public Relations Branch, United Kingdom Atomic Energy Authority (6th Edition), May 1966).

called the mass number and determines the mass of the nucleus. The number of neutrons in an atom of a given element can vary, resulting in nuclei that have the same atomic number but different mass numbers; these variants are called isotopes of the element. The number of electrons in a neutral atom is equal to the number of protons in the nucleus and their charges balance the equal and opposite charge of the nucleus. All atoms of the same atomic number (i.e. same number of protons) are atoms of the same element, irrespective of the number of neutrons present.⁴

Batch

A portion of nuclear material handled as a unit for accounting purposes at a key measurement point and for which the composition and quantity are defined by a single set of specifications or measurements. The nuclear material may be in bulk form or contained in a number of separate items.³

Batch data

The total weight of each element of nuclear material and, in the case of plutonium and uranium, the isotopic composition when appropriate. The units of account shall be as follows :

- (a) Grams of contained plutonium;
- (b) Grams of total uranium and grams of contained uranium-235 plus uranium-233 for uranium enriched in these isotopes; and
- (c) Kilograms of contained thorium, natural uranium or depleted uranium.

For reporting purposes the weights of individual items in the batch shall be added together before rounding to the nearest unit.³

Book inventory of a material balance area

The algebraic sum of the most recent physical inventory of that material balance area and of all inventory changes that have occurred since that physical inventory was taken.³

Boron

A non-metallic element, No. 5, obtained from borax or boric acid, which readily absorbs the slow neutrons essential to the uranium fission process in a thermal reactor. It is used for control rods in such reactors, often in the form of an alloy with steel.⁴

Breeder reactor

Popularly a nuclear reactor which produces more fissile atoms than it burns. Strictly the term should be confined to a nuclear reactor which produces the same kind of fissile material as it burns, without specifying whether or not there is a net gain of fissile material.⁴

Chain reaction (nuclear)

A process in which one nuclear transformation sets up conditions which permit the same nuclear transformation to take place in another atom. Thus, when fission occurs in uranium

atoms, neutrons are released which in turn produce fission in additional uranium atoms.⁴

Control rods

Rods, plates, or tubes of steel or aluminium containing boron, cadmium or some other strong absorber of neutrons. They are used to hold a reactor at a given power level, or to vary the rate of reaction.⁴

Controlled thermonuclear reaction

The attempt to use fusion reactions, especially of heavy hydrogen isotopes, in a controlled manner for generating power. The basic physics associated with this work is called plasma physics and temperatures of at least 20 million degrees are necessary to enforce the fusion reactions in sufficient number, sufficiently quickly.⁴

Conversion plant

A facility (excepting a mine or ore-processing plant) to improve unirradiated nuclear material, or irradiated nuclear material that has been separated from fission products, by changing its chemical or physical form so as to facilitate further use or processing. The term conversion plant includes the facility's storage and analytical sections. The term does not include a plant₂ intended for separating the isotopes of a nuclear material.²

Coolant

Any cooling agent. Specifically, a liquid or gas which is circulated through or about the core of a reactor to maintain a low temperature and prevent the fuel from overheating.⁴ If the coolant is very hot it can be used to give power.⁴

Correction

An entry into an accounting record or a report to rectify an identified mistake or to reflect an improved measurement of a quantity previously entered into the record or report.³ Each correction must identify the entry to which it pertains.

Critical

Critical is the term used to describe the condition in which a chain reaction is being maintained at a constant rate, i.e. it is just self-sustaining.⁴

Criticality

A state of affairs in which a sufficient quantity of fissile material is assembled in the right shape and concentration for a self-sustaining chain reaction to take place.⁴

Decay

When a radioactive atom disintegrates it is said to decay. What remains is a different element. Thus an atom of polonium decays to form lead, ejecting an alpha particle in the process. In a mass of a particular radioisotope a number of atoms will disintegrate or decay every second - and this number is characteristic of the isotope concerned.⁴

Depleted uranium

Uranium having less than the natural content, namely 0.7% of the easily fissionable uranium U-235, is named depleted uranium, e.g. the residue from a diffusion plant, or a reactor.⁴

Deuterium

The isotope of hydrogen of mass 2 : often called heavy hydrogen, it is obtained from heavy water.⁴

Deuteron

The nucleus of an atom of deuterium; it comprises a neutron and a proton.⁴

Diffusion

- (1) A method of isotope separation (see Gaseous Diffusion).
- (2) In nuclear physics, the passage of particles through matter in such a way that the probability of scattering is large compared with that of capture.⁴

Diffusion plant

Factory for making uranium enriched in the 235 isotope.⁴

Effective kilogram

A special unit used in safeguarding nuclear material. The quantity in "effective kilograms" is obtained by taking :

- (a) For plutonium, its weight in kilograms;
- (b) For uranium with an enrichment of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its enrichment;
- (c) For uranium with an enrichment below 0.01 (1%) and above 0.0005 (0.5%), its weight in kilograms multiplied by 0.0001; and
- (d) For depleted uranium with an enrichment of 0.0005 (0.5%) or below, and for thorium, its weight in kilograms multiplied by 0.00005.³

Electron

The negatively charged particle which is a common constituent of all atoms.⁴

Elementary particles

Particles which are believed to be the basic "building bricks" of all matter. Over 200 are known, the majority have only very short lives before they decay or are annihilated. They can be divided into five groups : the photon, leptons, mesons, nucleons and hyperons.⁴

Enriched-fuel

Nuclear fuel which has been enriched in the fissile component, e.g. uranium containing more than 0.7% U-235.⁴

Enriched reactor

A reactor using enriched fuel.⁴

Enrichment

The ratio of the combined weight of the isotopes uranium-233 and uranium-235 to that of the total uranium in question.

Fabrication plant

A plant to manufacture fuel elements or other components containing nuclear material and includes the plant's storage and analytical sections.

Facility

(a) A reactor, a critical facility, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation; or (b) Any location where nuclear material in amounts greater than one effective kilogram is customarily used.

Fall out

Radioactive dust and other matter falling back to the earth's surface from the atmosphere after a nuclear explosion.

Fast reactor

A nuclear reactor in which most of the fissions are caused by neutrons moving with the high speeds they possess at the time of their birth in fission. Such reactors contain little or no moderator.

Fertile material

Isotopes capable of being readily transformed into fissionable material by the absorption of neutrons, particularly uranium-238 and thorium-232; sometimes called source material.

Fissile

Capable of undergoing fission; sometimes used to mean capable of fissioning when hit by a slow neutron, e.g. the isotopes U-233, U-235, Pu-239 and Pu-241 are fissile.

Fission

The splitting of a heavy nucleus into two (or very rarely more) approximately equal fragments - the fission products. Fission is accompanied by the emission of neutrons and the release of energy. It can be spontaneous, or it can be caused by the impact of a neutron, a fast charged particle or a photon.

Fuel element

A unit of nuclear fuel for use in a reactor - generally uranium, as metal or oxide, enclosed in a can which may have an extended surface area, e.g. fins, to assist heat transfer.

Fusion

The process of building up more complex nuclei by the combination, or fusion, of simpler ones. The formation is usually accompanied by the release of energy.

Gamma ray

Electromagnetic radiation emitted by the nuclei of radioactive substances during decay, similar in nature to X-rays.

Gaseous diffusion

A method for separating isotopes, for example those of uranium, by causing a gaseous compound to diffuse through a porous membrane; the lighter molecules diffuse faster than the heavy ones and consequently their concentration increases on passing through the membrane, for the initial portions of gas. In practice one allows a certain amount to diffuse through a cell membrane, and the rest, somewhat depleted in the light component, to flow past.⁴

Graphite

A form of carbon used as a moderator in nuclear reactors. It is made from purified petroleum coke compressed into bricks using a pitch binder and heated to high temperatures. By impregnating the graphite with compounds such as furfural alcohol and refiring, its permeability can be reduced to a very low level.⁴

Half-life

The time taken for the activity of a radioactive substance to decay to half its original value, that is for half the atoms present to disintegrate. Half-lives may vary from less than a millionth of a second to millions of years, according to the isotope and element concerned.⁴

Heavy water

Water consisting of molecules in which the hydrogen is replaced by deuterium, or heavy hydrogen. It is present in water as about 1 part in 5,000.⁴

Hydrogen

The lightest and simplest element,⁴ the nucleus of which is simply a proton. It has unit mass.

Improved nuclear material

(a) The concentration of fissionable isotopes in it has been increased; or (b) The amount of chemically separable fissionable isotopes in it has been increased; or (c) Its chemical or physical form has been changed so as to facilitate further use or processing.²

Inventory change

An increase or decrease, in terms of batches, of nuclear material in a material balance area; such a change shall involve one of the following :

(a) Increases :

(i) Import;

(ii) Domestic receipt : receipts from other material balance areas, receipts from a non-safeguarded (non-peaceful) activity or receipts at the starting point of safeguards;

(iii) Nuclear production : production of special fissionable material in a reactor; and

(iv) De-exemption : reapplication of safeguards on nuclear material previously exempted therefrom on account of its use or quantity.

(b) Decreases :

(i) Exports;

(ii) Domestic shipment : shipments to other material balance areas or shipments for a non-safeguarded (non-peaceful) activity;

(iii) Nuclear loss : loss of nuclear material due to its transformation into other element(s) or isotope(s) as a result of nuclear reactions;

(iv) Measured discard : nuclear material which has been measured, or estimated on the basis of measurements, and disposed of in such a way that it is not suitable for further nuclear use;

(v) Retained waste : nuclear material generated from processing or from an operational accident, which is deemed to be unrecoverable for the time being but which is stored;

(vi) Exemption : exemption of nuclear material from safeguards on account of its use or quantity; and

(vii) Other loss : for example, accidental loss (that is, irretrievable and inadvertent loss of nuclear material as the result of an operational accident) or theft.⁵

Ion

A charged atom or molecule, that is one which has lost or gained one or more electrons.⁴

Ionizing radiation

Radiation which knocks electrons from atoms during its passage, thereby leaving ions in its path. Electrons and alpha particles are much more ionizing than neutrons or gamma rays.⁴

Irradiation

The exposure of materials to radiation. In nuclear research, and in the production of isotopes, materials are often exposed to neutrons in reactors. Intense irradiation can alter the physical properties of solids - in some cases weakening them (e.g. fuel elements and graphite), but in others hardening them (e.g. some types of plastics and rubbers). Large doses can be used industrially for sterilization.⁴

Isotope (see Atom)

Two atoms are said to be isotopes if they are of the same chemical element but have different masses. The chemical properties of an atom depend almost entirely on the structure of the system of orbital electrons moving about the nucleus of the atom. The number of orbital electrons is equal to the nuclear charge, the value of which is called the atomic number of the atom (and is always an integer). Isotopes are atoms whose nuclei have the same atomic number but different masses; this means that isotopic nuclei contain⁴ the same number of protons but different numbers of neutrons.

Key measurement point

A location where nuclear material appears in such a form that it may be measured to determine material flow or inventory. "Key measurement point" thus include, but are not limited to, the inputs and outputs (including measured discards) and storages in material balance areas.

Man-year of inspection

300 man-days of inspection, a man-day being a day during which a single inspector has access to a facility at any time for a total of not more than eight hours.

Material balance area

An area in or outside of a facility such that :

- (a) The quantity of nuclear material in each transfer into or out of each "material balance area" can be determined; and
- (b) The physical inventory of nuclear material in each "material balance area" can be determined when necessary, in accordance with specified procedures, in order that the material balance for Agency safeguards purposes can be established.

Material unaccounted for

The difference between book inventory and physical inventory.

Mega (M)

Prefix meaning a million.

Megawatt (MW)

A million watts - or a thousand kilowatts, a watt being the unit of power. In MW(E) or MW(Th) the "E" signifies "electric" and the "Th" means "thermal power" or heat output.

Moderator

The material in a reactor used to reduce the energy, and hence speed, of fast neutrons, so far as possible without capturing them. Slow neutrons are much more likely to cause fission in a U-235 nucleus than to be captured in a U-238 nucleus (see Natural Uranium), so by using a moderator a reactor can be made to work with fuel containing only a small proportion of U-235.

Natural uranium (U_{308})

Natural uranium contains both the heavier uranium isotope U-238, which is a not readily fissile material, and is the parent material from which plutonium is created, and the lighter isotope uranium, U-235, which is the fission material or fuel of most reactors. In 140 parts of natural uranium, 139 parts are of U-238, and one part only is U-235.

Neutron

A nuclear particle having no electric charge and the approximate mass of a hydrogen nucleus. It is found in the nuclei of atoms and plays a vital part in nuclear fission. Outside a

nucleus a neutron is radioactive, decaying with a half-life of about 12 minutes to give a proton and an electron.⁴

Neutron flux

A measure of the number of neutrons passing through 1 sq. cm. in any direction in 1 second.⁴

Nuclear material

Any source or any special fissionable material as defined in Article XX of the Statute. The term source material shall not be interpreted as applying to ore or ore residue. Any determination by the Board under Article XX of the Statute after the entry into force of this Agreement which adds to the materials considered to be source material or special fissionable material shall have effect under this Agreement only upon acceptance by the State.⁵

Nuclear reactor

A structure in which a fission chain reaction can be maintained and controlled. It usually contains a fuel, coolant and moderator and is most often surrounded by a concrete biological shield to absorb neutron and gamma ray emission.⁴

Nucleus

The core of an atom, which may be said to comprise protons and neutrons. It is very small and about 10^{-12} cm. in diameter (a millionth of a millionth of a cm.). The detailed structure of nuclei is not fully known.⁴

Physical inventory

The sum of all the measured or derived estimates of batch quantities of nuclear material on hand at a given time within a material balance area, obtained in accordance with specified procedures.⁵

Plasma

Very hot gas consisting mostly of positive ions and electrons in nearly equal concentrations. It is nearly neutral electrically and highly conducting.⁴

Plutonium

The element, No. 94, produced by neutron irradiation of U-238. The isotope Pu-239 is an important fissile material and usually is made in reactors. It can be used as a nuclear fuel, but has awkward physical properties and is very poisonous to animals, being a bone seeker.⁴

Project agreement

A safeguards agreement relating to an Agency project and containing provisions as foreseen in Article XI.F.4(b) of the Statute.²

Proton

The nucleus of the hydrogen atom. It carries unit positive charge and has unit mass.⁴

Radiation

A term which embraces electromagnetic waves, in particular X-rays and γ -rays (gamma) as well as streams of fast-moving charged particles (electrons, protons, mesons, etc.) and neutrons of all velocities, i.e. all the ways in which energy is given off by an atom.⁴

Radioactive

Possessing or pertaining to radioactivity.⁴

Radioactivity : Radioactive decay

The property possessed by some atoms of disintegrating spontaneously with the emission of a charged particle and/or gamma radiation. The rate of radioactive decay is not affected by any normal change of temperature, electric or magnetic fields or chemistry.⁴

Radioactivity, induced

Radioactivity produced directly or indirectly by bombardment with particles (e.g.⁴ neutrons). This in distinction from natural radioactivity.

Reactor

Any device in which a controlled,² self-sustaining fission chain-reaction can be maintained.

Reactor core

The central portion of a nuclear reactor containing the nuclear fuel, such as uranium or plutonium, and the moderator, if any.⁴

Reactor vessel

The container⁴ of a reactor and its moderator and, also, usually of a coolant.

Reprocessing

The procedure of removing fission products from fuel before re-using it. One main aim is to remove poisons which would absorb and waste neutrons, another is to remove mechanical stresses⁴ due to irradiation especially in the case of metallic fuels.

Reprocessing plant

A facility to separate irradiated nuclear materials and fission products, and includes the facility's head-end treatment section and its associated storage and analytical sections.²

Shipper/receiver difference

The difference between the quantity of nuclear material in a batch as stated by the shipping material balance area and as measured at the receiving material balance area.

Source data

Those data, recorded during measurement or calibration or used to derive empirical relationships, which identify nuclear material and provide batch data. "Source data" may include, for

example, weight of compounds, conversion factors to determine weight of element, specific gravity, element concentration, isotopic ratios, relationship between volume and manometer readings and relationship between plutonium produced and power generated.³

Source material

Uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Board of Governors shall from time to time determine; and such other material as the Board of Governors shall from time to time determine.¹

Special fissionable material

Plutonium-239; uranium-233; uranium enriched in the isotopes 235 or 233; any material containing one or more of the foregoing; and such other fissionable material as the Board of Governors shall from time to time determine; but the term "special fissionable material" does not include source material.¹

Strategic point

A location selected during examination of design information where, under normal conditions and when combined with the information from all "strategic points" taken together, the information necessary and sufficient for the implementation of safeguards measures is obtained and verified; a "strategic point" may include any location where key measurements related to material balance accountancy are made³ and where containment and surveillance measures are executed.

Strontium

A metal, atomic number 38, similar in chemical properties to calcium. A long-lived radioactive isotope of strontium (Sr-90) is produced in the fission of uranium, hence in fall out.⁴

Thermal reactor

A nuclear reactor which includes a moderator and therefore uses slow speed or thermal neutrons for fission of its fuel.⁴

Thermonuclear reaction

A nuclear fusion reaction brought about by very high temperatures, which must exceed 20 million degrees or so to maintain a sustained reaction.⁴

Thorium

Element No. 90, a naturally radioactive metal the mineral sources of which are widely spread over the earth's surface particularly in monazite beach sands. It can be converted to uranium-233, an excellent nuclear fuel, by neutron absorption.⁴

Tritium

The isotope of hydrogen of mass 3. It is very rare, naturally radioactive but can be made by neutron absorption in lithium.⁴

Uranium

Element No. 92, a heavy metal. U-235 is the only naturally occurring readily fissile isotope; U-238 is a fertile material; U-233 is a fissile material that can be produced by the neutron irradiation of thorium-232. Natural uranium contains 1 part in 140 of U-235.⁴

Uranium enriched in the isotopes 235 or 233

Uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.¹

Uranium-hexafluoride (UF₆)

A gaseous compound of uranium with fluorine used in the gaseous diffusion process for separating the uranium isotopes (commonly called Hex).⁴

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