

Information Circular

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Agreement between the International Atomic Energy Agency, the Government of the United Mexican States and the Government of the United States of America Concerning the Replacement of Highly Enriched Uranium by Low Enriched Uranium

1. The text of the Project and Supply Agreement between the Government of the United Mexican States, the Government of the United States of America and the International Atomic Energy Agency Concerning the Replacement of Highly Enriched Uranium by Low Enriched Uranium is reproduced in this document for the information of all Members of the Agency. The Agency's Board of Governors approved the text of the Agreement on 9 June 2011. The Agreement was signed by the authorized representatives of Mexico on 29 July 2011, the United States on 13 July 2011, and by the Director General of the IAEA on 1 August 2011.
2. Pursuant to the Article XII of the Agreement, the Agreement entered into force on 1 August 2011, upon signature by the representatives of Mexico, the United States and the Director General of the IAEA.

PROJECT AND SUPPLY AGREEMENT

AGREEMENT BETWEEN THE INTERNATIONAL ATOMIC ENERGY AGENCY, THE GOVERNMENT OF THE UNITED MEXICAN STATES AND THE GOVERNMENT OF THE UNITED STATES OF AMERICA CONCERNING THE REPLACEMENT OF HIGHLY ENRICHED URANIUM BY LOW ENRICHED URANIUM

WHEREAS the Government of the United Mexican States (hereinafter called “Mexico”) desires to establish a project relating to the replacement of highly enriched uranium (HEU) fuel by low enriched uranium (LEU) for the operation of the TRIGA Mark III research reactor (hereinafter called the “reactor”) at Ocoyoacac, Estado de Mexico;

WHEREAS under the Agreement for Cooperation between the International Atomic Energy Agency (hereinafter called the “Agency”) and the United States, concluded on 11 May 1959, as amended (hereinafter called the “Cooperation Agreement”), the Government of the United States of America (hereinafter “the United States”) undertook to make available to the Agency pursuant to the Statute of the Agency (hereinafter called the “Statute”) certain quantities of special fissionable material, and also undertook, subject to applicable provisions and license requirements, to permit, upon request of the Agency, persons under the jurisdiction of the United States to make arrangements to transfer and export materials, equipment or facilities for Members of the Agency in connection with an Agency-assisted project;

WHEREAS pursuant to the terms of the Cooperation Agreement, the Agency and the United States on 14 June 1974 signed a Master Agreement Governing Sales of Source, By-Product and Special Nuclear Materials for Research Purposes (hereinafter called the “Master Agreement”);

WHEREAS Mexico, on 14 September 1973, concluded with the Agency an Agreement for the Application of Safeguards in connection with the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean and the Treaty on the Non-Proliferation of Nuclear Weapons (hereinafter called “Mexico’s Safeguards Agreement”);

WHEREAS the United States, on 9 December 1980, concluded with the Agency an Agreement for the Application of Safeguards in the United States of America (hereinafter called the “United States’ Safeguards Agreement”); and

WHEREAS Mexico and the United States reaffirm their support of the objectives of the Statute and their commitment to ensuring that the international development and use of nuclear energy for peaceful purposes are carried out under arrangements that, to the maximum extent, will prevent the proliferation of nuclear explosive devices;

NOW THEREFORE the Agency, Mexico and the United States (hereinafter called the “Parties”) hereby agree as follows:

ARTICLE I

Definition of the Project

1. The project which is the subject of this Agreement is the transfer of LEU, by the United States, through the Agency, to Mexico for the operation of the reactor by the National Institute for Nuclear Research (hereinafter called "ININ"), and the transfer of HEU fuel by Mexico, through the Agency, to the United States.
2. This Agreement shall apply, *mutatis mutandis*, to any additional assistance provided by the Agency to Mexico for the project.
3. Except as specified in this Agreement, the Agency shall not assume any obligations or responsibilities insofar as the project is concerned.

ARTICLE II

Supply of Low Enriched Uranium

1. The Agency, pursuant to Article IV of the Cooperation Agreement, shall request the United States to transfer to Mexico approximately 113 kilograms of uranium enriched to less than 20 per cent by weight in the isotope uranium-235 (hereinafter called the "LEU"), at no cost to Mexico or the Agency.
2. The United States, subject to the provisions of the Co-operation Agreement and the Master Agreement and to the issuance of any required licenses and permits, shall transfer title to the LEU to the Agency and the Agency shall thereafter immediately and automatically transfer the title to Mexico.
3. The particular terms and conditions for the transfer of LEU shall be specified in a Supplemental Contract to the Master Agreement (hereinafter called the "Supplemental Contract") to be concluded between the Agency, Mexico and the United States in implementation of this Agreement. All arrangements for the transfer of the LEU shall be the responsibility of Mexico and the United States. Prior to the transfer of any part of such material, Mexico and the United States shall notify the Agency of the amount thereof and of the date, place and method of shipment.
4. The LEU and any special fissionable material produced through the use of the LEU, including subsequent generations of produced special fissionable material, shall be used exclusively by and remain at the ININ at Ocoyoacac, Estado de Mexico, Mexico, unless the Parties hereto agree otherwise.
5. The LEU and any special fissionable material produced through its use, including subsequent generations of produced special fissionable material, shall be stored or reprocessed or otherwise altered in form or content only under conditions and in facilities acceptable to the Parties. Such materials shall not be further enriched unless the Parties amend this Agreement for that purpose.

ARTICLE III

Transfer of Highly Enriched Uranium

1. Subject to the provisions of this Agreement, the Agency shall receive from Mexico title to the HEU fuel consisting of 28 fresh fuel assemblies and 29 irradiated fuel assemblies which contain approximately 10.8 kilograms of uranium enriched to 70 per cent by weight in the isotope uranium-235, at no cost for Mexico or the Agency, and thereafter the Agency shall immediately and automatically transfer title to the HEU fuel to the United States, at no cost for the Agency.
2. The particular terms and conditions for the transfer of the HEU fuel, including place and schedule of deliveries and shipping instructions and the specific responsibilities of each Party, shall be specified in the Supplemental Contract, to be concluded between the Agency, Mexico and the United States in implementation of this Agreement. All arrangements for the transfer of the HEU fuel from Mexico to the United States, through the Agency, shall be the responsibility of Mexico and the United States. Prior to the export from Mexico of any part of such material, Mexico and the United States shall notify the Agency of the amount thereof and of the date, place, method of shipment, and any other arrangements necessary for the export.
3. The HEU fuel and any special fissionable material produced through the use of the HEU fuel, including subsequent generations of produced special fissionable material, shall remain in the United States.
4. The HEU fuel and any special fissionable material produced through its use, including subsequent generations of produced special fissionable material, shall be stored or reprocessed or otherwise altered in form or content only under conditions in accordance with the United States' Safeguards Agreement. Such materials shall not be further enriched unless the Parties amend this Agreement for that purpose.

ARTICLE IV

Transport, Handling and Use

1. Mexico and the United States shall take all appropriate measures to ensure the safe transport, handling and use of the LEU and the HEU fuel.
2. The Agency does not warrant the suitability or fitness of the LEU for any particular use or application and shall not at any time bear any responsibility towards Mexico or any person or entity for any claims arising out of the transport, handling and use of the LEU.
3. The United States warrants that the LEU to be fabricated into LEU fuel assemblies has been demonstrated to be suitable for use in the reactor, and that the operational parameters of the reactor with the use of this LEU fuel are expected to be at least the same as those that the reactor would have with the HEU fuel presently under the ownership of Mexico.

ARTICLE V

Safeguards

1. Mexico undertakes that the LEU and any special fissionable material used in or produced through the use of the LEU, including subsequent generations of produced special fissionable material, shall not be used for the manufacture of any nuclear weapon or any nuclear explosive device, or for research on or the development of any nuclear weapon or any nuclear explosive device, or in such a way as to further any military purpose.
2. The United States undertakes that the HEU fuel and any special fissionable material used in or produced through the use of the HEU fuel, including subsequent generations of produced special fissionable material, shall not be used for the manufacture of any nuclear weapon or any nuclear explosive device, or for research on or the development of any nuclear weapon or any nuclear explosive device, or in such a way as to further any military purpose.
3. The safeguards rights and responsibilities of the Agency provided for in Article XII.A of the Statute are relevant to the project and shall be implemented and maintained with respect to the project. Mexico and the United States shall cooperate with the Agency to facilitate the implementation of the safeguards required by this Agreement.
4. The Agency safeguards referred to in paragraph 3 of this Article shall, in respect of Mexico, for the duration of this Agreement, be implemented pursuant to Mexico's Safeguards Agreement.
5. The Agency safeguards referred to in paragraph 3 of this Article shall, in respect of the United States, for the duration of this Agreement, be implemented pursuant to the United States' Safeguards Agreement.
6. Article XII.C of the Statute shall apply with respect to any non-compliance by Mexico or the United States with the provisions of this Agreement.

ARTICLE VI

Safety Standards and Measures

The safety standards and measures specified in Annex A to this Agreement shall apply to Mexico.

ARTICLE VII

Agency Inspectors

The relevant provisions of Mexico's Safeguards Agreement and the United States' Safeguards Agreement shall apply to Agency inspectors performing functions pursuant to this Agreement.

ARTICLE VIII

Scientific Information

In conformity with Article VIII.B of the Statute, Mexico and the United States shall make available to the Agency without charge all scientific information developed as a result of the assistance provided by the Agency for the project.

ARTICLE IX

Languages

All reports and other information required for the implementation of this Agreement shall be submitted to the Agency in one of the working languages of the Board.

ARTICLE X

Physical Protection

1. Mexico and the United States undertake that adequate physical protection measures shall be maintained with respect to the LEU and the HEU fuel and any special fissionable material produced through the use of the LEU and the HEU fuel, including subsequent generations of produced special fissionable material.
2. The Parties agree to the levels for the application of physical protection set forth in Annex B to this Agreement, which levels may be modified by consent of all of the Parties without amendment to this Agreement. Mexico and the United States shall maintain adequate physical protection measures in accordance with such levels. These measures shall as a minimum provide protection comparable to that set forth in Agency document INFCIRC/225/Rev.4 (Corrected) entitled "The Physical Protection of Nuclear Material and Nuclear Facilities," as it may be revised from time to time.

ARTICLE XI

Settlement of Disputes

1. Any decision of the Board concerning the implementation of Article V, VI or VII of this Agreement shall, if the decision so provides, be given effect immediately by Mexico, the United States and the Agency pending the final settlement of the dispute.
2. Any dispute arising out of the interpretation or implementation of this Agreement shall be settled by the Parties by consultation.

ARTICLE XII

Entry into Force and Duration

1. This Agreement shall enter into force upon signature by or for the Director General of the Agency and by the authorized representatives of Mexico and the United States.

2. This Agreement shall continue in force so long as any material, equipment or facility which was ever subject to this Agreement remains in the territory of Mexico or in the territory of the United States or under their jurisdiction or control anywhere, or until such time as the Parties agree that such material, equipment or facility is no longer usable for any nuclear activity relevant from the point of view of safeguards.

DONE in triplicate in the English and Spanish languages, the texts in both languages being equally authentic.

For the **INTERNATIONAL ATOMIC ENERGY AGENCY:**

(Signed)

Yukiya Amano, Director General
Vienna, 1 August 2011

For the **GOVERNMENT OF THE UNITED MEXICAN STATES:**

(Signed)

Alejandro Díaz y Pérez Duarte, Ambassador, Permanent Representative
of Mexico to the IAEA
Vienna, 29 July 2011

For the **GOVERNMENT OF THE UNITED STATES OF AMERICA:**

(Signed)

Glyn T. Davies, Ambassador, Permanent Representative of the United States to the IAEA
Vienna, 13 July 2011

ANNEX A

SAFETY STANDARDS AND MEASURES

1. The safety standards and measures applicable to Mexico under this Agreement shall be those defined in Agency document INFCIRC/18/Rev. 1 (hereinafter the "Safety Document"), or in any subsequent revision thereof, and as specified below.

2. Mexico shall, *inter alia*, apply the International Basic Safety Standards for Protection Against Ionizing Radiation and for the Safety of Radiation Sources (IAEA Safety Series No. 115), and the relevant provisions of the IAEA's Regulations for the Safe Transport of Radioactive Materials (IAEA Safety Standard Series, TS-R-1) as they may be revised from time to time, and as far as possible Mexico shall apply them also to any shipment of the LEU outside the jurisdiction of Mexico. Mexico shall, *inter alia*, ensure safety conditions as recommended in the Safety of Research Reactors, Safety Requirements (IAEA Safety Standards Series No. NS-R-4) and other relevant IAEA Safety Standards.

3. Mexico shall arrange for the submission to the IAEA, at least thirty (30) days prior to the proposed transfer of any part of the LEU to the jurisdiction of Mexico, of a detailed safety analysis report containing the information specified in paragraph 4.7 of the Safety Document and as recommended in the relevant sections of the Agency's Guides on the Safety Assessment of Research Reactors and Preparation of the Safety Analysis Report (IAEA Safety Series No. 35-G1) and the Safety in the Utilization and Modification of Research Reactors (IAEA Safety Series No. 35-G2), including particular reference to the following types of operations, to the extent that the relevant information is not yet available to the IAEA:

- (a) Receipt and handling of the LEU;
- (b) Loading of the LEU into the reactor;
- (c) Commissioning test, including start-up and pre-operational testing of the reactor with the LEU;
- (d) Experimental program and procedures involving the reactor;
- (e) Unloading of the LEU from the reactor; and
- (f) Handling and storage of the LEU after unloading from the reactor.

4. Once the IAEA has determined that the safety measures provided for the project are adequate, the IAEA shall give its consent for the start of the proposed operations. Should Mexico desire to make substantial modifications to the procedures with respect to which information has been submitted, or to perform any operations with the reactor or the LEU with respect to which operations no information has been submitted, Mexico shall submit to the IAEA all relevant information as specified in paragraph 4.7 of the Safety Document, on the basis of which the IAEA may require the application of additional safety measures in accordance with paragraph 4.8 of the Safety Document. Once Mexico has undertaken to apply the additional safety measures requested by the IAEA, the IAEA shall give its consent for the aforementioned modifications or operations envisaged by Mexico.

5. Mexico shall arrange for submission to the IAEA, as appropriate, of the reports specified in paragraphs 4.9 and 4.10 of the Safety Document.

6. The IAEA may, in agreement with Mexico, send safety missions for the purpose of providing advice and assistance to Mexico in connection with the application of adequate safety measures to the project, in accordance with paragraphs 5.1 and 5.3 of the Safety

Document. Moreover, special safety missions may be arranged by the IAEA in the circumstances specified in paragraph 5.2 of the Safety Document.

7. Changes in the safety standards and measures laid down in this Annex may be made by mutual consent between the IAEA and Mexico in accordance with paragraphs 6.2 and 6.3 of the Safety Document.

ANNEX B

LEVELS OF PHYSICAL PROTECTION

Pursuant to Article X of the Agreement, the agreed levels of physical protection to be ensured by the competent national authorities in the use, storage and transportation of nuclear material listed in the attached table shall at 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 the supplier State and the recipient State, 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 between sender, recipient and carrier, and prior agreement between entities subject to the jurisdiction and regulation of the supplier State and the recipient State, 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.

Table: Categorization of Nuclear Material

Material	Form	Category I	Category II	Category 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% ²³⁵ U	-	- 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 1 Gy/hr (100 rad/hr) at one meter unshielded.
- c Quantities not falling in Category III and natural uranium, depleted uranium and thorium should be protected at least 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 or II before irradiation may be reduced one category level while the radiation level from the fuel exceeds 1 Gy/hr (100 rad/hr) at one meter unshield.