

TEXT OF PROPOSED AGREEMENT FOR COOPERATION
BETWEEN THE GOVERNMENT OF THE U.S. AND
THE GOVERNMENT OF THE REPUBLIC OF KOREA
CONCERNING PEACEFUL USES OF NUCLEAR EN-
ERGY

MESSAGE

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

A PROPOSED AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE REPUBLIC OF KOREA CONCERNING PEACEFUL USES OF NUCLEAR ENERGY, PURSUANT TO SECS. 123 B. AND 123 D. OF THE ATOMIC ENERGY ACT, AS AMENDED (42 U.S.C. 2153(B), (D)) AND ALSO THE PRESIDENT'S WRITTEN APPROVAL, AUTHORIZATION, AND DETERMINATION OF THE PROPOSED AGREEMENT; AND AN UNCLASSIFIED NUCLEAR PROLIFERATION ASSESSMENT STATEMENT



JUNE 16, 2015.—Message and accompanying papers referred to the
Committee on Foreign Affairs and ordered to be printed

U.S. GOVERNMENT PUBLISHING OFFICE

To the Congress of the United States:

I am pleased to transmit to the Congress, pursuant to sections 123 b. and 123 d. of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2153(b), (d)) (the "Act"), the text of a proposed Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Peaceful Uses of Nuclear Energy (the "Agreement"). I am also pleased to transmit my written approval, authorization, and determination concerning the proposed Agreement, and an unclassified Nuclear Proliferation Assessment Statement (NPAS) concerning the proposed Agreement. (In accordance with section 123 of the Act, as amended by Title XII of the Foreign Affairs Reform and Restructuring Act of 1998 (Public Law 105-277), two classified annexes to the NPAS, prepared by the Secretary of State, in consultation with the Director of National Intelligence, summarizing relevant classified information, will be submitted to the Congress separately.) The joint memorandum submitted to me by the Secretaries of State and Energy and a letter from the Chairman of the Nuclear Regulatory Commission stating the views of the Commission are also enclosed. An addendum to the NPAS containing a comprehensive analysis of the export control system of the Republic of Korea (ROK) with respect to nuclear-related matters, including interactions with other countries of proliferation concern and the actual or suspected nuclear, dual-use, or missile-related transfers to such countries, pursuant to section 102A(w) of the National Security Act of 1947 (50 U.S.C. 3024(w)), is being submitted separately by the Director of National Intelligence.

The proposed Agreement has been negotiated in accordance with the Act and other applicable law. In my judgment, it meets all applicable statutory requirements and will advance the nonproliferation and other foreign policy interests of the United States.

The proposed Agreement contains all of the requirements established by section 123 a. of the Act. It provides a comprehensive framework for peaceful nuclear cooperation with the ROK based on a mutual commitment to nuclear nonproliferation. It would permit the transfer of material, equipment (including reactors), components, information, and technology for nuclear research and nuclear power production. It would not permit the transfer of Restricted Data, and sensitive nuclear technology or technology or information that is not in the public domain concerning fabrication of nuclear fuel containing plutonium could only be transferred if specifically provided by an amendment to the proposed Agreement or a separate agreement. Any special fissionable material transferred could only be in the form of low enriched uranium, with two exceptions: small quantities of material for use as samples; or for other specified applications such as use in loading and operation of fast reactors or the conduct of fast reactor experiments. The pro-

posed Agreement would also obligate the United States to endeavor to take such actions as may be necessary and feasible to ensure a reliable supply of low enriched uranium fuel to the ROK, similar to terms contained in other recent civil nuclear cooperation agreements.

The proposed Agreement would also establish a new standing High-Level Bilateral Commission (HLBC) to be led by the Deputy Secretary of Energy for the Government of the United States of America and the Vice Minister of Foreign Affairs for the Government of the ROK. The purpose of the HLBC is to facilitate peaceful nuclear and strategic cooperation between the parties and ongoing dialogue regarding areas of mutual interest in civil nuclear energy, including the civil nuclear fuel cycle.

The proposed Agreement will have an initial term of 20 years and would renew for one additional period of 5 years unless either party gives written notice at least 2 years prior to its expiration that it does not want to renew the proposed Agreement. The proposed Agreement also requires the parties to consult as soon as possible after the seventeenth anniversary of its entry into force to decide whether to pursue an extension of the proposed Agreement. In the event of termination of the proposed Agreement, key non-proliferation conditions and controls will continue in effect as long as any nuclear material, moderator material, byproduct material, equipment, or component subject to the proposed Agreement remains in the territory of the party concerned or under its jurisdiction or control anywhere, or until such time as the parties agree that, in the case of nuclear material or moderator material, such items are no longer usable for any nuclear activity relevant from the point of view of international safeguards or have become practically irrecoverable, or in the case of equipment, components, or byproduct material, such items are no longer usable for nuclear purposes.

The ROK has a strong track record on nonproliferation and its government has consistently reiterated its commitment to non-proliferation. The ROK is a party to the Treaty on the Non-proliferation of Nuclear Weapons, has an International Atomic Energy Agency safeguards agreement and Additional Protocol in force, is a member of the four multilateral nonproliferation export control regimes (Missile Technology Control Regime, Wassenaar Arrangement, Australia Group, and Nuclear Suppliers Group, for which it served as Chair in 2003–2004 and is scheduled to do so again in 2015–2016), and is an active participant in the Proliferation Security Initiative. A more detailed discussion of the ROK's civil nuclear program and its nuclear nonproliferation policies and practices, including its nuclear export policies and practices, is provided in the NPAS and in two classified annexes to the NPAS submitted to you separately. As noted above, the Director of National Intelligence will provide an addendum to the NPAS containing a comprehensive analysis of the export control system of the ROK with respect to nuclear-related matters.

I have considered the views and recommendations of the interested departments and agencies in reviewing the proposed Agreement and have determined that its performance will promote, and will not constitute an unreasonable risk to, the common defense

and security. Accordingly, I have approved the proposed Agreement and authorized its execution and urge that the Congress give it favorable consideration.

This transmission shall constitute a submittal for purposes of both sections 123 b. and 123 d. of the Act. My Administration is prepared to begin immediately the consultations with the Senate Foreign Relations Committee and the House Foreign Affairs Committee as provided in section 123 b. Upon completion of the 30 days of continuous session review provided for in section 123 b., the 60 days of continuous session review provided for in section 123 d. shall commence.

BARACK OBAMA.

THE WHITE HOUSE, *June 16, 2015.*

**AGREEMENT FOR COOPERATION
BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND
THE GOVERNMENT OF THE REPUBLIC OF KOREA
CONCERNING PEACEFUL USES OF NUCLEAR ENERGY**

The Government of the United States of America and the Government of the Republic of Korea (hereinafter referred to as the "Parties"),

RECOGNIZING the value of the close cooperation between the Parties in the peaceful uses of nuclear energy pursuant to the Agreement for Cooperation Between the Government of the Republic of Korea and the Government of the United States of America Concerning Civil Uses of Atomic Energy, signed on November 24, 1972, as amended (hereinafter referred to as the "1972 Agreement");

CONFIRMING that the Treaty on the Non-Proliferation of Nuclear Weapons, done on July 1, 1968 (hereinafter referred to as the "NPT"), to which the Republic of Korea and the United States of America are parties, is the cornerstone of the global nuclear non-proliferation regime and reaffirming their desire to promote universal adherence to the NPT;

REAFFIRMING the Parties' support of the objectives of the International Atomic Energy Agency (hereinafter referred to as the "IAEA") and its safeguards system, including the Additional Protocol;

AFFIRMING the inalienable right of NPT parties to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I, II and III of the NPT;

DESIRING, in this regard, to expand the existing cooperation between the Parties by entering into new arrangements for peaceful uses of nuclear energy without prejudice to the sovereignty of each Party, and recognizing the need for long-term planning on a predictable and reliable basis and for an enduring strategic nuclear energy partnership, founded on the principles of equality and reciprocity, as well as emphasizing their recognition that they have both attained an advanced level in the use of nuclear energy for electricity production and in the development of their nuclear industries;

AFFIRMING in particular the shared goal of pursuing the safe, secure and environmentally sustainable development of civil nuclear energy for peaceful purposes and in a manner that supports nuclear nonproliferation and international safeguards;

CONFIRMING their mutual interest in expediting the development of radioactive waste management technologies and the next generation nuclear energy systems, including advanced fuel cycle technologies in order to respond effectively to the issues of climate change, nonproliferation, energy security and sustainable economic development, with due consideration of the Parties' advanced level in the peaceful uses of nuclear energy;

RECOGNIZING the importance of the use and development of nuclear energy for peaceful purposes, and desiring to expand and facilitate nuclear research and development cooperation as well as industrial and commercial cooperation and nuclear trade, thus strengthening their bilateral alliance relationship;

DESIRING to enhance cooperation in ensuring safety in nuclear activities aimed at preventing nuclear accidents and providing appropriate assistance in the event of a nuclear accident or radiological emergency to mitigate its consequences;

REAFFIRMING their strong partnership on strengthening the global nonproliferation regime, including nuclear security, nuclear safeguards, combating nuclear terrorism and the proliferation of weapons of mass destruction, and close cooperation on advancing their shared objective to address the security and proliferation threat posed by North Korea's nuclear program; and

MINDFUL that peaceful nuclear activities must be undertaken with a view to protecting the international environment from radioactive, chemical and thermal contamination;

HAVE AGREED AS FOLLOWS:

ARTICLE 1 - DEFINITIONS

For the purpose of this Agreement and the Agreed Minutes:

(a) "Agreed Minutes" means the Agreed Minute and the Agreed Minute on High Level Bilateral Commission annexed to this Agreement, both of which are integral parts hereof;

(b) "Byproduct material" means any radioactive material (except special fissionable material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special fissionable material;

(c) "Component" means a component part of equipment, or other items so designated by agreement of the Parties;

(d) "Conversion" means any of the normal operations in the nuclear fuel cycle, preceding fuel fabrication and excluding enrichment, by which uranium is transformed from one chemical form to another;

(e) "Equipment" means any nuclear reactor as a complete unit, other than one designed or used primarily for the formation of plutonium or uranium 233, and any other items specified below or so designated by agreement of the Parties:

i) reactor pressure vessel: metal vessel, as a complete unit or as a major shop-fabricated part therefor, which is designed or prepared to contain the core of a reactor and is capable of withstanding the operating pressure of the primary coolant,

ii) "on-line" reactor fuel charging and discharging machine as a complete unit: manipulative equipment especially designed or prepared for inserting or removing fuel in a reactor capable of on-load operation,

iii) complete reactor control rod system: complete control rod assemblies, including the control rod drive mechanism, especially designed or prepared for the control of the reaction rate in a reactor;

iv) reactor primary coolant pump as a complete unit: pump, including the motor, especially designed or prepared for circulating the primary coolant for a reactor;

(f) "High enriched uranium" means uranium enriched to twenty percent or greater in the isotope 235;

(g) "Information" means scientific, commercial or technical data or information in any form that is appropriately designated by agreement of the Parties or their appropriate authorities to be provided or exchanged under this Agreement;

(h) "Low enriched uranium" means uranium enriched to less than twenty percent in the isotope 235;

(i) "Moderator material" means heavy water or graphite of a purity suitable for use in a reactor to slow down high velocity neutrons and increase the likelihood of further fission, or any other such material so designated by agreement of the Parties;

(j) "Nuclear material" means (1) "source material", namely, 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 substance containing one or more of the foregoing in such concentration as may be agreed to by the Parties; and such other substances as may be agreed to by the Parties; and (2) "special fissionable material", namely, plutonium, uranium 233, uranium enriched in the isotope 233 or 235; any substance containing one or more of the foregoing; and such other substances as may be agreed to by the Parties;

(k) "Peaceful purposes" include the use of information, nuclear material, moderator material, byproduct material, equipment and components in such fields as research, power generation,

medicine, agriculture and industry, but do not include use in, research on, or development of any nuclear explosive device, or any military purpose;

(l) "Person" means any individual or any entity subject to the jurisdiction of either Party but does not include the Parties to this Agreement;

(m) "Reactor" means any apparatus, other than a nuclear weapon or other nuclear explosive device, in which a self-sustaining fission chain reaction is maintained by utilizing uranium, plutonium or thorium or any combination thereof;

(n) "Restricted Data" means all data concerning (1) design, manufacture or utilization of nuclear weapons, (2) the production of special fissionable material, or (3) the use of special fissionable material in the production of energy, but shall not include data of a Party that it has declassified or removed from the category of Restricted Data;

(o) "Sensitive nuclear technology" means any information (including information incorporated in equipment or an important component thereof) that is not in the public domain and that is important to the design, construction, fabrication, operation or maintenance of any facility designed or used primarily for uranium enrichment, reprocessing of nuclear fuel, or heavy water production, or any other such information that may be designated by agreement of the Parties.

ARTICLE 2 - SCOPE OF COOPERATION

1. The Parties shall cooperate in the peaceful uses of nuclear energy in accordance with the provisions of this Agreement and their applicable treaties, national laws, regulations and license requirements.

2. Transfer of information, nuclear material, moderator material, equipment and components pursuant to this Agreement may be undertaken between the Parties or through authorized persons, whether directly or through a third country. Information, nuclear material, moderator material, equipment, and components transferred from the territory of one Party to the territory of the

other Party, whether directly or indirectly, shall become subject to this Agreement upon their entry into the territorial jurisdiction of the receiving Party, provided that the supplying Party has notified the receiving Party in writing of the intended transfer and the receiving Party has acknowledged in writing the receipt of such notification. The Parties shall make reasonable efforts to provide such notifications in advance of shipment, recognizing the importance of doing so. Such transfers shall also be subject to such additional terms and conditions as may be agreed to by the Parties.

3. Nuclear material, moderator material, byproduct material, equipment and components (collectively referred to for the purposes of this paragraph as "items") subject to this Agreement shall remain subject to the provisions of this Agreement until it has been determined in writing by the Parties or their authorities, in accordance with the procedures set out in the Administrative Arrangement established pursuant to Article 19:

a. that such items have been retransferred beyond the territory, jurisdiction, or control of the receiving Party in accordance with the relevant provisions of this Agreement,

b. that, in the case of nuclear material or moderator material, it is no longer usable for any nuclear activity relevant from the point of view of international safeguards or has become practically irrecoverable, or

c. that, in the case of equipment, components, or byproduct material, such items are no longer usable for nuclear purposes.

ARTICLE 3 – COOPERATION ON NUCLEAR RESEARCH AND DEVELOPMENT

1. The Parties shall undertake to facilitate the fullest possible cooperation in nuclear research, development and demonstration in the following areas, insofar as such activities are covered by the respective nuclear research and development programs of the Parties:

(a) Nuclear safety including regulatory and operational aspects of radiological protection;

- (b) Next generation nuclear energy systems including advanced nuclear fuel cycle technology;
- (c) Radioactive waste management including disposal;
- (d) Production of radioactive isotopes and application of radiation and radioactive isotopes;
- (e) Safeguards and physical protection;
- (f) Controlled thermonuclear fusion including in multilateral projects;
- (g) Design and manufacture of nuclear fuels;
- (h) Development, design, construction, operation, maintenance and use of reactors, reactor experiments, and decommissioning; and
- (i) Other areas as may be agreed upon by the Parties.

2. Cooperation pursuant to this Article may include, but is not limited to, training, exchange of personnel, meetings, exchanges of samples, materials and instruments for experimental purposes and a balanced participation in joint studies and projects.

ARTICLE 4 - TRANSFER OF INFORMATION

1. Information concerning the use of nuclear energy for peaceful purposes may be transferred. Transfers of information may be accomplished through various means, including, but not limited to, reports, data banks, computer programs, conferences, visits, and assignments of staff to facilities.
2. This Agreement does not require the transfer of any information that the Parties are not permitted under their respective treaties, national laws and regulations to transfer.
3. Restricted Data shall not be transferred under this Agreement.
4. Sensitive nuclear technology and technology or information that is not in the public domain concerning fabrication of nuclear fuel containing plutonium may be transferred under this

Agreement if provided for by an amendment to this Agreement, or may be transferred by a separate agreement between the Parties.

ARTICLE 5 - INDUSTRIAL AND COMMERCIAL COOPERATION

The Parties shall undertake to facilitate the exchange of nuclear material, moderator material, equipment and components, and scientific and technological information between themselves and their authorized persons, for the peaceful uses of nuclear energy. Such exchange may take place through commercial relations between their authorized persons, including but not limited to investments, joint ventures, trade under Article 6 and licensing arrangements.

ARTICLE 6 - NUCLEAR TRADE

1. The Parties shall facilitate trade in nuclear material, moderator material, equipment and components between themselves and their authorized persons, to serve the mutual interests of industry, utilities and consumers and, where appropriate, trade between third countries and either Party of nuclear material, moderator material, equipment and components subject to this Agreement.
2. Authorizations, including export and import licenses and approvals for the transfer of technical data and assistance under this Agreement as well as authorizations or consents to third parties, relating to trade, industrial operations or nuclear material movements in the territories of the Parties shall not be used to restrict trade. The Parties, through their appropriate authorities, shall promptly and without undue expense act upon applications for such authorizations necessary to facilitate trade under this Article. The Parties agree to make all reasonable efforts, consistent with their domestic laws and regulations, to issue such authorizations promptly.

ARTICLE 7 - TRANSFER OF NUCLEAR MATERIAL, MODERATOR MATERIAL, EQUIPMENT AND COMPONENTS

1. Nuclear material, moderator material, equipment and components may be transferred for applications consistent with this Agreement. Any special fissionable material transferred under this Agreement shall be low enriched uranium, except as provided in paragraphs 3 and 4 of this

Article. Any facility designed or used primarily for uranium enrichment, reprocessing of nuclear fuel, heavy water production, or fabrication of nuclear fuel containing plutonium, and any part or group of parts essential to the operation of such a facility may be transferred under this Agreement if provided for by an amendment to this Agreement, or may be transferred under a separate agreement between the Parties.

2. Low enriched uranium may be transferred, including *inter alia* by sale or lease, for use as fuel in reactors and reactor experiments, for conversion or fabrication, for production of radioisotopes, or for such other purposes as may be agreed by the Parties.

3. Small quantities of special fissionable material other than low enriched uranium may be transferred for use as samples, standards, detectors, targets, tracers or for such other purposes as the Parties may agree.

4. Special fissionable material other than low enriched uranium and special fissionable material contemplated under paragraph 3 may be transferred for specified applications, subject to the Parties' respective applicable laws, regulations, and licensing policies, including for any of the following purposes: use in loading of fast reactors or in fast reactor experiments; the reliable, efficient and continuous operation of fast reactors; or the conduct of fast reactor experiments.

ARTICLE 8 – NUCLEAR FUEL SUPPLY

The Government of the United States of America shall endeavor to take such actions as may be necessary and feasible to ensure a reliable supply of low enriched uranium to the Republic of Korea, including the prompt issuance, subject to its domestic laws, regulations and licensing policies, of licenses for the export to the Republic of Korea of low enriched uranium and authorizations for the retransfer to the Republic of Korea of low enriched uranium resulting from the processing of nuclear material exported from the United States to third countries for processing into nuclear fuel for use in the Republic of Korea.

ARTICLE 9 – COOPERATION ON SPENT FUEL MANAGEMENT

The Government of the United States of America shall consider such actions as are feasible to assist the Republic of Korea in the safe and secure management, including, but not limited to, storage, transportation, and disposal, of irradiated special fissionable material produced through the use of nuclear material or equipment transferred pursuant to this Agreement.

ARTICLE 10 - STORAGE AND RETRANSFERS

1. Plutonium and uranium 233 (except as contained in irradiated fuel elements), and high enriched uranium, transferred pursuant to this Agreement or used in or produced through the use of nuclear material or equipment so transferred, shall only be stored in a facility to which the Parties agree.
2. Nuclear material, moderator material, equipment and components transferred pursuant to this Agreement and any special fissionable material produced through the use of any such nuclear material, moderator material, or equipment, may only be transferred: to persons authorized by the receiving Party; and, if the Parties agree, beyond the territorial jurisdiction of the receiving Party.
3. Irradiated nuclear material transferred pursuant to this Agreement or produced through the use of nuclear material, moderator material, or equipment transferred pursuant to this Agreement may be transferred to a third country as agreed by the Parties, or to the other Party if the receiving Party agrees and designates a storage or disposition option. In the event of transfer between the Parties, the Parties shall make appropriate implementing arrangements.

ARTICLE 11 – ENRICHMENT, REPROCESSING, AND OTHER ALTERATION IN FORM OR CONTENT

1. The reprocessing or other alteration in form or content of source material or special fissionable material transferred pursuant to this Agreement or used in or produced through the use of any

source material, special fissionable material, moderator material, or equipment so transferred may take place only if the Parties agree in writing, including with respect to the facilities in which such an activity may be performed.

2. Uranium transferred pursuant to this Agreement, and uranium used in or produced through the use of equipment transferred pursuant to this Agreement, may be enriched only if: (a) the Parties agree in writing on an arrangement to do so, following consultations undertaken bilaterally through the High Level Bilateral Commission to be established pursuant to paragraph 2 of Article 18 of this Agreement and consistent with the Parties' applicable treaties, national laws, regulations and license requirements, and (b) the enrichment is only up to less than twenty percent in the uranium isotope 235.

3. Alteration in form or content does not include irradiation or re-irradiation of nuclear reactor fuel, or conversion, reconversion, or fabrication involving unirradiated source material or unirradiated low enriched uranium.

ARTICLE 12 - PHYSICAL PROTECTION

1. Adequate physical protection shall be maintained with respect to nuclear material and equipment transferred pursuant to this Agreement and special fissionable material used in or produced through the use of nuclear material, moderator material or equipment so transferred.

2. To fulfill the requirement in paragraph 1, each Party shall apply measures in accordance with (1) levels of physical protection at least equivalent to the recommendations published in IAEA document INFCIRC/225/Rev.5 entitled "Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5)" and in any subsequent revisions of that document agreed to by the Parties, and (2) the provisions of the Convention on the Physical Protection of Nuclear Material of March 3, 1980, and any amendments to that Convention that enter into force for both Parties.

3. The Parties shall keep each other informed through diplomatic channels of those agencies or authorities having responsibility for ensuring that levels of physical protection for nuclear material in their territory or under their jurisdiction or control are adequately met and having responsibility for coordinating response and recovery operations in the event of unauthorized use or handling of nuclear material subject to this Article. The Parties shall also inform each other through diplomatic channels of the designated points of contact within their appropriate authorities to cooperate on matters of out-of-country transportation and other matters of mutual concern.

4. The provisions of this Article shall be implemented in such a manner as to avoid undue interference in the nuclear activities in the two countries and so as to be consistent with prudent management practices required for the economic and safe conduct of their nuclear programs.

ARTICLE 13 - NO EXPLOSIVE OR MILITARY APPLICATION

Nuclear material, moderator material, equipment and components transferred pursuant to this Agreement and any nuclear material, moderator material, or byproduct material used in or produced through the use of any nuclear material, moderator material, equipment or components so transferred shall not be used for a nuclear weapon or any nuclear explosive device, for research on or development of any nuclear explosive device, or for any military purpose.

ARTICLE 14 – SAFEGUARDS

1. Cooperation under this Agreement shall require the application of IAEA safeguards with respect to all nuclear activities within the territory of the Republic of Korea under its jurisdiction or carried out under its control anywhere. Implementation of a safeguards agreement pursuant to paragraph 4 of Article III of the NPT shall be considered to fulfill this requirement.

2. Nuclear material transferred to the Republic of Korea pursuant to this Agreement or used in or produced through the use of any nuclear material, moderator material, equipment or components so transferred shall be subject to safeguards in accordance with the Agreement between the Government of the Republic of Korea and the IAEA for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, signed on October 31, 1975 (hereinafter referred to as the "ROK-IAEA Safeguards Agreement"), which entered into force on November 14, 1975, and the Additional Protocol thereto, which entered into force on February 19, 2004.

3. Nuclear material transferred to the United States of America pursuant to this Agreement or used in or produced through the use of any nuclear material, moderator material, equipment or components so transferred shall be subject to the Agreement between the United States of America and the IAEA for the Application of Safeguards in the United States of America, signed on November 18, 1977 (hereinafter referred to as the "U.S.-IAEA Safeguards Agreement"), which entered into force on December 9, 1980, and the Additional Protocol thereto, which entered into force on January 6, 2009.

4. In the event that the ROK-IAEA Safeguards Agreement referred to in paragraph 2 of this Article is not being applied, the Republic of Korea shall enter into an agreement with the IAEA for the application of safeguards which provides for effectiveness and coverage equivalent to that provided by the ROK-IAEA Safeguards Agreement required by paragraph 2 of this Article or, if that is not possible, the Parties shall immediately establish safeguards arrangements for the application of safeguards which provide for effectiveness and coverage equivalent to that provided by the ROK-IAEA Safeguards Agreement required by paragraph 2 of this Article.

5. In the event that the U.S.-IAEA Safeguards Agreement referred to in paragraph 3 of this Article is not being applied, the United States of America shall enter into an agreement with the IAEA for the application of safeguards which provides for effectiveness and coverage equivalent to that provided by the U.S.-IAEA Safeguards Agreement required by paragraph 3 of this Article, or if that is not possible, the Parties shall immediately establish safeguards arrangements for the

application of safeguards which provide for effectiveness and coverage equivalent to that provided by the U.S.-IAEA Safeguards Agreement required by paragraph 3 of this Article.

6. Each Party shall take such measures as necessary to maintain and facilitate the application of safeguards provided for under this Article.

7. Each Party shall maintain a system of accounting for and control of nuclear material transferred pursuant to this Agreement and nuclear material used in or produced through the use of any nuclear material, moderator material, equipment or components so transferred. The procedures for this system shall be comparable to those set forth in IAEA document INFCIRC/153 (Corrected), or in any revision of that document agreed to by the Parties.

8. The provisions of this Article shall be implemented in such a manner as to avoid hampering, delay or undue interference in the nuclear activities in the two countries and so as to be consistent with prudent management practices required for the economic and safe conduct of their nuclear programs.

ARTICLE 15 - GOOD FAITH AND INTERESTS

The terms of this Agreement shall be implemented in good faith and with due regard to the legitimate commercial interests, whether international or domestic, of each Party and the long-term requirements of the nuclear energy programs in place in the Republic of Korea and the United States of America, in order to promote the peaceful uses of nuclear energy.

ARTICLE 16 - MULTIPLE SUPPLIER CONTROLS

If any agreement between either Party and another country or group of countries provides to such other country or group of countries rights equivalent to any or all of those set forth under Articles 10 and 11 with respect to nuclear material, moderator material, equipment or components subject

to this Agreement, the Parties may, upon request of either Party, agree that the implementation of any such rights will be accomplished by such other country or group of countries.

ARTICLE 17 - CESSATION OF COOPERATION AND RIGHT OF RETURN

1. If either Party at any time following the entry into force of this Agreement:

(a) does not comply with the provisions of Articles 10, 11, 12, 13 or 14 of this Agreement; or

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

the other Party shall have the rights to cease further cooperation under this Agreement or terminate this Agreement and in either case to require the return of any nuclear material, moderator material, equipment or component (collectively referred to for the purposes of this Article as "items") transferred pursuant to this Agreement and any special fissionable material produced through the use of such items.

2. If the United States of America at any time following the entry into force of this Agreement detonates a nuclear explosive device using nuclear material, moderator material, equipment or components transferred pursuant to this Agreement or any nuclear material used in or produced through the use of such items, the Government of the Republic of Korea shall have the same rights as specified in paragraph 1 of this Article.

3. If the Republic of Korea at any time following the entry into force of this Agreement detonates a nuclear explosive device, the Government of the United States of America shall have the same rights as specified in paragraph 1 of this Article.

4. If either Party exercises its rights under this Article to require the return of any nuclear material, moderator material, equipment or component, it shall reimburse the other Party for the fair market value of such items.

5. Before either Party takes steps to cease cooperation under this Agreement, to terminate this Agreement or to require such return, the Parties shall consult for the purpose of taking corrective steps and shall carefully consider the economic effects of such actions, taking into account the need to make such other appropriate arrangements as may be required.

ARTICLE 18 – CONSULTATIONS AND ENVIRONMENTAL PROTECTION

1. The Parties undertake to consult at the request of either Party regarding the implementation of this Agreement and the development of further cooperation in the field of the peaceful uses of nuclear energy, including nuclear safety. Such consultations may include, but are not limited to, the following matters:

- (a) the adequacy of physical protection of nuclear material subject to this Agreement and on facilities where such material is or will be located;
- (b) implementation of administrative procedures to ensure timely processing of applications for (i) export and import licenses, (ii) approvals for the transfer of technical data and assistance under this Agreement and (iii) authorizations or consents to third parties, relating to trade, industrial operations or nuclear material movements in the territories of the Parties;
- (c) addition of a third country or destination in the advance consent lists to be exchanged between the Parties for retransfers of unirradiated low enriched uranium, unirradiated source material, equipment and components;
- (d) addition of a third country or destination to which irradiated nuclear material may be transferred;
- (e) implication of changes in domestic laws, regulations, policies and licensing requirements on the implementation of this Agreement; and
- (f) issues of multilateral cooperation relating to the implementation of this Agreement.

2. The Parties shall form a High Level Bilateral Commission to be led by the Deputy Secretary of Energy for the Government of the United States of America and by the Vice Minister of Foreign Affairs for the Government of the Republic of Korea (collectively, the "Commission Chairs") to facilitate the Parties' strategic cooperation and dialogue regarding areas of mutual interest in civil nuclear energy, including the civil nuclear fuel cycle. At the direction of the Commission Chairs of the High Level Bilateral Commission, working groups shall be formed to consult with each other on assured fuel supply, spent fuel management, export cooperation, nuclear security, and any other topics related to peaceful nuclear cooperation mutually agreed to in writing by the Parties.

3. The Parties shall consult with regard to activities under this Agreement to identify the international environmental implications arising from such activities and shall cooperate in protecting the international environment from radioactive, chemical or thermal contamination arising from peaceful nuclear activities under this Agreement and in related matters of health and safety.

ARTICLE 19 - ADMINISTRATIVE ARRANGEMENT

1. The appropriate authorities of the Parties shall establish an Administrative Arrangement in order to provide for the effective implementation of the provisions of this Agreement. The Arrangement established pursuant to this paragraph may be modified in writing by the appropriate authorities of the Parties.

2. The principles of fungibility, proportionality and equivalence shall apply to nuclear material subject to this Agreement. Detailed provisions for applying these principles shall be set forth in the Administrative Arrangement.

3. The Parties intend to continue their present practice of coordinating and facilitating government-to-government activities through a Joint Standing Committee, which is currently composed of representatives designated by each Party. The Joint Standing Committee shall

report to the High Level Bilateral Commission to be established pursuant to paragraph 2 of Article 18. The Joint Standing Committee reviews should take place alternately in the Republic of Korea and in the United States of America.

ARTICLE 20 - SETTLEMENT OF DISPUTES

If any question arises concerning the interpretation, implementation, or application of this Agreement, the Parties shall, at the request of either of them, consult with each other. Any dispute between the Parties regarding interpretation, implementation, or application of this Agreement shall be promptly negotiated by the Parties with a view to resolving that dispute, and may be addressed through diplomatic channels or any other peaceful means of settlement of disputes agreed to by the Parties.

ARTICLE 21 - ENTRY INTO FORCE, DURATION AND AMENDMENT

1. This Agreement shall enter into force on the date of the last note in an exchange of diplomatic notes in which the Parties inform each other that they have completed all applicable internal requirements necessary for its entry into force.
2. This Agreement shall remain in force for a period of twenty (20) years and shall thereafter renew for an additional period of five (5) years unless either Party gives written notice to the other Party at least two years prior to the twentieth anniversary of entry into force of this Agreement that it does not want to renew this Agreement, in which case this Agreement shall terminate twenty (20) years after entry into force. Either Party may terminate this Agreement at any time by giving one year's advance written notice to the other Party. As soon as possible after the seventeenth (17th) anniversary of the entry into force of this Agreement, the Parties shall consult regarding the effectiveness of this Agreement in achieving their respective objectives and decide whether to pursue an extension of the term of this Agreement.

3. This Agreement may be amended at any time by written agreement of the Parties. At the request of either Party, the Parties shall consult with each other regarding whether to amend this Agreement or replace it with a new Agreement. Any such amendment shall enter into force in accordance with the procedures stipulated in paragraph 1 of this Article.

4. The 1972 Agreement shall terminate on the date this Agreement enters into force.

5. Nuclear material, moderator material, equipment and components subject to the 1972 Agreement shall become subject to this Agreement upon its entry into force and shall be considered to have been transferred pursuant to this Agreement. Notwithstanding the foregoing, special fissionable material that was produced prior to the entry into force of this Agreement through the use of equipment or devices (as the term "equipment or devices" is defined in the 1972 Agreement) that were transferred to the Government of the ROK or authorized persons under its jurisdiction pursuant to the 1972 Agreement or the Superseded Agreement (as the term "Superseded Agreement" is defined in the 1972 Agreement), but not through the use of nuclear material that was transferred to the Government of the ROK or authorized persons under its jurisdiction pursuant to the 1972 Agreement or the Superseded Agreement, shall be subject only to Articles 12, 13, and 14 of this Agreement.

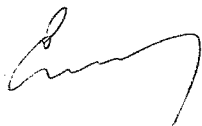
6. Notwithstanding the termination or expiration of this Agreement or any cessation of cooperation hereunder for any reason, Articles 10, 11, 12, 13, 14, and 17 and the Agreed Minute annexed to this Agreement shall continue in effect so long as any nuclear material, moderator material, byproduct material, equipment or component (collectively referred to for the purposes of this paragraph as "items") subject to these Articles remains in the territory of the Party concerned or under its jurisdiction or control anywhere, or until such time as the Parties agree that, in the case of nuclear material or moderator material, such items are no longer usable for any nuclear activity relevant from the point of view of international safeguards or has become

practically irrecoverable, or, in the case of equipment, components, or byproduct material, such items are no longer usable for nuclear purposes.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto by their respective Governments, have signed this Agreement.

Done at Washington, this 15th day of June, 2015, in duplicate, in the Korean and English languages, both texts being equally authentic.

FOR THE GOVERNMENT OF
THE UNITED STATES OF AMERICA



FOR THE GOVERNMENT OF
THE REPUBLIC OF KOREA



AGREED MINUTE

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

1. Coverage of Agreement

With respect to the definition of "Restricted Data" in paragraph (n) of Article 1 of the Agreement, it is the understanding of the Parties that all information on the use of special fissionable material in the production of energy from standard civilian reactors has been declassified or removed from the category of "Restricted Data."

For the purposes of implementing the rights specified in Article 10 and Article 11 of the Agreement with respect to special fissionable material produced through the use of nuclear material transferred pursuant to the Agreement and not used in or produced through the use of equipment transferred pursuant to the Agreement, such rights shall in practice be applied to that proportion of special fissionable material produced that represents the ratio of transferred material used in the production of the special fissionable material to the total amount of material so used, and similarly for subsequent generations.

For the purposes of paragraph 5 of Article 21 of the Agreement, the Parties shall establish by mutual agreement an initial inventory, which shall include all nuclear material, moderator material, equipment, and components subject to the 1972 Agreement. The Parties shall update and exchange the inventories annually.

With reference to the provisions of Article 10 and Article 11 of the Agreement, it is confirmed that the said provisions of the Agreement shall be implemented in such a manner as to avoid hampering, delay or undue interference in the nuclear activities in the two countries and so as to be consistent with prudent management practices required for the economic and safe conduct of their nuclear programs. It is further confirmed that the provisions of the Agreement shall not be utilized for the purpose of seeking commercial or industrial advantages, or hampering the commercial or industrial interest of either Party or its authorized persons, or for the purpose of hindering the promotion of the peaceful uses of nuclear energy.

2. Safeguards

In the event that the ROK-IAEA Safeguards Agreement or the U.S.-IAEA Safeguards Agreement referred to in paragraph 2 or paragraph 3 of Article 14 of the Agreement is not being applied, either Party shall have the rights listed below, which rights shall be suspended if both Parties agree that the need to exercise such rights is being satisfied by the application of IAEA safeguards under arrangements pursuant to paragraph 4 or paragraph 5 of Article 14 of the Agreement:

1. To review in a timely fashion the design of any equipment transferred pursuant to the Agreement, or of any facility that is to use, fabricate, process or store any nuclear material so transferred or any special fissionable material used in or produced through the use of such nuclear material or equipment;
2. To require the maintenance and production of records and of relevant reports for the purpose of assisting in ensuring accountability for nuclear material transferred pursuant to the Agreement and any nuclear material used in or produced through the use of any nuclear material, moderator material, equipment or components so transferred; and
3. To designate personnel acceptable to the other Party, who shall have access to all places and data necessary to account for the nuclear material referred to in paragraph 2 of this Section, to inspect any equipment or facility referred to in paragraph 1 of this Section, and to install any devices and make such independent measurements as may be deemed necessary to account for

such nuclear material. The safeguarded Party shall not unreasonably withhold its acceptance of personnel designated by the safeguarding Party under this paragraph. Such personnel shall, if either Party so requests, be accompanied by personnel designated by the other Party. The designated personnel shall carry out their activities in a manner in conformity with paragraph 8 of Article 14 of the Agreement.

3. Retransfers

1. a. The Parties agree to the retransfer, subject to paragraph 3 of this Section, of unirradiated low enriched uranium, unirradiated source material, equipment and components subject to paragraph 2 of Article 10 of the Agreement to third countries or destinations identified as provided for in this Section. Upon the entry into force of the Agreement, the Parties shall exchange lists of third countries or destinations to which retransfers of unirradiated low enriched uranium, unirradiated source material, equipment and components subject to paragraph 2 of Article 10 of the Agreement may be made by the other Party.

Either Party may further add other third countries or destinations to, or upon written notice to the other Party, delete third countries or destinations temporarily or permanently from, the list it has provided after consultations with the other Party regarding proposed deletions. Neither Party shall delete third countries or destinations from its lists for the purpose of obtaining commercial advantage. Retransfers to third countries or destinations not included on the lists may be considered on a case by case basis.

b. If a Party advises the other Party of circumstances that require it to seek the other Party's consent to retransfers to a third country or destination that does not have a civilian nuclear cooperation agreement with the non-transferring Party, the non-transferring Party shall make reasonable efforts to obtain necessary assurances through an exchange of diplomatic notes or other appropriate diplomatic arrangements, to facilitate the retransfer by the transferring Party or its authorized persons to such third country or destination, to the extent feasible under the policies, laws and regulations of the non-transferring Party. This provision does not apply to Member States of the European Atomic Energy Community (EURATOM).

2. The Parties agree that irradiated nuclear material subject to Article 10 and Article 11 of the Agreement may be transferred (such transfers being hereinafter referred to as "retransfers") by either Party for storage and reprocessing to France, the United Kingdom, and also to any other country or destination as may be agreed upon in writing by the Parties. All such retransfers described in this paragraph shall be made in compliance with the policies, laws, and regulations of the recipient country, group of countries where applicable, or destination.

3. The consents provided in paragraphs 1 and 2 of this Section are subject to the following conditions:

- i) A Party shall not proceed with a proposed retransfer to a third country or destination under this Section until the non-transferring Party has received confirmation from the receiving country or destination or, in the case of a proposed retransfer to a country that is a member of EURATOM or another group of countries, from EURATOM or the other group of countries, as applicable, that the source material, special fissionable material, or equipment to be retransferred shall be held within EURATOM or other group of countries (if the retransfer is to a EURATOM member country or a country that is a member of another group of countries), or the receiving country or destination, subject to the terms and conditions of an agreement for peaceful nuclear cooperation to which the non-transferring Party (or a representative organization thereof) is a party and which authorizes nuclear exports from the non-transferring Party to that country or destination, or to EURATOM or other group of countries, as appropriate. If the receiving country or destination, or EURATOM or other group of countries in the case of proposed retransfer to a country that is a member of EURATOM or such other group of countries, does not have an agreement for peaceful nuclear cooperation in force with the non-transferring Party under which components may be transferred subject to that Agreement, then the transferring Party shall not proceed with a transfer of components until the non-transferring Party has received assurances from the receiving country, destination, or EURATOM or such other group of countries that: IAEA safeguards as required by paragraph 2 of Article

III of the NPT shall be applied with respect to such component (for non-nuclear weapons states within the meaning of the NPT); the component shall not be used for any nuclear explosive device or for research on or development of any nuclear explosive device; and no retransfer of the components shall occur without the prior consent of the non-transferring Party. The notification provisions applicable to retransfers under this Section shall be set forth in the Administrative Arrangement described in Article 19 of the Agreement.

- ii) The transferring Party shall keep records of any such transfers to third countries or destinations and shall upon shipment notify the non-transferring Party of each such transfer. The Parties shall cooperate in efforts to obtain as soon as possible, on a generic basis, a confirmation from the third countries, or destinations on the lists, or in the case of a country on the list that is a member of EURATOM or another group of countries, from EURATOM or such other group of countries, that any retransferred items shall be subject to any agreement for cooperation in force between the receiving country, EURATOM or other group of countries, or destination and the non-transferring Party.
4. In the case of irradiated nuclear material subject to the Agreement transferred by either Party pursuant to paragraph 2 of this Section, the non-transferring Party agrees to provide its consent, under the applicable agreement for cooperation, to the return to the territorial jurisdiction of the transferring Party of nuclear material recovered from irradiated nuclear material so transferred subject to the conditions that:
- i) Any such nuclear material returned to the territorial jurisdiction of the transferring Party shall be subject to the Agreement;
 - ii) Any such nuclear material recovered from any reprocessing in the third country or destination shall be transferred in the form and subject to physical protection arrangements as agreed in writing by the Parties.

5. The consents to retransfer provided in paragraphs 1, 2, and 4 of this Section may be suspended or withdrawn in whole or in part by either Party if that Party determines that one or more of the conditions in paragraphs 3 and 4 of this Section is not satisfied, or if it determines that exceptional circumstances of concern from a nonproliferation or security standpoint so require. To the extent that time and circumstances permit, the Parties shall consult prior to such suspension or withdrawal. Such exceptional circumstances include, but are not limited to, a determination by either Party that the consent cannot be continued without a significant increase of the risk of proliferation or without jeopardizing its national security.

6. The Party considering that objective evidence of exceptional circumstances may exist shall consult with the other Party before reaching any decision. Any decision that such objective evidence does exist, and that activities referred to in paragraphs 1, 2 and 4 of this Section should therefore be suspended, shall be taken only at the highest levels of government after the other Party is notified in writing. Any suspension shall only be applied for the minimum period of time necessary to deal with the exceptional circumstances in a manner acceptable to the Parties. The Party invoking the right to suspend the consents granted by paragraphs 1, 2 and 4 of this Section shall keep under constant review the development of the situation which prompted the decision and shall withdraw such suspension as soon as warranted.

4. Additional Exchanges of Information

1. With regard to tritium produced after the entry into force of the Agreement through the use of moderator material transferred pursuant to the Agreement, the Parties shall exchange annually information pertaining to its disposition for peaceful purposes consistent with Article 13 of the Agreement, including transfers to other countries or destinations. The information exchanged shall be consistent with relevant provisions of the Administrative Arrangement.

2. The Parties each have the responsibility pursuant to paragraph 7 of Article 14 of the Agreement to maintain a system of accounting for and control of nuclear material subject to the Agreement. In this respect, given the importance of accurate inventory information for such

systems, upon the request of either Party, the other Party shall report information to the requesting Party on the status of all transactions involving nuclear material that either Party has identified as being subject to the Agreement.

3. Given the importance under the Agreement for each Party's nuclear trading relationships with third countries of whether the other Party has nuclear cooperation agreements with those third countries, each Party shall endeavor to keep the other Party informed on a timely basis of new agreements for nuclear cooperation which it has concluded with other governments.

5. Alteration in Form or Content

1. Pursuant to paragraph 1 of Article 11 of the Agreement, the Parties hereby agree that post-irradiation examination of irradiated nuclear material subject to the Agreement and the separation of radioisotopes from irradiated low enriched uranium subject to the Agreement may be conducted at the facilities in the United States of America and the Republic of Korea listed in Section 1 of Annex I to this Agreed Minute.

2. Pursuant to paragraph 1 of Article 11 of the Agreement, the Parties hereby agree that material consolidation and treatment involving alteration in form or content of irradiated nuclear material subject to the Agreement in which transuranics or other special fissionable material are not capable of being separated may be conducted at the facilities in the United States of America and the Republic of Korea listed in Section 2 of Annex I to this Agreed Minute.

3. Facilities for the activities referred to in paragraph 1 of this Section may be added in accordance with the laws and regulations of the Parties to the list in Section 1 of Annex I to this Agreed Minute if one Party notifies the other Party in writing of the facilities to be added and the other Party provides written acknowledgment of such notification.

a. Prior to any proposal to add a facility to Section 1 of Annex I to this Agreed Minute with respect to which the applicable safeguards agreement referenced in Article 14 of the Agreement would require safeguards, the Parties shall consult in order to ensure that an appropriate IAEA

safeguards arrangement, as applicable, containing key elements as agreed upon with the IAEA, has been brought into force with respect to that facility.

b. For each facility proposed to be added to Section 1 of Annex I to this Agreed Minute, upon conclusion of the consultations referred to in subparagraph a of this paragraph, the proposing Party shall provide the other Party with a written notification containing the following:

- i. The name of the owner or operator of the facility, the facility name and the existing or planned capacity;
- ii. The facility location, the type of nuclear material involved, the approximate date of introduction of such nuclear material into the facility and the type of activity to be conducted there; and
- iii. A statement that physical protection measures as required by Article 12 of the Agreement will be maintained.

The receiving Party's acknowledgment of such notification shall be limited to a statement that such notification has been received. Such acknowledgment shall be given no later than thirty days after the receipt of the notification.

4. The Parties shall provide annual reports to one another regarding all post-irradiation examination and radioisotope separation activities referred to in paragraph 1 of this Section conducted at the facilities listed in Section 1 of Annex I to this Agreed Minute.

5. Facilities for the activities referred to in paragraph 2 of this Section may be added to those listed in Section 2 of Annex I to this Agreed Minute upon written agreement of the Parties, in accordance with the laws and regulations of the Parties and the following:

a. Prior to any proposal to add to Section 2 of Annex I to this Agreed Minute a facility with respect to which the applicable safeguards agreement referenced in Article 14 of the Agreement would require safeguards, the Parties shall consult together with the IAEA to develop a safeguards approach and the incorporated key elements of a safeguards arrangement mutually

acceptable to the Parties and to the IAEA to be brought into force with respect to that facility. The Parties shall begin consultations with each other and the IAEA within six months of the request of the Party seeking such addition, and with a view to concluding the written agreement referred to in this paragraph 5 providing for the addition of such facility to Section 2 of Annex I to this Agreed Minute within twelve months from the beginning of the consultations.

b. The written agreement referred to in this paragraph shall include, as a condition for the addition of the proposed facility to Section 2 of Annex I to this Agreed Minute, entry into force of a safeguards arrangement with respect to the proposed facility with the IAEA containing the safeguards approach and key elements resulting from the consultations referred to in subparagraph a of this paragraph, and shall provide for modifications of the key elements by written agreement of the Parties.

c. In the case of a proposed facility with respect to which safeguards are not required by the applicable safeguards agreement referred to in Article 14 of the Agreement, the Parties shall commence consultations on the written agreement referred to in this paragraph providing for the addition of such facility to Section 2 of Annex I to this Agreed Minute within six months of the request of a Party to add such facility and shall strive to conclude such agreement within twelve months after commencement of consultations.

d. After conclusion of the written agreement referred to in this paragraph with respect to a facility proposed to be added to Section 2 of Annex I to this Agreed Minute, and following entry into force of the applicable safeguards arrangements with respect to the proposed facility (namely a facility attachment) with the IAEA, the proposing Party shall provide the other Party with a written notification containing the following:

- i. The name of the owner or operator of the facility, the facility name and the existing or planned capacity;
- ii. The facility location, the type of nuclear material involved, the approximate date of introduction of such nuclear material into the facility and the type of activity to be conducted there;

- iii. Where safeguards are required as provided above, a statement that a safeguards arrangement with respect to the proposed facility with the IAEA, containing the safeguards approach and the key elements referred to in subparagraph a of this paragraph, and including any modifications to the key elements as may be agreed to in writing by the Parties prior to the notification, has entered into force, and a description of the key elements contained in that safeguards arrangement; and
 - iv. A statement that physical protection measures as required by Article 12 of the Agreement will be maintained.
- e. The receiving Party shall provide the proposing Party with written acknowledgment of the notification of the proposing Party, which shall be limited to a statement that such notification has been received. Such acknowledgment shall be given no later than thirty days after the receipt of the notification.
6. The Parties shall provide annual reports to one another regarding all material consolidation and treatment activities involving alteration in form or content of irradiated nuclear material subject to the Agreement conducted at the facilities listed in Section 2 of Annex I to this Agreed Minute.

6. Arrangements for Spent Fuel Management and Disposition

1. The Parties have initiated a joint study to review the technical, economic and nonproliferation (including safeguards) aspects of spent fuel management and disposition technologies (the Joint Fuel Cycle Study). Following the completion of the Joint Fuel Cycle Study, or at such other time as the Parties may agree, the Parties shall consult with a view to identifying appropriate options for the management and disposition of spent fuel subject to the Agreement and for further development or demonstration of relevant technologies. The Parties shall conduct all

consultations referred to in this Section as promptly as possible so that nuclear energy programs of either Party would not be unduly hampered due to the delay of the consultations.

2. These consultations shall be conducted under the auspices of the High Level Bilateral Commission to be established pursuant to Article 18 of the Agreement, and shall take into account all relevant considerations, including the specific characteristics of the technologies involved in such options ("Technologies"), in particular those considerations needed to ensure that the deployment of such Technologies will not result in a significant increase of the risk of proliferation. These considerations include:

- a. the technical feasibility of the Technologies evaluated in the Joint Fuel Cycle Study;
- b. the economic viability of the Technologies evaluated in the Joint Fuel Cycle Study; and
- c. the nonproliferation acceptability of the Technologies evaluated in the Joint Fuel Cycle Study, such as:
 - i. the ability to effectively apply safeguards to the Technologies evaluated in the Joint Fuel Cycle Study;
 - ii. the ability to ensure timely detection and early warning of diversion of nuclear material recovered through the facilities incorporating the Technologies; and
 - iii. the ability of the Technologies evaluated in the Joint Fuel Cycle Study to deter or impede nuclear proliferation.

3. If these consultations identify an option for the management and disposition of spent fuel that involves reprocessing or other alteration in form or content of nuclear material subject to the Agreement and that the Parties agree in writing:

- a. is technically feasible, which may be demonstrated by a very high level of recovery of group actinides from irradiated nuclear material -- targeting a level to result in product and waste streams that can be licensed by the Parties' respective regulatory authorities -- through

engineering-scale demonstrations, and the verification of performance and integrity of group actinide fuels through irradiation tests in the Joint Fuel Cycle Study;

b. is economically viable, including consideration of the expected total lifecycle cost of the option, as evaluated in the Joint Fuel Cycle Study, taking into account the social and environmental costs and benefits of the option in the context of the relevant Party's laws, regulations and policies;

c. is effectively safeguardable, which may be demonstrated by the availability of mutually agreed safeguards approaches for facilities, to the extent safeguards are required by the applicable safeguards agreement referenced in Article 14 of the Agreement, developed jointly through bilateral collaboration between the Parties, or trilateral collaboration (among the Parties and the IAEA), in the Joint Fuel Cycle Study or elsewhere as appropriate;

d. does not significantly increase the risk of proliferation and ensures timely detection and early warning of diversion, based on, *inter alia*, (1) features that deter or impede nuclear proliferation from the perspectives of both design and operation of facilities, and (2) the availability of mutually acceptable safeguards and other measures for timely detection and early warning (such as extended containment and surveillance measures and process monitoring based on sharing of information on the operation of facilities) developed jointly through bilateral or trilateral collaboration in the Joint Fuel Cycle Study; and

e. avoids the buildup of stocks of group actinides in excess of an amount that is reasonably needed, based on a plan to utilize for transmutation the group actinides recovered from spent fuel subject to the Agreement, in particular as fuel in fast reactors;

then the Parties shall seek, in accordance with their respective national laws and regulations, to establish written arrangements for the implementation of the provisions of paragraph 1 of Article 11 of the Agreement with respect to the identified option on a long-term, predictable and reliable basis in a manner that will further facilitate peaceful uses of nuclear energy in their respective countries ("Arrangements"). The Arrangements shall include an initial list of facilities at which reprocessing or other alteration in form or content of irradiated nuclear material subject to the

Agreement may be conducted during the period the Agreement is in force, and those facilities shall be added to Section 1 (for research and development facilities) or Section 2 (for demonstration or production facilities) of Annex II to this Agreed Minute, in accordance with the applicable procedures in paragraph 4 of this Section. Additional facilities may be added at a later date to the Arrangements and to Section 1 of Annex II to this Agreed Minute, or to Section 2 of Annex II to this Agreed Minute, as appropriate, in accordance with the procedures of paragraph 4 of this Section. The Parties shall proceed with a view to completing establishment of the Arrangements in accordance with this provision within twelve months from the end of the consultations referred to in paragraph 1 of this Section.

4. Facilities at which alteration in form or content of irradiated nuclear material subject to the Agreement may be conducted during the period the Agreement is in force may be included in the Arrangements initially, or added to the Arrangements subsequent to their establishment, and added to Section 1 or Section 2, as appropriate, of Annex II to this Agreed Minute upon written agreement of the Parties, in accordance with the laws and regulations of the Parties and the following:

a. Prior to any proposal to include or add a facility with respect to which the applicable safeguards agreement referenced in Article 14 of the Agreement would require safeguards to the Arrangements and Section 1 or Section 2 of Annex II to this Agreed Minute, the Parties shall consult together with the IAEA in order to confirm which of the safeguards approaches identified pursuant to subparagraph c of paragraph 3 of this Section would be applied in the proposed facility and to develop the key elements of a safeguards arrangement mutually acceptable to the Parties and to the IAEA for the implementation of that safeguards approach to be brought into force with respect to that facility. The Parties shall begin consultations with each other and the IAEA within six months of the request of the Party seeking such inclusion or addition, and with a view to concluding the written agreement referred to in this paragraph providing for the inclusion of such facility in or addition of such facility to the Arrangements and addition to Section 1 or Section 2 of Annex II to this Agreed Minute within twelve months from the beginning of the consultations.

b. The written agreement referred to in this paragraph shall include, where applicable, as a condition for the addition of the proposed facility to the Arrangements and either Section 1 or Section 2 of Annex II to this Agreed Minute, entry into force of a safeguards arrangement with respect to the proposed facility with the IAEA containing the safeguards approach and the key elements resulting from the consultations referred to in subparagraph a of this paragraph, and shall provide for modification of the key elements by written agreement of the Parties.

c. In the case of a proposed facility with respect to which safeguards are not required by the applicable safeguards agreement referred to in Article 14 of the Agreement, the Parties shall commence consultations on the written agreement referred to in this paragraph of this Section providing for the inclusion of such facility in or addition of such facility to the Arrangements and addition to Section 1 or Section 2 of Annex II to this Agreed Minute within six months of the request of a Party to include or add such facility and shall strive to conclude such agreement within twelve months after commencement of consultations.

d. After conclusion of the written agreement referred to in this paragraph with respect to a facility proposed to be added to the Arrangements and Section 1 or Section 2 of Annex II to this Agreed Minute, and following entry into force of the applicable safeguards arrangements with respect to the proposed facility (namely a facility attachment) with the IAEA, the proposing Party shall provide the other Party with a written notification containing the following:

- i. The name of the owner or operator of the facility, the facility name and the existing or planned capacity;
- ii. The facility location, the type of nuclear material involved, the approximate date of introduction of such nuclear material into the facility and the type of activity to be conducted there;
- iii. Where safeguards are required as provided above, a statement that a safeguards arrangement with respect to the proposed facility with the IAEA, containing the safeguards approach and the key elements referred to in subparagraph a of this paragraph, and including any modifications to the key elements as may be agreed

to in writing by the Parties prior to the notification, has entered into force, and a description of the key elements contained in that safeguards arrangement; and

- iv. A statement that physical protection measures as required by Article 12 of the Agreement will be maintained.
 - e. The receiving Party shall provide the proposing Party with written acknowledgment of the notification of the proposing Party, which shall be limited to a statement that such notification has been received. Such acknowledgment shall be given no later than thirty days after the receipt of the notification.
5. The Parties shall provide annual reports to one another, in the context of the implementation of the Administrative Arrangement established pursuant to the requirements of paragraph 1 of Article 19 of the Agreement, regarding all research and development activities conducted at facilities listed in Section 1 of Annex II to this Agreed Minute and all demonstration or production activities conducted at facilities listed in Section 2 of Annex II to this Agreed Minute.
6. Either Party may suspend any agreement it has given pursuant to paragraph 1 of Article 11 of the Agreement with respect to facilities listed in Section 1 or Section 2 of Annex II to this Agreed Minute, and the Arrangements established under this Section, in whole or in part, to prevent a significant increase in the risk of nuclear proliferation or in the threat to its national security caused by exceptional cases, including as a result of actions identified in Article 17 of the Agreement. The Parties shall consult prior to such suspension at the Cabinet level for the United States of America and at the Ministerial level for the Republic of Korea. Any decision for such suspension shall be taken only at the highest levels of government of the Party making such decision, and shall be notified in writing to the other Party. Any suspension shall only be applied for the minimum period of time necessary to deal with the exceptional case. The suspending Party shall keep under constant review the development of the situation which prompted the decision and shall withdraw such suspension as soon as warranted. In the event of any such suspension, any advance consents provided pursuant to Article 11 of the Agreement

with respect to facilities identified in those Arrangements or in Annex II to this Agreed Minute shall be similarly suspended.

7. Enrichment

1. The Parties may consult in the High Level Bilateral Commission with a view to identifying appropriate options for enrichment of uranium subject to the Agreement.
2. These consultations shall take into account any relevant considerations raised by either Party, in particular the technical feasibility, economic viability, effective safeguardability, and adequate physical protection of the options identified and whether or not the deployment of any equipment, components, or technology necessary to carry out such options will result in a significant increase of the risk of proliferation.
3. If the Parties, having taken the considerations described in paragraph 2 of this Section into account, jointly identify a mutually acceptable option for enrichment of uranium, the Parties may establish written arrangements applicable to that option, taking into account the Nuclear Suppliers Group Guidelines.
4. If any arrangements are agreed upon in writing pursuant to paragraph 2 of Article 11, the Parties may enrich any uranium transferred pursuant to the Agreement up to less than twenty percent in the uranium isotope 235, subject to paragraph 5 of this Section.
5. Upon the written agreement of the Parties on any arrangements underpinning the enrichment of uranium as identified in paragraph 4 of this Section, the activities referred to in paragraph 4 of this Section may only be conducted at facilities added to Annex III to this Agreed Minute upon written agreement of the Parties, in accordance with the laws and regulations of the Parties and the following:
 - a. Prior to any proposal to add to Annex III to this Agreed Minute a facility with respect to which the applicable safeguards agreement referenced in Article 14 of the Agreement would require

safeguards, the Parties shall consult together with the IAEA in order to develop a safeguards approach and the incorporated key elements of a safeguards arrangement mutually acceptable to the Parties and to the IAEA, to be brought into force with respect to that facility. The Parties shall begin consultations with each other and the IAEA within six months of the request of the Party seeking such addition, and with a view to concluding the written agreement referred to in this paragraph providing for the addition of such facility to Annex III to this Agreed Minute within twelve months from the beginning of the consultations.

b. The written agreement referred to in this paragraph shall include, where applicable, as a condition for the addition of the proposed facility to Annex III to this Agreed Minute, entry into force of a safeguards arrangement containing the safeguards approach and the key elements resulting from the consultations referred to in subparagraph a of this paragraph, and shall provide for modification of the key elements by written agreement of the Parties.

c. In the case of a proposed facility with respect to which safeguards are not required by the applicable safeguards agreement referred to in Article 14 of the Agreement, the Parties shall commence consultations on the written agreement referred to in this paragraph providing for the addition of such facility to Annex III of this Agreed Minute within six months of the request of a Party to add such facility and shall strive to conclude such agreement within twelve months after commencement of consultations.

d. After conclusion of the written agreement referred to in this paragraph with respect to a facility proposed to be added to Annex III to this Agreed Minute, and following entry into force of the applicable safeguards arrangements with respect to the proposed facility (namely a facility attachment) with the IAEA, the proposing Party shall provide the other Party with a written notification containing the following:

- i. The name of the owner or operator of the facility, the facility name and the existing or planned capacity;

<p>ii. The facility location, the type of nuclear material involved, the approximate date of introduction of such nuclear material into the facility and the type of activity to be conducted there;</p> <p>iii. Where safeguards are required as provided above, a statement that a safeguards arrangement with respect to the proposed facility with the IAEA, containing the safeguards approach and the key elements referred to in subparagraph a of this paragraph, and including any modifications to the key elements as may be agreed to in writing by the Parties prior to the notification, has entered into force, and a description of the key elements contained in that safeguards arrangement; and</p> <p>iv. A statement that physical protection measures as required by Article 12 of the Agreement will be maintained.</p> <p>e. The receiving Party shall provide the proposing Party with written acknowledgment of the notification of the proposing Party, which shall be limited to a statement that such notification has been received. Such acknowledgment shall be given no later than thirty days after the receipt of the notification.</p> <p>6. The Parties shall exchange annual reports in the context of the implementation of the Administrative Arrangement established pursuant to the requirements of paragraph 1 of Article 19 of the Agreement regarding all enrichment activities conducted at facilities listed in Annex III to this Agreed Minute.</p> <p>7. Either Party may suspend any agreement it has given pursuant to paragraph 2 of Article 11 of the Agreement with respect to facilities listed in Annex III to this Agreed Minute, and the arrangements established under this Section, in whole or in part, to prevent a significant increase in the risk of nuclear proliferation or in the threat to its national security caused by exceptional cases, including as a result of actions identified in Article 17 of the Agreement. The Parties shall consult prior to such suspension at the Cabinet level for the United States of America and at the Ministerial level for the Republic of Korea. Any decision for such suspension shall be taken</p>

only at the highest levels of government of the Party making such decision, and shall be notified in writing to the other Party. Any suspension shall only be applied for the minimum period of time necessary to deal with the exceptional case. The suspending Party shall keep under constant review the development of the situation which prompted the decision and shall withdraw such suspension as soon as warranted. In the event of the suspension of the arrangements established under this Section, any advance consents provided pursuant to Article 11 of the Agreement with respect to facilities identified in those arrangements or in Annex III to this Agreed Minute shall be similarly suspended.

FOR THE GOVERNMENT OF
THE UNITED STATES OF AMERICA:

FOR THE GOVERNMENT OF
THE REPUBLIC OF KOREA:



ANNEX I

1. Facilities listed pursuant to paragraph 1 of Section 5 of this Agreed Minute

- a. Post Irradiation Examination Facility (PIEF) at Korea Atomic Energy Research Institute(KAERI), Republic of Korea
- b. Irradiated Materials Examination Facility (IMEF) at KAERI, Republic of Korea
- c. Advanced Spent Fuel Conditioning Process Facility (ACPF) at KAERI, Republic of Korea
- d. DUPIC Fuel Development Facility (DFDF) at KAERI, Republic of Korea
- e. Hot Fuel Examination Facility at Idaho National Laboratory, United States of America

2. Facilities listed pursuant to paragraph 2 of Section 5 of this Agreed Minute

- a. Advanced Spent Fuel Conditioning Process Facility (ACPF) at KAERI, Republic of Korea
- b. DUPIC Fuel Development Facility (DFDF) at KAERI, Republic of Korea
- c. Hot Fuel Examination Facility at Idaho National Laboratory, United States of America

ANNEX II

1. Research and development facilities listed pursuant to Section 6 of this Agreed Minute

2. Demonstration or production facilities listed pursuant to of Section 6 of this Agreed Minute

ANNEX III

Facilities listed pursuant to Section 7 of this Agreed Minute

AGREED MINUTE on High Level Bilateral Commission

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

1. Pursuant to paragraph 2 of Article 18 of the Agreement, the Parties shall form a High Level Bilateral Commission to be led by the Deputy Secretary of Energy for the Government of the United States of America and by the Vice Minister of Foreign Affairs for the Government of the Republic of Korea (collectively, the "Commission Chairs"). The purpose of the High Level Bilateral Commission is to facilitate the Parties' peaceful nuclear and strategic cooperation and on-going dialogue regarding areas of mutual interest in civil nuclear energy, including the civil nuclear fuel cycle. The High Level Bilateral Commission shall meet at least once each year, hosted alternately by the Parties.

2. As provided by paragraph 2 of Article 18 of the Agreement, at the direction of the Commission Chairs, working groups in areas of mutual interest shall be formed to consult with each other on spent fuel management, promotion of nuclear exports, assured fuel supply, nuclear security, and any other topics related to peaceful nuclear cooperation mutually agreed to in writing by the Parties.

3. The Parties hereby agree on the following specific goals for the initial four working groups:

A. Working Group on Spent Fuel Management

Facilitate cooperation on enhancing the safe and secure management of spent fuel, including:

- a. Research, development, demonstration and technical cooperation on storage, transportation and disposal of spent fuel.
- b. Joint efforts to diversify options on spent fuel management in each country.

- c. Development of advanced technologies to minimize the impact of spent fuel management on the environment, public health, and safety.
- d. Cooperation on the effective implementation of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, and other relevant international cooperation mechanisms.
- e. Exchange of expertise and cooperation in the decommissioning of nuclear power plants.

B. Working Group on Promotion of Nuclear Exports and Export Control Cooperation.

Facilitate cooperation on the promotion of nuclear exports and on export control cooperation, including:

- a. Ways to enhance global nuclear trade and facilitate nuclear trade cooperation between the Parties involving their respective suppliers, operators, utilities and financiers.
- b. Possibilities for expediting export and import licenses and other relevant authorizations, including retransfer authorizations.
- c. Further development of multilateral export control guidelines and their impact on global civil nuclear trade.
- d. Ensuring that government and civil entities are fully informed of nuclear export obligations.

C. Working Group on Assured Fuel Supply.

Facilitate cooperation on the reliable supply of nuclear fuel, including:

- a. Assessments of the long-term sustainability of nuclear energy and its impact on the energy security of the Parties.

- b. Efforts to maintain and enhance the predictability and stability of the nuclear fuel market.
- c. Exchanges of information, assessments and analyses on nuclear fuel markets.
- d. Evaluations of the potential for the unpredictable disruption of nuclear fuel markets and the possibility of mutual assistance in the event of such disruption.
- e. Development of bilateral and multilateral mechanisms for the reliable supply of nuclear fuel.

D. Working Group on Nuclear Security.

Facilitate cooperation on nuclear security, including:

- a. Identifying ways to minimize the civil use of high enriched uranium and separated plutonium.
- b. Seeking ways to strengthen the global nuclear security legal framework, including outreach efforts to bring into force the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material.
- c. Strengthening the efforts on this issue of international organizations having a nuclear security as part of their mission, in particular the United Nations and the International Atomic Energy Agency.
- d. Cooperating in global nuclear security initiatives, including the Global Partnership against the Spread of Weapons and Materials of Mass Destruction and the Global Initiative to Combat Nuclear Terrorism.
- e. Enhancing regional and international cooperation to promote a nuclear security culture, including through the further development of Centers of Excellence.
- f. Addressing the emerging threat of cyber terrorism against nuclear facilities.

g. Identifying best practices in the area of physical protection of nuclear materials and facilities.

4. Nuclear safety issues are to continue to be addressed through cooperation and consultation between the appropriate nuclear regulatory organizations of the Parties. Information on developments in that cooperative and consultative process may be provided to the High Level Bilateral Commission upon request.

5. The Joint Standing Committee referred to in paragraph 3 of Article 19 of the Agreement shall report to the High Level Bilateral Commission. The Steering Committee of the U.S.-ROK Joint Fuel Cycle Study shall report its findings to the High Level Bilateral Commission.



6. Each working group shall meet at least once a year and report to an annual meeting of the High Level Bilateral Commission.

7. The obligations of the Parties with regard to participation in the activities of the High Level Bilateral Commission and its associated working groups shall be subject to their respective applicable laws and regulations.

8. The Parties shall inform each other through diplomatic channels of the designated offices within their appropriate authorities for effective coordination on the activities of the High Level Bilateral Commission and its working groups.

FOR THE GOVERNMENT OF THE UNITED STATES OF AMERICA

FOR THE GOVERNMENT OF THE REPUBLIC OF KOREA



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THE WHITE HOUSE
WASHINGTON

June 11, 2015

Presidential Determination
No. 2015-08

MEMORANDUM FOR THE SECRETARY OF STATE
THE SECRETARY OF ENERGY

SUBJECT: Proposed Agreement for Cooperation Between the
Government of the United States of America and
the Government of the Republic of Korea
Concerning Peaceful Uses of Nuclear Energy

I have considered the proposed Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Peaceful Uses of Nuclear Energy (the "Agreement"), along with the views, recommendations, and statements of the interested departments and agencies.

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

The Secretary of State is authorized and directed to publish this determination in the *Federal Register*.

A handwritten signature in black ink, appearing to be Barack Obama's signature, consisting of a large 'O' followed by a stylized 'B' and a horizontal line extending to the right.

NUCLEAR PROLIFERATION ASSESSMENT STATEMENT**Pursuant to Section 123 a. of the Atomic Energy Act of 1954, as Amended,
With Respect to the Proposed Agreement for Cooperation Between the
Government of the United States of America and the Government of the
Republic of Korea Concerning Peaceful Uses of Nuclear Energy****INTRODUCTION**

This Nuclear Proliferation Assessment Statement (“NPAS”) relates to the proposed Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Peaceful Uses of Nuclear Energy (the “Agreement”). This Agreement will supersede the 1972 Agreement for Cooperation between the Government of the United States of America and the Government of the Republic of Korea Concerning Civil Uses of Atomic Energy (the “existing U.S.-ROK 123 Agreement”), as amended and extended, which originally entered into force in 1973 and would otherwise expire on March 19, 2016. The proposed Agreement is being submitted to the President jointly by the Secretary of State and Secretary of Energy for his approval.

Subsection 123 a. of the Atomic Energy Act (the “Act”), provides that an NPAS be submitted by the Secretary of State to the President on each new or amended agreement for cooperation concluded pursuant to that section. Pursuant to subsection 123 a., the NPAS must analyze the consistency of the text of the proposed agreement with all the requirements of the Act, with specific attention to whether the proposed agreement is consistent with each of the criteria set forth in that subsection, and address 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.

With this statutory mandate in mind, this NPAS: (a) provides background information on the civil nuclear program of the Republic of Korea (ROK), past and ongoing U.S.-ROK civil nuclear cooperation, and the nonproliferation policies of the ROK (Part I); (b) describes the proposed Agreement and nature and scope of the cooperation contemplated in the proposed Agreement (Part II); (c) reviews the applicable substantive requirements of the Act and the Nuclear Non-Proliferation Act of 1978 (NNPA) and details how they are met by the proposed Agreement

(Part III); (d) describes a number of other relevant nonproliferation policy issues (Part IV); and (e) addresses the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the proposed Agreement and sets forth the net assessment and conclusions of the Department of State as contemplated by subsection 123 a. of the Act (Part V).

I. BACKGROUND INFORMATION REGARDING THE AGREEMENT

A. The ROK's Civil Nuclear Program

The ROK has the world's fifth largest civilian nuclear power program. Twenty-three nuclear reactors currently supply approximately one-third of the electrical requirements for the ROK. Four new reactors are currently under construction and the Government of the ROK (ROKG) plans to add an additional two to seven power plants by 2024. Approximately 21,000 people are employed in the ROK nuclear power field. The ROK possesses the indigenous capability to design and construct nuclear power plants and to fabricate reactor fuel from either natural or enriched uranium. The ROK has long been an exporter of nuclear steam supply system components (pressure vessels, calandria, and steam generators), and the ROK Ministry of Trade, Industry, and Energy (MOTIE) has announced plans to export 30 reactors by 2030. The ROK's first sale as a lead vendor was in 2009 when the United Arab Emirates awarded the Korea Electric Power Corporation (KEPCO) a \$40 billion deal to build and operate four nuclear power plants. The ROKG has a nuclear research and development budget of about \$200 million per year, three quarters of which is from a research and development fund financed by a tax on nuclear-generated electricity. Research and development programs include a small modular reactor, a high temperature gas reactor for hydrogen production, a sodium fast reactor, and advanced fuel cycle studies for waste management, and permanent disposal of nuclear waste.

B. Past and Ongoing U.S.-ROK Civil Nuclear Cooperation

1. Government to Government Cooperation

a. Joint Standing Committee on Nuclear Energy Cooperation (JSCNEC)

The United States and the Republic of Korea have conducted bilateral cooperation activities since the 1970s. A bilateral nuclear cooperation committee was established in 1976 to cover topics of mutual interest. It was originally established as the Joint Standing Committee on Nuclear and Other Energy Technologies (JSCNOET). This reflected the view that nuclear energy was just one of many energy areas where cooperation should occur. However, as nuclear cooperation expanded, and as it expanded beyond cooperation in technology to include international nuclear policy issues of mutual concern, in the mid-1990s the committee evolved into the Joint Standing Committee on Nuclear Energy Cooperation (JSCNEC). The U.S.-ROK JSCNEC is the model upon which the United States proposes such committees to other countries. Where once the JSCNOET considered only about 15 to 20 topics focused entirely on bilateral technical issues, today the JSCNEC covers over 100 technical and policy topics including both bilateral and multilateral issues. Policy issues have included exchanges of views on draft treaties (Comprehensive Nuclear Test Ban Treaty, Fissile Material Cutoff Treaty) and IAEA issues, including strengthening safeguards, promoting nuclear safety, and providing guidance on infrastructure requirements to countries newly interested in developing nuclear power.

b. Spent Fuel Management and Pyroprocessing

The ROK has approximately 12,000 tons of spent nuclear fuel and generates approximately an additional 700 tons annually. The temporary spent fuel storage pool at one nuclear power plant is expected to be filled by 2016, with the spent fuel pools at others to reach capacity soon thereafter. The ROKG has begun to plan for long term, interim spent fuel storage, but also is pursuing electrochemical processing technology, commonly referred to as “pyroprocessing,” to address long-term spent fuel management and disposal. Additionally, the ROKG believes the pursuit of a long term fuel disposition option may improve public acceptance of interim spent fuel storage. The Korea Atomic Energy Research Institute (KAERI), a government-funded corporate body responsible for research and development of the peaceful applications of nuclear energy, is trying to develop pyroprocessing technology on a commercial scale. Over the longer term, the ROKG intends to use pyroprocessing to support a closed fuel cycle and the deployment of fast reactors in order to achieve much higher energy utilization of uranium supplies.

As originally developed by the U.S. Department of Energy national laboratories, pyroprocessing was intended for use with irradiated metal nuclear fuels in order to separate and recover nuclear materials that could be recycled in a

fast reactor. U.S. researchers later expanded the use of the technology for use in light-water reactors (LWRs) by reducing the oxide fuel to a metal, i.e., electroreduction of the LWR fuel, as an initial step. The U.S. Government controls pyroprocessing technology as a form of reprocessing, and it is controlled as sensitive nuclear technology as defined in section 4(a)(5) of the NNPA (22 U.S.C. § 3203(a)(5)). While pyroprocessing equipment and technology are not currently specifically listed by the Nuclear Suppliers Group on its Trigger List, it is the position of the U.S. Government that such equipment is especially designed or prepared for reprocessing of irradiated fuel elements and, therefore, that such equipment and related technology are subject to Nuclear Suppliers Group Part 1 Guidelines.

c. Joint Fuel Cycle Study

The United States and ROK share a longstanding interest in developing long-term, cost-effective and sustainable solutions for spent fuel management. Past cooperative efforts have included a Joint Study on Spent Fuel Management (1982 to 1984) and work on the safeguardability of the “DUPIC” (Direct Use of Pressurized Water Reactor Spent Fuel in CANDU) process. With approval by the two governments, the U.S. national labs and KAERI began cooperation in pyroprocessing technology (not involving sensitive nuclear technology) in 2002, focused principally on electroreduction.

Building on this shared interest, in April 2011, the U.S. Government and the ROKG initiated a formal, 10-year cooperative “Joint Fuel Cycle Study” (JFCS or “the study”) to explore the technical feasibility, economic feasibility, and the nonproliferation acceptability of the electrochemical recycling process and other spent fuel management options.

The study consists of three phases:

- Phase 1: Evaluation of laboratory scale feasibility (2 year duration);
- Phase 2: Evaluation of a kilogram scale integrated process operation (5 year duration); and initiate fuel fabrication using the output of the integrated process;
- and
- Phase 3: Validation of recycle fuel fabrication, irradiation, and post-irradiation examination (3 year duration).

To execute the study, three topical working groups were formed:

- the Electrochemical Recycling Working Group (ERWG);
- the Safeguards and Security Working Group (SSWG); and
- the Fuel Cycle Alternatives Working Group (FCAWG).

The ERWG focuses on reducing the unknowns of the technology through a cost-shared R&D program in the following areas:

- demonstrating scientific feasibility of electrochemical recycling using tens of grams of used fuel in existing equipment at Idaho National Laboratory (INL) in Phase 1;
- designing and building new equipment for demonstration of the process through an integrated recycling test at the kilogram scale in Phase 2; and initiating fuel fabrication;
- conducting critical gap research and development to demonstrate technologies in support of Phase 2 and to further improve commercial-scale process feasibility; and
- conducting irradiated test and post-irradiation examination in Phase 3 of fast reactor fuel produced from the actinide product of Phase 2.

The SSWG conducts activities that include nuclear material accountancy and control, containment and surveillance, physical protection, and technology development or implementation related to nuclear material control and accountancy, international safeguards, and nonproliferation. The SSWG focuses on the following main objectives:

- evaluating safeguards key measurement points and material balance areas for the electrochemical recycling process;
- benchmarking existing safeguards technology – including nuclear material accountancy, containment and surveillance, and process monitoring – and conducting necessary safeguards R&D to address technology gaps; and
- identifying opportunities for integrating safeguards into the electrochemical recycling process design.

The FCAWG evaluates other fuel cycle alternatives related to used fuel storage, transportation, and disposition in comparison with one another and with electrochemical recycling.

d. Nuclear Technology Transfer Agreement

For the study to be successfully completed, the U.S. Government determined that it would be necessary for it to transfer electrochemical recycling technology to the ROK, including transfers to ROK nationals working on the JFCS at INL. As noted above, the U.S. Government had previously determined that electrochemical recycling technology is sensitive nuclear technology (SNT), as defined in section 4(a)(5) of the NNPA. Sections 127 and 128 of the Atomic Energy Act impose certain requirements on the export of SNT. In order to meet those requirements and proceed with the transfer of SNT as part of the collaboration under the study, the U.S. Government had to obtain the ROKG's agreement to conditions on the transferred SNT and any nuclear material or equipment produced through its use. Consequently, the United States and ROK negotiated a Nuclear Technology Transfer Agreement (NTT Agreement), which was concluded in 2013. The NTT Agreement is discussed in greater detail in the classified annex to this NPAS.

2. Government to Government Cooperation Through the International Atomic Energy Agency (IAEA)

The United States has previously provided assistance to the ROK's development of nuclear power through the Technical Cooperation (TC) Program of the IAEA. While old data is difficult to find, IAEA data indicates that since 1976, the ROK has participated in 65 national TC projects, and 63 regional and interregional projects, all of which are completed now, related to the development and implementation of a nuclear power program, with a total funding of \$7.2 million and \$35.7 million respectively. Of that, the United States provided more than \$800,000 in specific project support and about 25 percent of the remainder through general U.S. support to the TC budget. In addition, the ROK has recently been involved in an ongoing interregional TC project titled "Supporting Nuclear Power Infrastructure Capacity Building in Member States Introducing and Expanding Nuclear Power" by providing training to 25 IAEA fellows and organizing six training courses in the ROK. Four Koreans also participated in three additional related meetings and workshops. There have been a total of 183 Korean participants in 100 IAEA training courses in the United States. A total of 253 Korean IAEA Fellows have trained in the United States, including 81 paid for directly by the United States (so-called Type II Fellows). In 2009, the ROK announced that it had graduated from being a recipient of TC funding to becoming a donor – a step the United States advocated for over a decade.

3. Commercial Cooperation Between U.S. and ROK Nuclear Suppliers

The first ROK nuclear power plant was a 587 MegaWatt electric (MWe) turn-key plant, with the Pressurized Water Reactor (PWR) supplied by the U.S. firm Westinghouse, supported by the U.S. firm Gilbert Associates serving as the architect/engineer. This reactor, known as Kori 1, started operation in 1978. Westinghouse supplied five of the next six reactors, with an increasing level of ROK subcontracting of components and engineering based on transferred technology. (The other reactor was a 679 MWe turnkey CANDU reactor supplied by AECL of Canada.) The Korean Power Engineering Company (KOPEC) acquired architect/engineering technology from the U.S. firm Burns and Roe and additional experience as a subcontractor to the U.S. engineering firm Bechtel. With Kori 3/4, Korea Heavy Industry and Construction (KHIC) began to manufacture heavy reactor components and turbine generator components at its Changwon Plant, which had been constructed with Combustion Engineering (CE) reactor manufacturing technology and GE turbine generator technology. While Ulchin 1/2 were supplied by French firms, the technology base for the reactors was a Westinghouse PWR.

With the development of Yonggwang 3/4, the role of ROK companies and their foreign suppliers reversed, but the reactors were still based largely on U.S. technology. KEPCO signed a supply contract with CE requiring transfer of the technology for manufacturing the System 80 PWR as part of the sale of Yonggwang units 3 and 4. The bulk of the components were manufactured at the Changwon plant by KHIC, with subcontracts to CE and GE. KOPEC used that technology to establish the design for the Korean Standard Nuclear Plant.

The local content of the ROK's nuclear power plants has increased steadily. Doosan Heavy Industries & Construction (DHIC) has taken over the Changwon plant and has become a significant source of the heavy components for Korean nuclear power plants. KOPEC developed a new 1400 MW design, the APR-1400. The two units at Shin-Ulchin should mark the completion of the localization process, where all components will be designed and manufactured in the ROK, based on a foundation of American technology.

Over the years, KEPCO and its successor as owner of the nuclear fleet Korea Hydro and Nuclear Power (KHNP) developed a diversified approach to acquiring the uranium enrichment services required for nuclear fuel. The ROK has imported uranium concentrates from Australia, Canada, France, Kazakhstan, Russia, South Africa, and the United Kingdom. It has or has had long term contracts for uranium

conversion and enrichment services from Canada, Germany, France, Russia, the United Kingdom, and the United States. KHNP also owns 2.5% of the new George Besse II enrichment plant in France. The KEPCO/KHNP approach is a model of using the market to ensure reliable supply of nuclear fuel. In total, the ROK has received nearly 3,200 tons of LEU, well over half of its overall total, from the United States.

C. ROK Nonproliferation Policies

The ROK has a strong track record on nonproliferation and the ROKG has consistently reiterated its commitment to nonproliferation. The ROK became a party to the Treaty on the Non-proliferation of Nuclear Weapons (NPT) in 1975, and brought its NPT-required safeguards agreement into force that same year. Additionally, the ROK brought into force an IAEA Additional Protocol on February 19, 2004. It is a member of the four multilateral nonproliferation export control regimes (Missile Technology Control Regime, Wassenaar Arrangement, Australia Group, and Nuclear Suppliers Group, for which it served as Chair in 2003-2004 and is scheduled to do so again in 2015-16). The ROKG has implemented unilateral guidelines governing its possession and development of missile systems. The ROKG has also demonstrated its commitment to the fight against nuclear terrorism, including through hosting the 2012 Nuclear Security Summit and through its support for the Global Initiative to Combat Nuclear Terrorism and the Nuclear Smuggling Outreach Initiative.

The ROK is in full compliance with the NPT, the Convention On The Prohibition Of The Development, Production, Stockpiling And Use Of Chemical Weapons And On Their Destruction, done at Paris January 13, 1993, and the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, done at Washington, London and Moscow April 10, 1972.

The ROKG has been an active participant in the Proliferation Security Initiative (PSI) since 2009, having hosted regional and global meetings and two operational exercises – EASTERN ENDEAVOR 2010 and 2012 – as well as conducting outreach to states that have not endorsed PSI.

The ROKG has been a consistent advocate of nonproliferation in the IAEA Board of Governors, including support for strengthening safeguards and calling to account Iran and Syria for violations of their safeguards obligations. The ROKG

has supported strong international sanctions to press Iran to resolve questions about its nuclear program, and has significantly reduced its imports of Iranian petroleum. The ROKG has also been a strong and close partner in addressing the threat posed by the DPRK's nuclear and missile programs, including at the IAEA where it has joined the United States in calling to account the DPRK for its safeguards violations, and calling for a continued strong role for the IAEA in the complete, verifiable, and irreversible denuclearization of the Korean Peninsula. The ROKG has cooperated closely with the United States on pressing the DPRK to live up to its commitments under the 2005 Joint Statement of the Six-Party Talks and its obligations under relevant UN Security Council Resolutions.

II. Description of the Proposed Agreement and Nature and Scope of Cooperation Contemplated in the Proposed Agreement

The proposed Agreement builds on the existing cooperation between the United States and the ROK and establishes the conditions for continued U.S. civil nuclear trade with the ROK. The scope of cooperation contemplated in the proposed Agreement is a significant expansion of the scope currently in place under the existing U.S.-ROK 123 Agreement. In general, as set forth in Article 2 of the proposed Agreement, and in accordance with their respective national laws and license requirements, the parties (directly or through authorized persons) may transfer information, nuclear material, moderator material, equipment, and components under the Agreement. Additional terms and conditions on specific types of transfers are set forth in other articles and in the Agreed Minute. The Agreement also provides for cooperation in nuclear research and development in the areas of:

- Nuclear safety including regulatory and operational aspects of radiological protection;
- Next generation nuclear energy systems including advanced nuclear fuel cycle technology;
- Radioactive waste management including disposal;
- Production of radioactive isotopes and application of radiation and radioactive isotopes;
- Safeguards and physical protection;
- Controlled thermonuclear fusion including in multilateral projects;
- Design and manufacture of nuclear fuels;

- Development, design, construction, operation, maintenance and use of reactors, reactor experiments, and decommissioning; and
- Other areas as may be agreed upon by the Parties.

Restricted Data may not be transferred under the Agreement. Sensitive nuclear technology and technology or information that is not in the public domain concerning fabrication of nuclear fuel containing plutonium may be transferred either under the Agreement if provided for by an amendment to the Agreement or through a separate agreement. Any special fissionable material transferred could only be in the form of low enriched uranium, with two exceptions: small quantities of material for use as samples; or for other specified applications such as use in loading and operation of fast reactors or the conduct of fast reactor experiments. The Agreement would also obligate the United States to endeavor to take such actions as may be necessary and feasible to ensure a reliable supply of low enriched uranium fuel to the ROK.

The proposed Agreement will have an initial term of 20 years and would renew for one additional period of 5 years unless either party gives written notice that it does not want to renew the Agreement. It also requires the parties to consult as soon as possible after the seventeenth (17th) anniversary of its entry into force to decide whether to pursue an extension of the Agreement. In the event of termination of the Agreement, key nonproliferation conditions and controls will continue in effect as long as any nuclear material, moderator material, byproduct material, equipment, or component subject to the Agreement remains in the territory of the party concerned or under its jurisdiction or control anywhere, or until such time as the parties agree that, in the case of nuclear material or moderator material, such items are no longer usable for any nuclear activity relevant from the point of view of international safeguards or have become practically irrecoverable, or in the case of equipment, components, or byproduct material, such items are no longer usable for nuclear purposes.

The proposed Agreement provides advanced consent for the parties to transfer irradiated nuclear material for storage and reprocessing to France, the United Kingdom, and also to any other country or destination as may be agreed upon in writing by the parties. It would also establish a new standing High Level Bilateral Commission (HLBC) to be led by the Deputy Secretary of Energy for the U.S. Government and the Vice Minister of Foreign Affairs for the ROKG. The purpose of the HLBC is to facilitate peaceful nuclear and strategic cooperation and on-

going dialogue regarding areas of mutual interest in civil nuclear energy, including the civil nuclear fuel cycle. The HLBC would meet at least once each year, hosted alternately by the parties. The HLBC would initially establish four (4) working groups on:

- Spent Fuel Management
- Promotion of Nuclear Exports and Export Control Cooperation
- Assured Fuel Supply
- Nuclear Security

The proposed Agreement would create a Joint Standing Committee (JSC) to continue the parties' current practice of coordinating and facilitating government-to-government activities. The JSC and the Steering Committee of the U.S.-ROK Joint Fuel Cycle Study would both report their findings to the HLBC. The proposed Agreement would provide a set of mechanisms to address the parties' respective issues related to spent fuel management and assured fuel supply. The proposed agreement contains pathways towards a possible U.S. Government decision to grant advance consent to the ROK to enrich or pyroprocess U.S.-obligated nuclear material. For both enrichment and pyroprocessing, the parties would have to take into account:

- The technical feasibility of the technology;
- The economic viability of the technology; and
- The nonproliferation acceptability of the technology, including its safeguardability and whether it significantly increases the risk of proliferation.

This final factor, whether the technology significantly increases the risk of proliferation, is subjective in nature and provides the Secretary of Energy the latitude to make a determination in accordance with his responsibilities under section 131 of the Atomic Energy Act. These pathways contain provisions ensuring that appropriate IAEA safeguards and physical protection standards will be established at any new facilities at which these activities may occur. U.S. consent to enrichment or reprocessing under the proposed Agreement would also involve its reaching agreement with the ROK Government on acceptable arrangements for conducting the activities. The HLBC would serve as the forum in which the parties would consult on these issues.

As noted in the Spent Fuel Management Working Group section of the Agreed Minute creating the HLBC, the parties would work towards a goal to “facilitate cooperation on enhancing the safe and secure management of spent fuel, including a) joint efforts to diversify options on spent fuel management in each country, and b) development of advanced technologies to minimize the impact of spent fuel management on the environment, public health, and safety.” In light of this goal, the technical conclusions of the study will be provided to the Spent Fuel Management Working Group of the HLBC for its consideration. Those technical conclusions will help inform the future potential decisions of the HLBC on questions relating to possible future advance consent to conduct electrochemical recycling with U.S.-obligated nuclear material.

III. The Proposed Agreement Meets the Substantive Requirements of the Atomic Energy Act and the Nuclear Non-Proliferation Act of 1978

The provisions of the proposed Agreement satisfy the applicable requirements of the Atomic Energy Act and the NNPA.

The Atomic Energy Act

Subsection 123 a. of the Atomic Energy Act sets forth nine specific requirements that must be met in most agreements for cooperation. As noted below, eight of those requirements are relevant with respect to the proposed Agreement.

(1) Application in Perpetuity of Safeguards: Pursuant to subsection 123 a.(1), the ROK, as the “cooperating party,” must provide a guaranty:

“that safeguards as set forth in the agreement for cooperation will be maintained with respect to all nuclear materials and equipment transferred pursuant [to the Agreement], 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 ROK], irrespective of the duration of the other provisions of the agreement or whether the agreement is terminated or suspended for any reason.”

Such guaranties are found in Articles 14 and 21 of the proposed Agreement.

Article 14 sets forth the safeguards requirements in the proposed Agreement. It stipulates that (a) IAEA safeguards are to be applied to all nuclear activities within the territory, under the jurisdiction, or under the control of the ROK; (2) nuclear material transferred to the ROK pursuant to the Agreement and any other such material used in or produced through the use of material, equipment, or components so transferred shall be subject to safeguards in accordance with the Agreement between the Government of the Republic of Korea and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on Non-Proliferation of Nuclear Weapons, which entered into force on November 14, 1975, and the Additional Protocol thereto, which entered into force on February 19, 2004; and (3) in the event the ROK-IAEA safeguards agreement is not being applied, the ROK is to enter into an equivalent agreement with the IAEA or, if that is not possible, the United States and ROK are to establish equivalent bilateral safeguards arrangements (“fall-back” safeguards). The requirement for creation of fall-back safeguards is further amplified in the Agreed Minute, which establishes certain rights the United States would have unless both Parties agree that the need to exercise those rights was satisfied by application of IAEA safeguards under other arrangements. Those rights would include the right to review in a timely fashion the design of any transferred equipment or relevant facilities, to require maintenance and production of records and reports to assist in ensuring accountability for covered material, and to designate personnel for inspection visits.

Both the primary safeguards requirements and the requirement to create fall-back safeguards would, according to Article 21, continue in effect so long as any material, equipment, or components subject to the Agreement remains in the territory of the ROK or under its jurisdiction or control, unless the parties agree that, in the case of material, it is practically irrecoverable or no longer usable for any nuclear activity relevant from the point of view of safeguards or, in the case of equipment, components, or byproduct material, it is no longer useable for nuclear purposes.

(2) “Full-Scope” Safeguards: Subsection 123 a.(2) requires, as a condition of continued U.S. nuclear supply under an agreement for cooperation, maintenance by the cooperating party - if it is a “non-nuclear-weapon state” under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) like the ROK - of IAEA

safeguards on all nuclear material in all peaceful activities in the state or under its jurisdiction or control. Article 14(1) of the proposed Agreement satisfies this requirement. It provides that “Cooperation under this Agreement shall require the application of IAEA safeguards with respect to all nuclear activities within the territory of the Republic of Korea under its jurisdiction or carried out under its control anywhere.”

(3) No Explosive or Military Use: Subsection 123 a.(3) requires agreements to include a guaranty that no nuclear material, equipment, or sensitive nuclear technology, and no special nuclear material produced from such transferred items, will be used for any nuclear explosive device, for research on or development of any nuclear explosive device, or for any other military purpose. Article 13 of the proposed Agreement satisfies this requirement. Like many other U.S. nuclear cooperation agreements, it includes an even broader guaranty than is required under the Atomic Energy Act: it applies to any material – not just special nuclear material, but also source material, moderator material, and byproduct material – used in or produced through transferred items or material. On the other hand, it need not include a guaranty with respect to sensitive nuclear technology or material produced through such technology because, as noted below, Article 4(4) provides that sensitive nuclear technology may not be transferred under the proposed Agreement unless it is amended for that purpose.

(4) Right of Return: Subsection 123 a.(4) requires that agreements stipulate that the United States has a right to require the return of any nuclear materials and equipment transferred pursuant to an agreement for cooperation and any special nuclear material produced through the use of such transferred items in the event of a nuclear detonation by the cooperating party or its termination or abrogation of an IAEA safeguards agreement. Article 17 of the proposed Agreement satisfies this requirement. Indeed, as is true in many existing agreements, the right to require return set forth in Article 17 applies not only to situations as required in the Atomic Energy Act, but also to situations in which the ROK does not comply with the storage, retransfer consent, enrichment or reprocessing consent, physical protection, and safeguards requirements of the Agreement. The United States would be required to consult with the ROK before taking such action, and would be required to reimburse the ROK for the fair market value of any returned items.

(5) Retransfer Consent: Subsection 123 a.(5) requires agreements to include a guaranty that certain transferred items – material, Restricted Data, and production

or utilization facilities (i.e., reactors and certain major component parts of reactors) – and any special nuclear material produced through use of such material or facilities will not be transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without U.S. consent. Restricted Data, as noted above, cannot be transferred under the proposed Agreement, but Article 10 of the proposed Agreement includes the necessary guaranty for all other required items.

Article 10 sets forth the basic rule in the proposed Agreement that retransfer can only proceed with the consent of the parties. In the Agreed Minute, however, the parties provide that consent in advance to two types of retransfers. These are:

- any retransfers of unirradiated source material and low enriched uranium, equipment, and components to third countries or destinations identified in a list to be exchanged by the parties upon entry into force of the proposed Agreement; and
- any retransfers of irradiated nuclear material for storage and reprocessing to France, the United Kingdom, and any other country or destination agreed to by the parties in writing.

Both of these advance consents are subject to specific conditions and limitations set forth in the proposed Agreement.

As a general matter, advance consents incorporated into agreements for cooperation entered into pursuant to section 123 have long been understood to be consistent with the Atomic Energy Act. Sections 123 and 127 of the Act require that the United States have certain approval rights, including with respect to retransfer and reprocessing, but no provision of the Act precludes the United States from giving such approvals in advance. Similar types of advance consents appear in, among others, U.S. nuclear cooperation agreements with Norway, Japan, the European Atomic Energy Community (EURATOM), Switzerland, the United Arab Emirates, and the authorities on Taiwan. Congress, after careful and detailed consideration of both the principles of including advance long-term consents in nuclear cooperation agreements and their implementation in specific agreements, has not blocked their use in any of these agreements.

In this case, however, the two consents are subject to different analyses. The general consent for retransfer of source material, low enriched uranium, equipment, and components is not immediately operative, because it requires the

parties to exchange further information in order to execute the consented transactions. This consent applies to third countries or destinations that are listed by the consenting party. Such lists are to be exchanged upon entry into force of the proposed Agreement. The furnishing of such a list by the United States for approved retransfers by the ROK, as well as approval for retransfers to unlisted countries and destinations (that would be considered on a case by case basis), would be treated as a "subsequent arrangement" under section 131 of the Act and further reviewed at that time.

The consent to retransfer irradiated nuclear material to France or the United Kingdom for storage and reprocessing, however, requires no further agreement by the United States, so long as it meets the conditions set forth in the Agreed Minute. Those conditions will ensure that, among other things, the material will be held subject to the terms of an agreement for peaceful nuclear cooperation with the United States (thus ensuring the material could not be further transferred without U.S. consent except as provided in the relevant agreement for cooperation, such as the agreement with EURATOM), that the United States would be notified of any such transfers, and that the United States would have the right to suspend or withdraw its consent in the event it determines that the conditions of transfer have not been satisfied or that exceptional circumstances of concern from a nonproliferation or security standpoint so require. This consent is therefore consistent with U.S. policy and statutory requirements including maintenance of effective safeguards and adequate levels of physical protection.

While this consent is provided in an agreement for cooperation consistent with section 123 of the Atomic Energy Act and therefore does not constitute a "subsequent arrangement" under the Act, similar consents in the past have been analyzed against the criteria that would apply to such arrangements in section 131. One of the key requirements of that section for certain arrangements relating to reprocessing (for example, when they involve reprocessing in a facility that did not exist prior to 1978) is that the Secretaries of State and Energy determine that the reprocessing or retransfer will not result in a significant increase of the risk of proliferation. For the facilities in the United Kingdom and France for which consent is being provided in the proposed Agreement, however, that determination was made in the context of consideration of the Agreement for Cooperation in the Peaceful Uses of Nuclear Energy between the United States of America and the European Atomic Energy Community (EURATOM) (H. Doc. 104-138, Nov. 29, 1995, at 208-238), and is still valid.

Other criteria under section 131 include that the Secretary of Energy determine that the arrangement will not be inimical to the common defense and security and that certain subsequent arrangements involving retransfer of special nuclear material for reprocessing lie before Congress for fifteen days of continuous session (in addition to the section 131 requirement applicable to all subsequent arrangements of publication in the Federal Register for at least 15 days before taking effect). The requirements of section 123, however, are more stringent in these areas. Satisfaction of the section 123 requirements relating to Congressional review of a 123 agreement would more than satisfy any comparable requirements for public notice and Congressional review under section 131.

Finally, the Agreed Minute includes an additional provision that is similar to, but not itself, an advance consent to retransfer. The parties agree in section 3, paragraph 4 of the Agreed Minute that if irradiated nuclear material is transferred for reprocessing, they will provide consent under the applicable agreement for cooperation (with the country in which the reprocessing took place) to return nuclear material recovered from that reprocessing to the party that was the source of the original transfer. This agreement to provide future consent, however, is subject to two important conditions: first, that the returned material would be subject to the proposed Agreement, and second, that the parties would have to agree in writing on the form of the material to be returned and the physical protection arrangements that would apply to it. That future written agreement would also be a subsequent arrangement under section 131 and would have to be analyzed under, and satisfy, that section's requirements.

(6) Physical Security: Subsection 123 a.(6) requires agreements to include a guaranty that "adequate physical security" will be maintained with respect to any nuclear material transferred pursuant to an agreement of cooperation and any special nuclear material used in or produced through the use of nuclear material or equipment transferred. The term "adequate physical security" is not defined in section 123, but section 127(3) of the Atomic Energy Act says that physical security measures shall be deemed adequate if they "provide a level of protection equivalent to that required by the applicable regulations." The NRC, in regulations set forth at 10 C.F.R. §110.44, requires that physical security measures in recipient countries provide protection at least comparable to the current IAEA recommendations, published at INFCIRC/225/Revision 5.

Article 12 of the proposed Agreement meets this requirement. It requires maintenance of "adequate" physical protection with respect to transferred nuclear

material and equipment as well as special fissionable material used in or produced from it, and further sets forth that compliance requires application of measures in accordance with levels at least equivalent to the IAEA INFCIRC/225/Revision 5 recommendations and any subsequent revisions agreed by the parties. Moreover, it requires measures to be in accordance with the provisions of the Convention on the Physical Protection of Nuclear Material and any amendments to that Convention that enter into force for both parties.

(7) Enrichment/Reprocessing/Alteration Consent: Subsection 123 a.(7) requires a guaranty that no material transferred pursuant to the agreement for cooperation or used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to the agreement “will be reprocessed, enriched or (in the case of plutonium, uranium 233, or uranium enriched to greater than twenty percent in the isotope 235, or other nuclear materials which have been irradiated) otherwise altered in form or content without the prior approval of the United States.” This requirement is met by Article 11 of the proposed Agreement.

For enrichment, Article 11 establishes a general rule that uranium transferred pursuant to the Agreement or used in or produced through transferred equipment may be enriched only if the parties agree in writing and then only up to less than 20% uranium 235. (Like in all other U.S. 123 agreements, the enrichment rule specifies uranium rather than “any material” because in common usage the term “enrichment” refers only to the increase of the isotope uranium 235 beyond the amount that exists in nature.) Any such agreement would follow consultations in the High Level Bilateral Commission, and would have to be consistent with U.S. laws, regulations, and license requirements.

For reprocessing and other alteration in form or content, Article 11 establishes a general rule that nuclear material transferred pursuant to the Agreement, and nuclear material used in or produced through the use of transferred material or equipment, can only be reprocessed or otherwise altered in form or content if the parties agree in writing and agree on the facility or facilities in which the activity can be performed. The proposed Agreement does specify that certain types of activities (which do not raise proliferation concerns in this case) are not to be considered “alteration in form or content” for the purpose of this rule: irradiation or re-irradiation of nuclear reactor fuel and conversion,

reconversion or fabrication involving unirradiated source material or low enriched uranium.

In the Agreed Minute, however, the United States provides advance consent to certain types of alteration in form or content – post-irradiation examination of irradiated nuclear material, separation of radioisotopes from irradiated low enriched uranium, and material consolidation and treatment of irradiated nuclear material in which transuranics or other special fissionable material are not capable of being separated – only if conducted at certain facilities in the ROK listed in an Annex to the Agreement. As discussed earlier with respect to advance consent for certain retransfers, providing such consent within the proposed Agreement is consistent with section 123 and the requirements of the Atomic Energy Act more generally. As with the other consents, the consent in this case is subject to certain conditions, including that the ROK provide annual reports of all activities conducted pursuant to the consent, and may be suspended at any time to prevent a significant increase in the risk of nuclear proliferation or in the threat to national security. The proposed Agreement provides that additional facilities may be added to the lists by agreement in the future, but such additions would be subject to the requirements of section 131 for “subsequent arrangements.”

(8) Storage: Subsection 123 a.(8) requires agreements to include a guaranty that specified nuclear materials – plutonium, uranium 233, and high enriched uranium – transferred under the Agreement or recovered from nuclear material that was transferred or used in transferred equipment will only be stored in facilities approved in advance by the United States. Article 10(1) of the proposed Agreement contains this guaranty.

(9) Sensitive Nuclear Technology: Subsection 123 a.(9) addresses the need for a guaranty applicable to certain situations that may result when sensitive nuclear technology is transferred pursuant to an agreement for cooperation. This requirement is not applicable to the proposed Agreement because, according to Article 4(4), sensitive nuclear technology may only be transferred if provided for by an amendment to the Agreement or a separate agreement between the parties. Such an amendment or separate agreement would need to address, among other things, the requirements of subsection 123 a.(9).

The Nuclear Non-Proliferation Act

As relevant to the proposed Agreement, sections 402, 404, and 407 of the Nuclear Non-Proliferation Act of 1978 (NNPA) also address the content of agreements for peaceful nuclear cooperation.

(1) Major Critical Components: Section 402(b) of the NNPA precludes the transfer under an agreement for cooperation of component parts determined to be essential to the operation of a uranium enrichment, nuclear fuel reprocessing, or heavy water production facility unless the agreement specifically designates such components as items to be exported. Article 7(1) of the proposed Agreement specifies that such “major critical components” may only be transferred under the agreement if provided for by an amendment to the Agreement. Such an amendment would need to address, among other things, the requirements of section 402(b).

(2) Relationship to a Prior Agreement: Section 404(a) of the NNPA sets forth two sets of considerations for proposed Agreements (such as this one) that are offered to replace agreements that were in effect prior to the enactment of the NNPA. First, the proposed Agreement must have equivalent coverage of any material and equipment that was subject to criteria equivalent to those in section 127 of the Act. Second, to the extent that the provisions of section 123 of the Act as it now stands establish more extensive requirements than existed under the prior agreement, the President is to “vigorously seek to obtain application of such provisions” with respect to the material covered by the original agreement.

As to the first consideration, Article 21(5) of the proposed Agreement provides that nuclear material, moderator material, equipment and components that were subject to the existing U.S.-ROK 123 agreement will become subject to the proposed Agreement upon its entry into force and will be considered to have been transferred pursuant to the proposed Agreement. As the proposed Agreement contains provisions that are consistent with each of the criteria in section 127 of the Act, this provision ensures that requirements that satisfy section 127 will continue to apply to items and material that were subject to the prior agreement.

With respect to the second consideration, Article 21(5) provides nearly complete retroactive coverage of material and equipment transferred under the existing U.S.-ROK 123 agreement and special nuclear material used in or produced through the use of such material or equipment. The one exception is

with respect to special fissionable material produced through the use of equipment or devices transferred to the ROK under the existing U.S.-ROK 123 agreement but not through the use of U.S. nuclear material. Such material will be subject to the physical protection, no explosive use, and safeguards conditions in the proposed Agreement, but not to the limits on enrichment, reprocessing, and retransfer without U.S. consent. In fact, with regard to the retransfer consent provision, as a matter of interpretation, the United States has long noted that Article XI.B (2) (ii) of the existing U.S.-ROK 123 agreement could be read to provide the United States with the right to apply the guarantee in Article X (3) of that agreement (no retransfer of material without U.S. consent) to retransfer of non-U.S. material produced through U.S. equipment. Although the United States pressed this interpretation during the negotiations, the ROK did not agree to include it in the text of the proposed Agreement. As section 404(a) of the NNPA requires the President to “vigorously seek” the application of new controls to items subject to the previous agreement, but does not require such application so long as existing section 127 controls are not relinquished, the outcome satisfies the NNPA requirement.

(3) Environment: Section 407 of the NNPA urges the inclusion in agreements for cooperation of provisions for cooperation in protecting the environment from radioactive, chemical, or thermal contamination arising from peaceful nuclear activities. Article 18(3) of the proposed Agreement provides for consultation about such environmental implications and cooperation in protection of the international environment as well as in related matters of health and safety. In addition, the preamble to the proposed Agreement includes a provision indicating that the parties are mindful that peaceful nuclear activities must be undertaken with a view to protecting the international environment from radioactive, chemical, and thermal contamination.

The proposed Agreement thus satisfies all the substantive requirements specified for agreements for cooperation by the Act and the NNPA.

IV. Other Relevant Nonproliferation Policy Issues

A. Safeguards Reporting Failures

The following comes from the Report of the Director General to the November 2004 meeting of the IAEA Board of Governors (GOV/2004/84). Pursuant to a decision by the Board, the report was made public. The report stated that, in

connection with the submission of its initial declaration pursuant to the Additional Protocol, the ROKG informed the IAEA Secretariat that it had discovered in June 2004 that laboratory scale experiments had been conducted and not reported to the IAEA as required under the ROK's Safeguards Agreement. The experiments involved the enrichment of uranium using the atomic vapor laser isotope separation (AVLIS) method and had been carried out in 2000 by scientists at KAERI in Daejeon. About 200 mg of uranium enriched to an average of about 10% was produced, with a peak level of enrichment of 77%. In response to an inquiry regarding activities at the TRIGA Mark III research reactor in Seoul, the ROKG stated that, "in the early 1980s laboratory scale experiments had been performed at this facility to irradiate 2.5 kg of depleted uranium and to study the separation of uranium and plutonium." The ROKG stated it did not know the precise amount of the plutonium in solution, but expected it to be less than 40 mg. In an October 21, 2004 report to the IAEA, the ROKG provided information on experiments conducted between 1979 and 1981 on the feasibility of producing low enriched uranium for power reactor fuel with a chemical exchange process. The results of these experiments had been published in open source and were available in an IAEA database.

At the September 2004 IAEA Board meeting, when the matter of the ROK's reprocessing and enrichment experiments were first discussed, the ROK IAEA Governor provided an extensive account of the past scientific work and reporting failures, detailed the ROKG's cooperation with IAEA inspectors and reaffirmed the ROKG's commitment to the peaceful uses of nuclear energy and nuclear nonproliferation. These activities and the corrective steps the ROKG was going to take to prevent a recurrence of this situation (described further below) were covered in a non-paper made available in connection with the November 2004 Board of Governors meeting.

Following the IAEA's investigation, the Director General reported the Agency's findings that the ROKG had indeed failed to report these activities in accordance with its obligations under its Safeguards Agreement, but the ROKG had taken corrective actions by providing relevant Inventory Change Reports.

While noting that the reporting failures and the nature of the activities conducted were a matter of serious concern, the IAEA Director General's report also noted that the quantities of nuclear material involved were not significant and that there was no indication that the undeclared experiments had continued. The

report also noted the active cooperation provided by the ROKG in the IAEA's investigations by providing timely information and access to personnel and locations, including for the collection of environmental and other samples. Following debate, the IAEA Board of Governors took note of the Director General's report, expressed its concern with the ROKG's failure to report these activities, and requested the Director General to report further as appropriate. There has been no cause for any further reports on this matter, other than in the context of the IAEA drawing the so-called "broader conclusion" (i.e., no evidence of diversion of declared nuclear materials or of undeclared nuclear activities) made for the ROK in 2007 and in each subsequent year. With an Additional Protocol in force, the IAEA has added capability to detect and deter undeclared activities related to enrichment and reprocessing, including through additional reporting requirements and access to additional declared locations, with expanded ability to carry out environmental sampling.

B. Corrective Measures

Until October 2004, KAERI's Technical Center for Nuclear Control was responsible for safeguards application in the ROK. As a consequence of the reporting failures, in order to enhance the national safeguards system, including its independence and transparency, in October 2004, the ROKG established under the Ministry of Science and Technology (MOST) the National Nuclear Management and Control Agency as an independent successor to the Technical Center for Nuclear Control. Following necessary changes to the Atomic Energy Act of the Republic of Korea, the safeguards system was further strengthened through the establishment by MOST of the Korea Institute of Nuclear Nonproliferation and Control (KINAC) in June 2006. The ROKG also established a new safeguards obligations education program for nuclear scientists to strengthen their awareness of their obligations. In a further move responding to the Fukushima nuclear accident in Japan and enhancing the independence of the safeguards inspection function in the ROK, in October 2011 the nuclear regulatory functions of the Ministry of Education, Science and Technology were consolidated and separated into the Nuclear Safety and Security Commission as a central administrative organization directly reporting to the president of the ROK. KINAC acts as a technical support organization to this new Commission.

V. Conclusion

Entry into force of the proposed U.S.-ROK Agreement will renew a framework for mutually beneficial civil nuclear cooperation between the two countries and provide an avenue for continued collaboration on nuclear nonproliferation goals.



On the basis of the analysis in this NPAS and all pertinent information of which it is aware, the Department of State has arrived at the following assessment and conclusions:

1. The safeguards and other control mechanisms and the peaceful use assurances in the proposed Agreement are adequate to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose.
2. The Agreement meets all the legal requirements of the Act and the NNPA.
3. Execution of the proposed Agreement would be compatible with the nonproliferation program, policy, and objectives of the United States.

June 1, 2015

UNCLASSIFIED

MEMORANDUM FOR THE PRESIDENT

FROM: John F. Kerry 
Secretary of StateErnest J. Moniz 
Secretary of EnergySUBJECT: Proposed Agreement for Cooperation Between the Government of the
United States of America and the Government of the Republic
of Korea Concerning Peaceful Uses of Nuclear Energy

The United States and the Republic of Korea (ROK) have completed negotiations of a proposed Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Peaceful Uses of Nuclear Energy (the "Agreement"). The existing agreement for peaceful nuclear cooperation between the United States and the ROK entered into force in 1973, was extended twice, most recently in 2014, and will expire according to its terms on March 19, 2016. The proposed Agreement would succeed the current agreement to allow for continued peaceful nuclear cooperation between the United States and the ROK. If you authorize execution of the Agreement, it will be signed by representatives of the United States and the ROK. After signature, in accordance with subsections 123 b. and d. of the Atomic Energy Act (the "Act"), the Agreement must lie before both houses of Congress for ninety (90) days of continuous session. Unless a joint resolution of disapproval is enacted, the Agreement may be brought into force upon completion of the review period.

The proposed Agreement contains all of the requirements established by subsection 123 a. of the Act. It provides a comprehensive framework for peaceful nuclear cooperation with the ROK based on a mutual commitment to nuclear

nonproliferation. It would permit the transfer of material, equipment (including reactors), components, information, and technology for nuclear research and nuclear power production. It would not permit the transfer of Restricted Data. Sensitive nuclear technology or technology or information concerning fabrication of nuclear fuel containing plutonium that is not in the public domain could only be transferred if specifically provided by an amendment to the Agreement or a separate agreement between the Parties. Any special fissionable material transferred could only be in the form of low enriched uranium, with the exception of small quantities of material for use as samples or for other specified applications such as use in loading and operation of fast reactors or the conduct of fast reactor experiments. The Agreement would also obligate the United States to endeavor to take actions to ensure a reliable supply of low enriched uranium fuel to the ROK, similar to terms contained in other recent 123 agreements.

The proposed Agreement provides advance, long-term (“programmatic”) consent to the ROK for the retransfer for storage or reprocessing of irradiated material subject to the Agreement to France, the United Kingdom, or other countries or destinations as may be agreed upon in writing. The United States has previously provided the United Kingdom and France with advance consent to reprocess U.S. obligated spent nuclear fuel in accordance with the terms of the Agreement for Cooperation in the Peaceful Uses of Nuclear Energy Between the United States of America and the European Atomic Energy Community. In the context of that agreement, we concluded that this advance consent will not result in a significant increase of the risk of proliferation, taking into account among other factors whether there would be timely warning of any diversion well in advance of the time at which a non-nuclear weapon state could transform the diverted material into a nuclear explosive device. That conclusion is still valid.

The proposed Agreement would also establish a new standing High Level Bilateral Commission (HLBC) to be led by the Deputy Secretary of Energy for the Government of the United States of America and the Vice Minister of Foreign Affairs for the Government of the ROK. The purpose of the HLBC is to facilitate peaceful nuclear and strategic cooperation between the parties and on-going dialogue regarding areas of mutual interest in civil nuclear energy, including the civil nuclear fuel cycle.

The proposed Agreement will have an initial term of twenty (20) years and would renew for one additional period of five (5) years unless either party gives written notice at least two years prior to its expiration that it does not want to renew the Agreement. The proposed Agreement also requires the parties to consult

as soon as possible after the seventeenth (17th) anniversary of its entry into force to decide whether to pursue an extension of the Agreement. In the event of termination of the Agreement, key nonproliferation conditions and controls will continue in effect as long as any nuclear material, moderator material, byproduct material, equipment, or component subject to the Agreement remains in the territory of the party concerned or under its jurisdiction or control anywhere, or until such time as the parties agree that, in the case of nuclear material or moderator material, such items are no longer usable for any nuclear activity relevant from the point of view of international safeguards or has become practically irrecoverable, or in the case of equipment, components, or byproduct material, such items are no longer usable for nuclear purposes.

The ROK has a strong track record on nonproliferation and its government has consistently reiterated its commitment to nonproliferation. The ROK is a party to the Treaty on the Non-proliferation of Nuclear Weapons, has an IAEA safeguards agreement and Additional Protocol in force, and is a member of the four multilateral nonproliferation export control regimes (Missile Technology Control Regime, Wassenaar Arrangement, Australia Group, and Nuclear Suppliers Group, for which it served as Chair in 2003-2004 and is scheduled to do so again in 2016-17), and is an active participant in the Proliferation Security Initiative. A more detailed discussion of the ROK's civil nuclear program and its nuclear nonproliferation policies and practices is provided in the Nuclear Proliferation Assessment Statement (NPAS), and in two classified annexes to the NPAS submitted to you separately. A separate addendum to the NPAS containing a comprehensive analysis of the export control system of the ROK with respect to nuclear-related matters, including interactions with countries of proliferation concern and the actual or suspected nuclear, dual-use, or missile-related transfers to such countries, pursuant to section 102A(w) of the National Security Act of 1947 (50 U.S.C. § 3024(w)), is being submitted to you separately by the Director of National Intelligence.

In accordance with the provisions of section 123 of the Act, the proposed Agreement was negotiated by the Department of State, with the technical assistance and concurrence of the Department of Energy. The proposed Agreement has also been reviewed by the members of the Nuclear Regulatory Commission. The Commission's views are being submitted to you separately.

In our judgment, the proposed Agreement satisfies all requirements of U.S. law for agreements of this type. We also believe that U.S. cooperation with the ROK in the peaceful uses of nuclear energy will be supportive of U.S.

nonproliferation, foreign policy, and commercial interests. Therefore, pursuant to subsection 123 b. of the Act, we recommend that you determine the performance of the proposed Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security. We also recommend that you approve the proposed Agreement and authorize its execution.

Recommendation

That you sign the determination, approval, and authorization at Tab 1 and the transmittal letter to Congress at Tab 2.

Attachments:

- Tab 1 – Draft Presidential determination, approval, and authorization
- Tab 2 – Draft transmittal letter to the Congress (To be held until after the Agreement is signed)
- Tab 3 – Text of Proposed Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Peaceful Uses of Nuclear Energy
- Tab 4 – Unclassified Nuclear Proliferation Assessment Statement



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 21, 2015

CHAIRMAN

The President
The White House
Washington, DC 20500

Dear Mr. President:

In accordance with the provisions of Section 123 of the Atomic Energy Act of 1954, as amended, the United States Nuclear Regulatory Commission reviewed the proposed Agreement for Cooperation between the Government of the United States of America and the Government of the Republic of Korea Concerning Peaceful Uses of Nuclear Energy (the "Agreement"). It is the view of the Commission that the proposed Agreement includes all of the provisions required by law and provides a sufficient framework for civilian nuclear cooperation between the United States and the Republic of Korea. Accordingly, the Commission recommends that you make the requisite positive statutory determination, approve the proposed Agreement, and authorize its execution.

Respectfully,

A handwritten signature in black ink, appearing to read "Stephen Burns", with a long horizontal line extending to the right.

Stephen G. Burns

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