AMENDMENT OF SOLICITATION/MODI ATION OF CONTRACT	1. CONTRACT ID C AC	PAGES OF PAGES 1 I 14

2. AMENDMENT/MODIFICATION	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
M021	SEE BLOCK 16C		

6. ISSUED BY CODE

U. S. Department of Energy
Oak Ridge Operations Office
Procurement and Contracts Division, AD-421
P. O. Box 2001
Oak Ridge, TN 37831- 8756

7. ADMINISTERED BY *(If other than Item 6)* CODE

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

BWXT Y-12
1055 Commerce Park Drive
Suite 300
Oak Ridge, Tennessee 37830

CODE I FACILITY CODE

(X)	
	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED *(SEE ITEM 11)*
X	10A. MODIFICATION OF CONTRACT/ORDER DE–AC05-00OR22800
	10B. DATED *(SEE ITEM 13)* 8/31/2000

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATION

__ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of offers __is extended. __is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
(a) By completing Items 8 and 15, and returning ___copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOU ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ ORDERS, IT MODIFIES CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER *(Specify type of modification and authority)* Public Law 95-91 and Mutual Agreement

E. IMPORTANT: Contractor __is not, X__is required to sign this document and return _2_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/ MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

SEE PAGE 2

Except as provided herein, all terms and conditions of the document referenced in Item 9A and 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*	16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*
Ron Wessel Contracts Manager	William W. Wistrom Contracting Officer

15B CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
Ron Wessel *(Signature of person authorized to sign)*	9/25/01	BY William Wistrom *(Signature of Contracting Officer)*	9/25/01

The purpose of this modification is to replace clause I.80 (DEAR 952.227-13) with the new clause shown below and to add as Appendix I (referred to in paragraph b(6) of the clause) lists of bilateral and multilateral agreements.

I.80 DEAR 970.5227-12 Patent Rights-Management and Operating Contracts, For-Profit Contractor, Advance Class Waiver (DEC 2000)

(a) Definitions. (1) DOE licensing regulations means the Department of Energy patent licensing regulations at 10 CFR Part 781.

(2) DOE patent waiver regulations means the Department of Energy patent waiver regulations at 10 CFR Part 784.

(3) Exceptional Circumstance Subject Invention means any subject invention in a technical field or related to a task determined by the Department of Energy to be subject to an exceptional circumstance under *35 U.S.C. 202*(a)(ii), and in accordance with 37 CFR 401.3(e).

(4) Invention means any invention or discovery which is or may be patentable or otherwise protectable under title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act *(7 U.S.C. 2321,* et seq.).

(5) Made when used in relation to any invention means the conception or first actual reduction to practice of such invention.

(6) Patent Counsel means DOE Patent Counsel assisting the contracting activity.

(7) Practical application means to manufacture, in the case of a composition or product; to practice, in the case of a process or method; or to operate, in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

(8) Subject Invention means any invention of the contractor conceived or first actually reduced to practice in the course of or under this contract, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, *7 U.S.C. 2401*(d)) shall also occur during the period of contract performance.

(9) Weapons Related Subject Invention means any subject invention conceived or first actually reduced to practice in the course of or under work funded by or through defense programs, including Department of Defense and intelligence reimbursable work, or the Naval Nuclear Propulsion Program of the Department of Energy.

(b) Allocation of Principal Rights. (1) Assignment to the Government. Except to the extent that rights are retained by the Contractor by the granting of an advance class

waiver pursuant to subparagraph (b)(2) of this clause or a determination of greater rights pursuant to subparagraph (b)(7) of this clause, the Contractor agrees to assign to the Government the entire right, title, and interest throughout the world in and to each subject invention.

(2) Advance class waiver of Government rights to the Contractor. DOE may grant to the Contractor an advance class waiver of Government rights in any or all subject inventions, at the time of execution of the contract, such that the Contractor may elect to retain the entire right, title and interest throughout the world to such waived subject inventions, in accordance with the terms and conditions of the advance class waiver. Unless otherwise provided by the terms of the advance class waiver, any rights in a subject invention retained by the Contractor under an advance class waiver are subject to *35 U.S.C. 203* and the provisions of this clause, including the Government license provided for in subparagraph (b)(3) of this clause, and any reservations and conditions deemed appropriate by the Secretary of Energy or designee.

(3) Government license. With respect to any subject invention to which the Contractor retains title, either under an advance class waiver pursuant to subparagraph (b)(2) or a determination of greater rights pursuant to subparagraph (b)(7) of this clause, the Government has a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

(4) Foreign patent rights. If the Government has title to a subject invention and the Government decides against securing patent rights in a foreign country for the subject invention, the Contractor may request such foreign patent rights from DOE, and DOE may grant the Contractor's request, subject to *35 U.S.C. 203* and the provisions of this clause, including the Government license provided for in subparagraph (b)(3) of this clause, and any reservations and conditions deemed appropriate by the Secretary of Energy or designee.

(5) Exceptional circumstance subject inventions. Except to the extent that rights are retained by the Contractor by a determination of greater rights in accordance with subparagraph (b)(7) of this clause, the Contractor does not have the right to retain title to any exceptional circumstance subject inventions and agrees to assign to the Government the entire right, title, and interest, throughout the world, in and to any exceptional circumstance subject inventions.

(i) Inventions within or relating to the following fields of technology are exceptional circumstance subject inventions:

(A) uranium enrichment technology;

(B) storage and disposal of civilian high-level nuclear waste and spent fuel technology; and

(C) national security technologies classified or sensitive under Section 148 of the Atomic Energy Act *(42 U.S.C. 2168)*.

(ii) Inventions made under any agreement, contract or subcontract related to the

following initiatives or programs are exceptional circumstance subject inventions:

(A) DOE Steel Initiative and Metals Initiative;

(B) U.S. Advanced Battery Consortium; and

(C) any funding agreement which is funded in part by the Electric Power Research Institute (EPRI) or the Gas Research Institute (GRI).

(iii) DOE reserves the right to unilaterally amend this contract to modify, by deletion or insertion, technical fields, programs, initiatives, and/or other classifications for the purpose of defining DOE exceptional circumstance subject inventions.

(6) Treaties and international agreements. Any rights acquired by the Contractor in subject inventions are subject to any disposition of right, title, or interest in or to subject inventions provided for in treaties or international agreements identified at Appendix I (6 pages of Multilateral Implementing Agreements dated August 6, 2001 and 34 pages of Bilateral Agreements dated May 8, 2001) to this contract. DOE reserves the right to unilaterally amend this contract to identify specific treaties or international agreements entered into or to be entered into by the Government after the effective date of this contract and to effectuate those license or other rights which are necessary for the Government to meet its obligations to foreign governments, their nationals and international organizations under such treaties or international agreements with respect to subject inventions made after the date of the amendment.

(7) Contractor request for greater rights. The Contractor may request greater rights in an identified subject invention, including an exceptional circumstance subject invention, to which the Contractor does not have the right to elect to retain title, in accordance with the DOE patent waiver regulations, by submitting such a request in writing to Patent Counsel with a copy to the Contracting Officer at the time the subject invention is first disclosed to DOE pursuant to subparagraph (c)(1) of this clause, or not later than eight (8) months after such disclosure, unless a longer period is authorized in writing by the Contracting Officer for good cause shown in writing by the Contractor. DOE may grant or refuse to grant such a request by the Contractor. Unless otherwise provided in the greater rights determination, any rights in a subject invention obtained by the Contractor under a determination of greater rights is subject to *35 U.S.C. 203* and the provisions of this clause, including the Government license provided for in subparagraph (b)(3) of this clause, and to any reservations and conditions deemed appropriate by the Secretary of Energy or designee.

(8) Contractor employee-inventor rights. If the Contractor does not elect to retain title to a subject invention or does not request greater rights in a subject invention, including an exceptional circumstance subject invention, to which the Contractor does not have the right to elect to retain title, a Contractor employee-inventor, after consultation with the Contractor and with written authorization from the Contractor in accordance with 10 CFR 784.9(b)(4), may request greater rights, including title, in the subject invention or the exceptional circumstance invention from DOE, and DOE may grant or refuse to grant such a request by the Contractor employee-inventor.

(9) Government assignment of rights in Government employees' subject inventions. If

a DOE employee is a joint inventor of a subject invention to which the Contractor has rights, DOE may assign or refuse to assign any rights in the subject invention acquired by the Government from the DOE employee to the Contractor, consistent with 48 CFR 27.304-1(d). Unless otherwise provided in the assignment, the rights assigned to the Contractor are subject to the Government license provided for in subparagraph (b)(3) of this clause, and to any provision of this clause applicable to subject inventions in which rights are retained by the Contractor, and to any reservations and conditions deemed appropriate by the Secretary of Energy or designee. The Contractor shall share royalties collected for the manufacture, use or sale of the subject invention with the DOE employee, as DOE deems appropriate.

10) Weapons related subject inventions. Except to the extent that DOE is solely satisfied that the Contractor meets certain procedural requirements and DOE grants rights to the Contractor in weapons related subject inventions, the Contractor does not have a right to retain title to any weapons related subject inventions.

(c) Subject Invention Disclosure, Election of Title, and Filing of Patent Application by Contractor. (1) Subject invention disclosure. The Contractor shall disclose each subject invention to Patent Counsel with a copy to the Contracting Officer within two (2) months after an inventor discloses it in writing to Contractor personnel responsible for patent matters or, if earlier, within six (6) months after the Contractor has knowledge of the subject invention, but in any event before any on sale, public use, or publication of the subject invention. The disclosure to DOE shall be in the form of a written report and shall include:

(i) the contract number under which the subject invention was made;

(ii) the inventor(s) of the subject invention;

(iii) a description of the subject invention in sufficient technical detail to convey a clear understanding of the nature, purpose and operation of the subject invention, and of the physical, chemical, biological or electrical characteristics of the subject invention, to the extent known by the Contractor at the time of the disclosure;

(iv) the date and identification of any publication, on sale or public use of the invention;

(v) the date and identification of any submissions for publication of any manuscripts describing the invention, and a statement of whether the manuscript is accepted for publication, to the extent known by the Contractor at the time of the disclosure;

(vi) a statement indicating whether the subject invention is an exceptional circumstance subject invention, related to national security, or subject to a treaty or an international agreement, to the extent known or believed by Contractor at the time of the disclosure;

(vii) all sources of funding by Budget and Resources (B&R) code; and

(viii) the identification of any agreement relating to the subject invention, including Cooperative Research and Development Agreements and Work-for-Others

agreements.

Unless the Contractor contends otherwise in writing at the time the invention is disclosed, inventions disclosed to DOE under this paragraph are deemed made in the manner specified in Sections (a)(1) and (a)(2) of *42 U.S.C. 5908.*

(2) Publication after disclosure. After disclosure of the subject invention to the DOE, the Contractor shall promptly notify Patent Counsel of the acceptance for publication of any manuscript describing the subject invention or of any expected or on sale or public use of the subject invention, known by the Contractor. The Contractor shall obtain approval from Patent Counsel prior to any release or publication of information concerning an exceptional circumstance subject invention or any subject invention related to a treaty or international agreement.

(3) Election by the Contractor under an advance class waiver. If the Contractor has the right to elect to retain title to subject inventions under an advance class waiver granted in accordance with subparagraph (b)(2) of this clause, and unless otherwise provided for by the terms of the advance class waiver, the Contractor shall elect in writing whether or not to retain title to any subject invention by notifying DOE within two (2) years of the date of the disclosure of the subject invention to DOE, in accordance with subparagraph (c)(1) of this clause. The notification shall identify the advance class waiver, state the countries, including the United States, in which rights are retained, and certify that the subject invention is not an exceptional circumstance subject invention or subject to a treaty or international agreement. If a publication, on sale or public use of the subject invention has initiated the 1-year statutory period under *35 U.S.C. 102*(b), the period for election may be shortened by DOE to a date that is no more than sixty (60) days prior to the end of the 1-year statutory period.

(4) Filing of patent applications by the Contractor under an advance class waiver. If the Contractor has the right to retain title to a subject invention in accordance with an advance class waiver pursuant to subparagraph (b)(2) of this clause or a determination of greater rights pursuant to paragraph (b)(7) of this clause, and unless otherwise provided for by the terms of the advance class waiver or greater rights determination, the Contractor shall file an initial patent application claiming the subject invention to which it retains title either within one (1) year after the Contractor's election to retain or grant of title to the subject invention or prior to the end of any 1-year statutory period under *35 U.S.C. 102*(b), whichever occurs first. Any patent applications filed by the Contractor in foreign countries or international patent offices shall be filed within either ten (10) months of the corresponding initial patent application or, if such filing has been prohibited by a Secrecy Order, within six (6) months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications.

(5) Submission of patent information and documents. If the Contractor files a domestic or foreign patent application claiming a subject invention, the Contractor shall promptly submit to Patent Counsel the following information and documents:

(i) The filing date, serial number, title, and a copy of the patent application (including an English-language version if filed in a language other than English);

(ii) An executed and approved instrument fully confirmatory of all Government rights in the subject invention; and

(iii) The patent number, issue date, and a copy of any issued patent claiming the subject invention.

(6) Contractor's request for an extension of time. Requests for an extension of the time to disclose a subject invention, to elect to retain title to a subject invention, or to file a patent application under subparagraphs (c)(1), (3), and (4) of this clause may be granted at the discretion of Patent Counsel or DOE.

(7) Duplication and disclosure of documents. The Government may duplicate and disclose subject invention disclosures and all other reports and papers furnished or required to be furnished pursuant to this clause; provided, however, that any such duplication or disclosure by the Government is subject to *35 U.S.C. 205* and 37 CFR Part 40.

(d) Conditions When the Government May Obtain Title Notwithstanding an Advance Class Waiver. (1) Return of title to a subject invention. If the Contractor requests that DOE acquire title or rights from the Contractor in a subject invention, including an exceptional circumstance subject invention, to which the Contractor retained title or rights under subparagraph (b)(2) or subparagraph (b)(7) of this clause, DOE may acquire such title or rights from the Contractor, or DOE may decide against acquiring such title or rights from the Contractor, at DOE's sole discretion.

(2) Failure to disclose or elect to retain title. Title vests in DOE and DOE may request, in writing, a formal assignment of title to a subject invention from the Contractor, and the Contractor shall convey title to the subject invention to DOE, if the Contractor elects not to retain title to the subject invention under an advance class waiver, or the Contractor fails to disclose or fails to elect to retain title to the subject invention within the times specified in subparagraphs (c)(1) and (c)(3) of this clause.

(3) Failure to file domestic or foreign patent applications. In those countries in which the Contractor fails to file a patent application within the times specified in subparagraph (c)(4) of this clause, DOE may request, in writing, title to the subject invention from the Contractor, and the Contractor shall convey title to the subject invention to DOE; provided, however, that if the Contractor has filed a patent application in any country after the times specified in subparagraph (c)(4) of this clause, but prior to its receipt of DOE's written request for title, the Contractor continues to retain title in that country.

(4) Discontinuation of patent protection by the Contractor. If the Contractor decides to discontinue the prosecution of a patent application, the payment of maintenance fees, or the defense of a subject invention in a reexamination or opposition proceeding, in any country, DOE may request, in writing, title to the subject invention from the Contractor, and the Contractor shall convey title to the subject invention to DOE.

(5) Termination of advance class waiver. DOE may request, in writing, title to any subject inventions from the Contractor, and the Contractor shall convey title to the subject inventions to DOE, if the advance class waiver granted under subparagraph

(b)(2) of this clause is terminated under paragraph (u) of this clause.

(e) Minimum Rights of the Contractor. (1) Request for a Contractor license. Except for subject inventions that the Contractor fails to disclose within the time periods specified at subparagraph (c)(1) of this clause, the Contractor may request a revocable, nonexclusive, royalty-free license in each patent application filed in any country claiming a subject invention and any resulting patent in which the Government obtains title, and DOE may grant or refuse to grant such a request by the Contractor. If DOE grants the Contractor's request for a license, the Contractor's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the Contractor is a party and includes the right to grant sublicenses of the same scope to the extent the Contractor was legally obligated to do so at the time the contract was awarded.

(2) Transfer of a Contractor license. DOE shall approve any transfer of the Contractor's license in a subject invention, and DOE may determine that the Contractor's license is non-transferrable, on a case-by-case basis.

(3) Revocation or modification of a Contractor license. DOE may revoke or modify the Contractor's domestic license to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions in 37 CFR Part 404 and DOE licensing regulations. DOE may not revoke the Contractor's domestic license in that field of use or the geographical areas in which the Contractor, its licensees or its domestic subsidiaries or affiliates have achieved practical applications and continues to make the benefits of the invention reasonably accessible to the public. DOE may revoke or modify the Contractor's license in any foreign country to the extent the Contractor, its licensees, or its domestic subsidiaries or affiliates failed to achieve practical application in that foreign country.

(4) Notice of revocation or modification of a Contractor license. Before revocation or modification of the license, DOE shall furnish the Contractor a written notice of its intention to revoke or modify the license, and the Contractor shall be allowed thirty (30) days from the date of the notice (or such other time as may be authorized by DOE for good cause shown by the Contractor) to show cause why the license should not be revoked or modified. The Contractor has the right to appeal any decision concerning the revocation or modification of its license, in accordance with applicable regulations in 37 CFR Part 404 and DOE licensing regulations.

(f) Contractor Action to Protect the Government's Interest. (1) Execution and delivery of title or license instruments. The Contractor agrees to execute or have executed, and to deliver promptly to DOE all instruments necessary to accomplish the following actions:

(i) establish or confirm the Government's rights throughout the world in subject inventions to which the Contractor elects to retain title;

(ii) convey title in a subject invention to DOE pursuant to subparagraph (b)(5) and paragraph (d) of this clause; or

(iii) enable the Government to obtain patent protection throughout the world in a subject invention to which the Government has title.

(2) Contractor employee agreements. The Contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to Contractor personnel identified as responsible for the administration of patent matters and in a format suggested by the Contractor, each subject invention made under this contract, and to execute all papers necessary to file patent applications claiming subject inventions or to establish the Government's rights in the subject inventions. This disclosure format shall at a minimum include the information required by subparagraph (c)(1) of this clause. The Contractor shall instruct such employees, through employee agreements or other suitable educational programs, on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

(3) Contractor procedures for reporting subject inventions to DOE. The Contractor agrees to establish and maintain effective procedures for ensuring the prompt identification and timely disclosure of subject inventions to DOE. The Contractor shall submit a written description of such procedures to the Contracting Officer, upon request, for evaluation and approval of the effectiveness of such procedures by the Contracting Officer.

(4) Notification of discontinuation of patent protection. With respect to any subject invention for which the Contractor has responsibility for patent prosecution, the Contractor shall notify Patent Counsel of any decision to discontinue the prosecution of a patent application, payment of maintenance fees, or defense of a subject invention in a reexamination or opposition proceeding, in any country, not less than thirty (30) days before the expiration of the response period for any action required by the corresponding patent office.

(5) Notification of Government rights. With respect to any subject invention to which the Contractor has title, the Contractor agrees to include, within the specification of any United States patent application and within any patent issuing thereon claiming a subject invention, the following statement, "This invention was made with Government support under (identify the contract) awarded by the United States Department of Energy. The Government has certain rights in the invention."

(6) Avoidance of Royalty Charges. If the Contractor licenses a subject invention, the Contractor agrees to avoid royalty charges on acquisitions involving Government funds, including funds derived through a Military Assistance Program of the Government or otherwise derived through the Government, to refund any amounts received as royalty charges on a subject invention in acquisitions for, or on behalf of, the Government, and to provide for such refund in any instrument transferring rights in the subject invention to any party.

(7) DOE approval of assignment of rights. Rights in a subject invention in the United States may not be assigned by the Contractor without the approval of DOE.

(8) Small business firm licensees. The Contractor shall make efforts that are reasonable under the circumstances to attract licensees of subject inventions that are

small business firms, and may give a preference to a small business firm when licensing a subject invention if the Contractor determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided, the Contractor is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision as to whether to give a preference in any specific case is at the discretion of the Contractor.

(9) Contractor licensing of subject inventions. To the extent that it provides the most effective technology transfer, licensing of subject inventions shall be administered by Contractor employees on location at the facility.

(g) Subcontracts. (1) Subcontractor subject inventions. The Contractor shall not obtain rights in the subcontractor's subject inventions as part of the consideration for awarding a subcontract.

(2) Inclusion of patent rights clause-non-profit organization or small business firm subcontractors. Unless otherwise authorized or directed by the Contracting Officer, the Contractor shall include the patent rights clause at 48 CFR 952.227-11, suitably modified to identify the parties, in all subcontracts, at any tier, for experimental, developmental, demonstration or research work to be performed by a small business firm or domestic nonprofit organization, except subcontracts which are subject to exceptional circumstances in accordance with *35 U.S.C. 202* and subparagraph (b)(5) of this clause.

(3) Inclusion of patent rights clause-subcontractors other than non-profit organizations or small business firms. Except for the subcontracts described in subparagraph (g)(2) of this clause, the Contractor shall include the patent rights clause at 48 CFR 952.227-13, suitably modified to identify the parties and any applicable exceptional circumstance, in any contract for experimental, developmental, demonstration or research work.

(4) DOE and subcontractor contract. With respect to subcontracts at any tier, DOE, the subcontractor and Contractor agree that the mutual obligations of the parties created by this clause constitute a contract between the subcontractor and DOE with respect to those matters covered by this clause; provided, however, that nothing in this paragraph is intended to confer any jurisdiction under the Contract Disputes Act in connection with proceedings under paragraph (j) of this clause.

(5) Subcontractor refusal to accept terms of patent rights clause. If a prospective subcontractor refuses to accept the terms of a patent rights clause, the Contractor shall promptly submit a written notice to the Contracting Officer stating the subcontractor's reasons for such refusal and including relevant information for expediting disposition of the matter; and the Contractor shall not proceed with the subcontract without the written authorization of the Contracting Officer.

(6) Notification of award of subcontract. Upon the award of any subcontract at any tier containing a patent rights clause, the Contractor shall promptly notify the Contracting Officer in writing and identify the subcontractor, the applicable patent rights clause, the work to be performed under the subcontract, and the dates of award and estimated

completion. Upon request of the Contracting Officer, the Contractor shall furnish a copy of a subcontract.

(7) Identification of subcontractor subject inventions. If the Contractor in the performance of this contract becomes aware of a subject invention made under a subcontract, the Contractor shall promptly notify Patent Counsel and identify the subject invention, with a copy of the notification and identification to the Contracting Officer.

(h) Reporting on Utilization of Subject Inventions. Upon request by DOE, the Contractor agrees to submit periodic reports, no more frequently than annually, describing the utilization of a subject invention or efforts made by the Contractor or its licensees or assignees to obtain utilization of the subject invention. The reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Contractor, and other data and information reasonably specified by DOE. Upon request by DOE, the Contractor also agrees to provide reports in connection with any march-in proceedings undertaken by DOE, in accordance with paragraph (j) of this clause. If any data or information reported by the Contractor in accordance with this provision is considered privileged and confidential by the Contractor, its licensee, or assignee and the Contractor properly marks the data or information privileged or confidential, DOE agrees not to disclose such information to persons outside the Government, to the extent permitted by law.

(i) Preference for United States Industry. Notwithstanding any other provision of this clause the Contractor agrees that with respect to any subject invention in which it retains title, neither it nor any assignee may grant to any person the exclusive right to use or sell any subject invention in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, DOE may waive the requirement for such an agreement upon a showing by the Contractor or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

(j) March-In Rights. With respect to any subject invention to which the Contractor has elected to retain or is granted title, DOE may, in accordance with the procedures in the DOE patent waiver regulations, require the Contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances. If the Contractor, assignee or exclusive licensee refuses such a request, DOE has the right to grant such a license itself if DOE determines that-

(1) Such action is necessary because the Contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

(2) Such action is necessary to alleviate health or safety needs that are not reasonably satisfied by the Contractor, assignee, or their licensees;

(3) Such action is necessary to meet requirements for public use specified by government regulations and such requirements are not reasonably satisfied by the Contractor, assignee, or licensees; or

(4) Such action is necessary because the agreement to substantially manufacture in the United States and required by paragraph (i) of this clause has neither been obtained nor waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

(k) Communications. The Contractor shall direct any notification, disclosure, or request provided for in this clause to the Patent Counsel identified in the contract.

(l) Reports. (1) Interim reports. Upon DOE's request, the Contractor shall submit to DOE, no more frequently than annually, a list of subject inventions disclosed to DOE during a specified period, or a statement that no subject inventions were made during the specified period; and/or a list of subcontracts containing a patent clause and awarded by the Contractor during a specified period, or a statement that no such subcontracts were awarded during the specified period. The interim report shall state whether the Contractor's invention disclosures were submitted to DOE in accordance with the requirements of subparagraphs (f)(3) and (f)(4) of this clause.

(2) Final reports. Upon DOE's request, the Contractor shall submit to DOE, prior to closeout of the contract or within three (3) months of the date of completion of the contracted work, a list of all subject inventions disclosed during the performance period of the contract, or a statement that no subject inventions were made during the contract performance period; and/or a list of all subcontracts containing a patent clause and awarded by the Contractor during the contract performance period, or a statement that no such subcontracts were awarded during the contract performance period.

(m) Facilities License. In addition to the rights of the parties with respect to inventions or discoveries conceived or first actually reduced to practice in the course of or under this contract, the Contractor agrees to and does hereby grant to the Government an irrevocable, nonexclusive, paid-up license in and to any inventions or discoveries regardless of when conceived or actually reduced to practice or acquired by the contractor at any time through completion of this contract and which are incorporated or embodied in the construction of the facility or which are utilized in the operation of the facility or which cover articles, materials, or products manufactured at the facility (1) to practice or have practiced by or for the Government at the facility, and (2) to transfer such license with the transfer of that facility. Notwithstanding the acceptance or exercise by the Government of these rights, the Government may contest at any time the enforceability, validity or scope of, or title to, any rights or patents herein licensed.

(n) Atomic Energy. (1) Pecuniary awards. No claim for pecuniary award of compensation under the provisions of the Atomic Energy Act of 1954, as amended, may be asserted with respect to any invention or discovery made or conceived in the course of or under this contract.

(2) Patent Agreements. Except as otherwise authorized in writing by the Contracting Officer, the Contractor shall obtain patent agreements to effectuate the provisions of subparagraph (o)(1) of this clause from all persons who perform any part of the work

under this contract, except nontechnical personnel, such as clerical employees and manual laborers.

(o) Classified Inventions. (1) Approval for filing a foreign patent application. The Contractor shall not file or cause to be filed an application or registration for a patent disclosing a subject invention related to classified subject matter in any country other than the United States without first obtaining the written approval of the Contracting Officer.

(2) Transmission of classified subject matter. If in accordance with this clause the Contractor files a patent application in the United States disclosing a subject invention that is classified for reasons of security, the Contractor shall observe all applicable security regulations covering the transmission of classified subject matter. If the Contractor transmits a patent application disclosing a classified subject invention to the United States Patent and Trademark Office (USPTO), the Contractor shall submit a separate letter to the USPTO identifying the contract or contracts by agency and agreement number that require security classification markings to be placed on the patent application.

(3) Inclusion of clause in subcontracts. The Contractor agrees to include the substance of this clause in subcontracts at any tier that cover or are likely to cover subject matter classified for reasons of security.

(p) Examination of Records Relating to Inventions. (1) Contractor compliance. Until the expiration of three (3) years after final payment under this contract, the Contracting Officer or any authorized representative may examine any books (including laboratory notebooks), records, and documents and other supporting data of the Contractor, which the Contracting Officer or authorized representative deems reasonably pertinent to the discovery or identification of subject inventions, including exceptional circumstance subject inventions, or to determine Contractor (and inventor) compliance with the requirements of this clause, including proper identification and disclosure of subject inventions, and establishment and maintenance of invention disclosure procedures.

(2) Unreported inventions. If the Contracting Officer is aware of an invention that is not disclosed by the Contractor to DOE, and the Contracting Officer believes the unreported invention may be a subject invention, DOE may require the Contractor to submit to DOE a disclosure of the invention for a determination of ownership rights.

(3) Confidentiality. Any examination of records under this paragraph is subject to appropriate conditions to protect the confidentiality of the information involved.

(4) Power of inspection. With respect to a subject invention for which the Contractor has responsibility for patent prosecution, the Contractor shall furnish the Government, upon request by DOE, an irrevocable power to inspect and make copies of a prosecution file for any patent application claiming the subject invention.

(q) Patent Functions. Upon the written request of the Contracting Officer or Patent Counsel, the Contractor agrees to make reasonable efforts to support DOE in accomplishing patent-related functions for work arising out of the contract, including, but not limited to, the prosecution of patent applications, and the determination of

questions of novelty, patentability, and inventorship.

(r) Educational Awards Subject to *35 U.S.C. 212*. The Contractor shall notify the Contracting Officer prior to the placement of any person subject to *35 U.S.C. 212* in an area of technology or task (1) related to exceptional circumstance technology or (2) any person who is subject to treaties or international agreements as set forth in paragraph (b)(6) of this clause or to agreements other than funding agreements. The Contracting Officer may disapprove of any such placement.

(s) Annual Appraisal by Patent Counsel. Patent Counsel may conduct an annual appraisal to evaluate the Contractor's effectiveness in identifying and protecting subject inventions in accordance with DOE policy.

(t) Publication. The Contractor shall receive approval from Patent Counsel prior to releasing or publishing information regarding scientific or technical developments conceived or first actually reduced to practice in the course of or under this contract, to ensure such release or publication does not adversely affect the patent rights of DOE or the Contractor.

(u) Termination of Contractor's Advance Class Waiver. If a request by the Contractor for an advance class waiver pursuant to subparagraph (b)(2) of this clause or a determination of greater rights pursuant to paragraph (c) of this clause contains false material statements or fails to disclose material facts, and DOE relies on the false statements or omissions in granting the Contractor's request, the waiver or grant of any Government rights (in whole or in part) to the subject invention(s) may be terminated at the discretion of the Secretary of Energy or designee. Prior to termination, DOE shall provide the Contractor with written notification of the termination, including a statement of facts in support of the termination, and the Contractor shall be allowed thirty (30) days, or a longer period authorized by the Secretary of Energy or designee for good cause shown in writing by the Contractor, to show cause for not terminating the waiver or grant. Any termination of an advance class waiver or a determination of greater rights is subject to the Contractor's license as provided for in paragraph (f) of this clause.

U.S. DOE - Office of International Science and Technology Cooperation

All Multilateral Implementing Agreements

ID	Start Date	End Date	Status	Legally Binding	Subject	Brief Description
Aegis: *IEA*						
10000	11/20/1975		In Force	☑	Fossil Energy	IEA Coal Research
	Title: ***Implementing Agreement for the Establishment of an IEA Clean Coal Center***					
	Comment: Energy Technology Information Centers					
10001	12/20/1976	12/31/2003	In Force	☑	Energy Efficiency and Renewable Energy	Renewable Energy Strategies (design know-how and technologies)
	Title: ***Implementing Agreement for the Establishment of a Program on Solar Heating and Cooling***					
	Comment:					
10002	3/16/1977	12/14/2003	In Force	☑	Energy Efficiency and Renewable Energy	Efficient Energy and end-use technologies
	Title: ***Implementing Agreement for the Establishment of a Project on Energy Conservation in Combustion***					
	Comment: DOE is the Operating Agent					
10003	3/16/1977	6/30/2012	In Force	☑	Energy Efficiency and Renewable Energy	IEA - Buildings and Community Systems
	Title: ***Implementing Agreement for the Establishment of a Project on Energy Conservation in Buildings and Community Systems***					
	Comment:					
10004	6/28/1977	4/30/1997	Completed	☑	Energy Efficiency and Renewable Energy	Heat Transfer and Heat Exchanges
	Title: ***Implementing Agreement for the Establishment of a Project on Heat Transfer and Heat Exchangers***					
	Comment: DOE's involvement in the agreement ended in 1996. Agreement runs until June 27, 2001					
10005	10/6/1977		Completed	☑	Fusion Energy	Superconducting Magnets
	Title: ***Implementing Agreement for the Establishment of a Project on Superconducting Magnets for Fusion Power***					
	Comment:					
10006	10/6/1977		In Force	☑	Energy Efficiency and Renewable Energy	IEA- Hydrogen
	Title: ***Implementing Agreement for the Establishment of a Project on Hydrogen***					
	Comment:					

All Multilateral Implementing Agreements

ID	Start Date	End Date	Status	Legally Binding	Subject	Brief Description
10007	10/6/1977	12/30/2002	In Force	☑	Fusion Energy	Plasma Wall Interaction in TEXTOR
Title: *Implementing Agreement for a Programme of Research and Development on Plasma Wall Interaction in Textor*						
Comment:						
10008	7/27/1978		In Force	☑	Energy Efficiency and Renewable Energy	Heat Pumping Technologies
Title: *Implementing Agreement for a Prgramme of Research and Development on Advanced Heat Pump Systems*						
Comment:						
10009	2/21/1979	12/30/1998	Completed	☑	Energy Efficiency and Renewable Energy	Energy Storage
Title: *Implementing Agreement for the Establishment of a Project on Energy Storage*						
Comment: DOE involvement ended in 1998. Implementing agreement is still in force. Under the energy end-use technologies working group.						
10010	3/25/1979	6/30/2001	In Force	☑	Fossil Energy	Coal Combustion Sciences
Title: *Implementing Agreement for the Establishment of a Project on Coal Combustion Sciences*						
Comment:						
10011	5/22/1979		In Force	☑	Energy Efficiency and Renewable Energy	High Temperature Materials
Title: *Implementing Agreement for the Establishment of a Project on High Temperature Materials*						
Comment: Efficient Energy End-Use Technologies Working Group						
10012	5/22/1979	12/4/1999	Completed	☑	Fossil Energy	Implementing Agreement for the Establishment of a Project on Enhanced Oil Recovery
Title: *Implementing Agreement for the Establishment of a Project on Enhanced Oil Recovery*						
Comment: Fossil Fuel Technologies working group.						
10013	10/21/1980		Pending	☑	Fusion Energy	Fusion Materials
Title: *Implementing Agreement for the Establishment of a Project on Fusion Materials*						
Comment:						
10014	2/18/1981	1/1/2002	In Force	☑	Energy Efficiency and Renewable Energy	Pulp and Paper
Title: *Implementing Agreement for the Establishment of a Project on Pulp and Paper*						
Comment: Efficient Energy end-use technologies						
10015	2/15/1985	8/31/2001	In Force	☑	Energy Efficiency and Renewable Energy	Advanced Motor Fuels
Title: *Implementing Agreement for the Establishment of a Project on Alternative Motor Fuels*						
Comment: Efficient energy end-use technologies working group						

All Multilateral Implementing Agreements

ID	Start Date	End Date	Status	Legally Binding	Subject	Brief Description
10016	7/31/1985	7/30/2000	In Force	☑	Fusion Energy	Stellarator Research
Title: *Implementing Agreement for Cooperation in Development of the Stellarator Concept*						
Comment: Fusion Power						
10017	7/31/1985	7/30/2000	In Force	☑	Fusion Energy	Toroidal Physics and Plasma Technologies
Title: *Implementing Agreement for the Establishment of a Project on Toroidal Physics in and Plasma Technologies of Tokamaks*						
Comment: Fusion Power						
10018	1/15/1986	1/14/2001	In Force	☑	Fusion Energy	Three Large Tokamak Facilities
Title: *Implementing Agreement for the Establishment of a Project on Three Large Tokamak Facilities*						
Comment: Fusion Power						
10019	1/26/1987	9/30/2003	In Force	☑	Information and/or Personnel Exchange	Energy Technology Data Exchange (ETDE)
Title: *Implementing Agreement for the Establishment of the IEA Energy Technology Data Exchangea*						
Comment: Office of Scientific and Technical Information (OSTI) is the operating agent.						
10020	3/16/1987	3/15/2003	In Force	☑	Fossil Energy	Multiphase Flow Sciences
Title: *Implementing Agreement for the Establishment of a Project on Multiphase Flow Sciences*						
Comment: Fossil Fuel Technologies						
10021	3/18/1988		In Force	☑	Information and/or Personnel Exchange	Energy and Environmental Technology Information Centers (EETIC)
Title: *Implementing Agreement to Establish and Operate IEA Information Centres for the Analysis and Dissemination of Demonstrated Energy Technologies*						
Comment: Information Centers						
10022	4/3/1990	4/2/2000	Pending	☑	Fusion Energy	Reversed Field Pinches
Title: *Implementing Agreement for the Establishment of a Project on Reversed Field Pinches*						
Comment: Fusion Power						
10023	8/1/1990	10/1/1998	Completed	☑	Energy Efficiency and Renewable Energy	Superconductivity
Title: *Implementing Agreement for the Establishment of a Project on High-Temperature Superconductivity*						
Comment: To access the impact of high temperature superconductivity of the electric power sector.						
10025	10/21/1991	10/31/2003	Pending	☑	Energy Efficiency and Renewable Energy	Wind Turbine Systems
Title: *Implementing Agreement for Cooperation in the Research and Development of Wind Turbine Systems*						
Comment: Renewable Energy Technologies						

All Multilateral Implementing Agreements

ID	Start Date	End Date	Status	Legally Binding	Subject	Brief Description
10026	11/12/1991	12/31/2001	In Force	☑	Energy Efficiency and Renewable Energy	SolarPACES

Title: *Implementing Agreement for the Establishment of a Project on Solar Power and Chemical Energy Systems*

Comment:

10027	11/20/1991	11/20/2001	In Force	☑	Fossil Energy	Greenhouse Gases R&D

Title: *Implementing Agreement for a Co-operative Programme on Technologies Relating to Greenhouse Gases Derived from Fossil Fuel Uses*

Comment:

10028	7/6/1992	7/5/2002	In Force	☑	Fusion Energy	Safety of Fusion Power

Title: *Implementing Agreement on a Co-operative Programme on Environmental, Safety and Economic Aspects of Fusion Power*

Comment:

10031	8/11/1993	8/11/2003	In Force	☑	Energy Efficiency and Renewable Energy	Photovoltaic Power Systems

Title: *Implementing Agreement for a Co-operative Programme on Photovoltaic Power Systems*

Comment: The mission of the IEA PVPS program is to enhance the international collaboration efforts through which photovoltaic solar energy becomes a significant renewable energy option in the near future.

10032	9/28/1993	9/27/2003	In Force	☑	Energy Efficiency and Renewable Energy	Demand Side Management

Title: *Implementing Agreement for Co-operation on Technologies and Programmes for Demand Side Management*

Comment: Efficient Energy End-use Technologies

10033	5/17/1994	5/1/2002	In Force	☑	Energy Efficiency and Renewable Energy	District Heating and Cooling

Title: *Implementing Agreement for the Establishment of a Project on District Heating and Cooling*

Comment: Efficient Energy End-Use Technologies

10034	6/13/1994	6/12/1999	Expired	☑	Fusion Energy	Nuclear Technology of Fusion Reactors

Title: *Implementing Agreement on a Co-operative Programme on Nuclear Technology of Fusion Reactors*

Comment:

10035	7/12/1994	11/17/2004	Pending	☑	Energy Efficiency and Renewable Energy	Hybrid amd Electric Vehicles

Title: *Implementing Agreement for the Establishment of a Project on Hybrid amd Electric Vehicles*

Comment: Efficient Energy End-Use Technologies

10036	1/26/1995	4/4/2000	In Force	☑	Fossil Energy	International Center for Gas Technology Information

Title: *Implementing Agreement for the Establishment of an International Center for Gas Technology Information*

Comment: Energy Technology Information Centers

All Multilateral Implementing Agreements

ID	Start Date	End Date	Status	Legally Binding	Subject	Brief Description
10037	5/11/1995	12/31/1998	In Force	☑	Energy Efficiency and Renewable Energy	Advanced Fuel Cells

Title: *Implementing Agreement for a Program of Research, Development, and Demonstration on Advanced Fuel Cells*

Comment:

10038	1/1/1996	6/30/1999	Expired	☑	*Other - Systems Analysis	

Title: *Implementing Agreement for a Programme of Energy Technology Systems Analysis*

Comment:

10039	3/7/1997	3/31/2002	In Force	☑	Energy Efficiency and Renewable Energy	Geothermal

Title: *Implementing Agreement for the Establishment of a Project on Geothermal*

Comment: Renewable Energy Technologies

Aegis: *NEA*

10024	9/16/1991	5/8/1997	Expired	☐	Information and/or Personnel Exchange	Exchange of nuclear data and related information and computer packages pertinent to civilian nuclear science and technology collected by NEA-DB, NNDC, ESTSC, EPIC

Title: *Cooperative Arrangement between the United States Departmentof Energy and the Nuclear Energy Agency of the OECD in the Field of Nuclear Data and Computer Programs*

Comment:

Aegis: *None*

10029	7/21/1992	7/22/1999	Completed	☑	Fusion Energy	ITER

Title: *Agreement among the European Atomic Energy Community, Japan, the Russian Federation, and the United States on Cooperation in the Engineering Design Activities for the International Thermonuclear Experimental Reactor (ITER)*

Comment: None, European Union, Japan and Russia (set Aegis to None) - currently file # 308

10030	9/24/1992	9/24/1997	Expired	☑	Information and/or Personnel Exchange	Exchange of technical data

Title: *Memorandum of Understanding Among the National Board for Industrial and Technical Development of Sweden, The Royal Ministry of Petroleum and Energy of Norway, the Ministry of Trade and Industry of Finland, the Danish Energy Agency, and the Department of Energy of the United States of America*

Comment:

10040	12/4/1997	3/31/2002	In Force	☐	Fossil Energy	CO2 Sequestration

Title: *Project Agreement for International Collaboration on CO2 Ocean Sequestion*

Comment:

All Multilateral Implementing Agreements

ID	Start Date	End Date	Status	Legally Binding	Subject	Brief Description
10041	12/8/1997	12/8/2017	In Force	☑	Science and Technology	CERN - LHC Agreement

Title: *International Co-operation Agreement between the European Organization for Nuclear Research (CERN) and the Department of Energy of the United States of America and the National Science Foundation of the United States of America Concerning Scientific and Technical Co-operation on large Hadron Collider Activities*

Comment:

U.S. DOE - Office of International Science and Technology Cooperation

All In Force Bilateral Agreements

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
Country: *Argentina*									
61	407	8/1/1996	8/1/2001	Primary DOE	☑		None	Energy Research and Development	Energy Technology Cooperation
		Title: ***Specific Arrangement between the Department of Energy of the United States of America and the Public Works and Services Secretariat of the Argentine Republic in the Area of Energy Technology Cooperation***							
		Comment: Energy Forecasting meeting was hosted by FE in Oct. of 97. Seminar on New Technologies for the Energy Sector was held in Buenos Aires in Dec 98. EERE has work on energy efficiency and renewable projects started under a statement of intent which was a precursor to this agreement. In Dec of 97 four priority areas of work were identified - energy efficiency, energy and environment, energy planning, and renewable energy by then Secretaries of Energy.							
62	409	10/16/1997	10/16/2002	Primary DOE	☑		None	Arms Control and Nonproliferation	Nuclear Technologies
		Title: ***Implementing Arrangement between the Department of Energy of the United States of America and the National Atomic Energy Commission of the Argentine Republic for Technical Exchange and Cooperation in the area of Peaceful Uses of Nuclear Energy***							
		Comment: Expanded sister lab arrangement supporting Article IV of the NPT. Existing annexes cover work in Molybdenum-99 production for LEU, boron neutron capture therapy, decontamination and decommissioning, and LEU advanced fuels.							
475	431	4/13/1998	10/16/2002	Secondary DOE	☑	62	Primary DOE	Arms Control and Nonproliferation	Annex 1 - LEU Moly-99 production
		Title: ***Project Annex 1 Cooperation in the Field of Molybdenum-99 Production from Low-Enriched Uranium***							
		Comment: In force as long as the Implementing Arrangement. Action sheets are under development.							
521	431	2/8/1999	2/8/2003	Tertiary DOE	☐	475	Secondary DOE	Nuclear Energy	Action Sheet 1 - Project Annex 1
		Title: ***Action Sheet 1 pursuant to Project Annex 1 for Cooperation in the Field of Molybdenum-99 Production for Low-Enriched Uranium between the National Atomic Energy Commission of he Argentine Republic and the University of Chicago, as Operator of Argonne National Laboratory***							
		Comment:							
476	431	4/13/1998	10/16/2002	Intergovernmental	☑	62	Primary DOE	Arms Control and Nonproliferation	Annex 2 - Boron Neutron Capture Therapy
		Title: ***Project Annex 2 Cooperation in the Area of Boron Neutron Capture Therapy***							
		Comment: In force as long as the Implementing Arrangement. Expert visits are underway.							
503	431	8/11/1998		Tertiary DOE	☐	476	Secondary DOE	Arms Control and Nonproliferation	Action Sheet 1
		Title: ***Action Sheet 1 Pursuant to Project Annex 2 Cooperation in the Field of Boron Neutron Capture Theraphy***							
		Comment: Technical exchange visits.							
477	431	4/13/1998	10/16/2002	Secondary DOE	☑	62	Primary DOE	Arms Control and Nonproliferation	Annex 3 - D&D of Nuclear Facilities
		Title: ***Project Annex 3 Cooperation in the Field of Decontamination and Decommissioning of Nuclear Facilities***							
		Comment: In force as long as the Implementing Arrangement. Workshop was successfully held in fall of 98 at ANL.							

All In Force Bilateral Agreements

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
496	431	8/18/1998	10/16/2002	Secondary DOE	☑	62	Primary DOE	Arms Control and Nonproliferation	Annex 4 - Advanced Fuels
	Title:	*Project Annex 4 Cooperation in Field of Low Enriched Uranium Advanced Fuels*							
	Comment:	Remains in force as long as the Implement Arrangement. Action sheets are under development.							
555	431	2/8/1999	2/8/2003	Tertiary DOE	☐	496	Secondary DOE	Arms Control and Nonproliferation	Action Sheet I Annex 4, Dart Code Development
	Title:	*Action Sheet I Pursuant to Project Annex 4 for Cooperation in the Field of Low Enriched Uranium Advanced Fuels between the National Atomic Energy Commission of the Argentine Republic (CNEA) and the University of Chicago, as Operator of Argonne National Laboratory*							
	Comment:								
63	331	4/18/1994	4/18/2004	Primary DOE	☑		None	Arms Control and Nonproliferation	International Safeguards Applications
	Title:	*Agreement between the United States Department of Energy and the National Atomic Energy Commission of Argentina Concerning Research and Development in Nuclear Material Control, Accountancy, Verification, Physical Protection, and Advanced Containment and Surveillance Technology for International Safeguards Applications*							
	Comment:	Cooperate in research, development, testing, and evaluation of technology, equipment and procedures in order to improve nuclear material control, accountancy, verification, physical protection and advanced containment and surveillance technologies for international safeguards applications.							
64	387	5/29/1996	5/29/2006	Primary DOE	☑		None	Environmental Restoration and Waste Management	Radioactive and Mixed Waste Management
	Title:	*Implementing Arrangement between the Department of Energy of the United States of America and the National Atomic Energy Commission of the Argentine Republic for Technical Exchange and Cooperation in the Area of Radioactive and Mixed Waste Management*							
	Comment:	Study radioactive and mixed waste management activities in such areas as: preparation and packaging; decontamination and decommissioning; surface and subsurface storage; characterization of geologic formations; disposal in geologic formations, etc.							

Country: *Australia*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
509	456	9/15/1998	9/14/2008	Primary DOE	☑		None	Arms Control and Nonproliferation	Safeguards Arrangement
	Title:	*Arrangement between the United States Department of Energy and the Australian Safeguards and Nonproliferation Office Concerning Research and Development in Nuclear material Control Accountancy, Verification, Physical Protection, Advance Containment and Surveillance Technologies for International Safeguards*							
	Comment:								

Country: *Austria*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
65	337	9/18/1994		Primary DOE	☐		None	Energy Efficiency and Renewable Energy	EE/Conservation and Climate Change
	Title:	*Memorandum of Understanding on Cooperation in Environmental Aspects of Energy Policy and the Protection of Global Climate*							
	Comment:	Cooperate in areas of sufficient growth of energy supplies; energy efficiency and conservation measures and protection of the biosphere (climate change).							

Country: *Bangladesh*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
501	450	12/15/1998		Statement of Intent	☐		None	Energy Research and Development	SOI in Enregy Cooperation

Title: *Joint Statement of Cooperation in Energy*

Comment:

514	460	2/11/1999	2/11/2004	Primary DOE	☐		None	Information and/or Personnel Exchange	Exchange of Energy Information

Title: ***Arrangement between the Department of Energy of the United States of America and the Ministry of Energy and Mineral Resources, Government of the People's Republic of Bangladesh for Exchange of Energy Information***

Comment: EIA will work with an agency designated by MEOMR to establish a reasonably balanced exchange of energy information.

Country: *Botswana*

600	495	12/15/2000		Statement of Intent	☑		None	Fossil Energy	Cooperation in the Field of Fossil Energy Technology

Title: ***Statement of Intent Between The Department of Energy of the United States of America and The Ministry of Minerals, Energy and Water Afairs of the Republic of Botswana for Cooperation in the Field of Fossil Energy Technology***

Comment:

Country: *Brazil*

26	391	9/30/1996		Statement of Intent	☐		None	Fossil Energy	Clean Coal Technologies

Title: ***Joint Statement of Intent on Clean Coal Technologies between the Department of Energy of the United States of America and the State of Rio Grande do Sul and the State of Santa Catarina, and the Sindicato Nacional da Industria da Extracao do Carvao, Eletrabras, and the Ministry of Mines and Energy of the Federal Republic of Brazil***

Comment: Intention to cooperate between DOE, the State of Rio Grande do Sul, the State of Santa Catarina, The Sindicato National da Industria da Extracao do Carvao, Electrobras, and the Ministry of Mines and Energy of Brazil in clean coal technologies.

75	412	10/14/1997	10/14/2002	Primary DOE	☑		None	Energy Research and Development	Energy Technology

Title: ***Implementing Arrangement between the United States of America and the Federative Republic of Brazil for Cooperation in the Area of Energy Technology***

Comment: Umbrella Agreement

279	412	10/14/1997	10/14/2002	Secondary DOE	☑	75	Primary DOE	Fossil Energy	Annex I - Coal and Power Systems

Title: ***Annex I to the Implementing Arrangement between the United States of America and the Federative Republic of Brazil for Cooperation in the Area of Energy Technology in the Field of Coal and Power Systems***

Comment: Exchange experience and views on clean coal technologies, advanced power systems, advanced coal preparation, and environmental monitoring technologies and standards.

280	412	10/14/1997	10/14/2002	Secondary DOE	☑	75	Primary DOE	Energy Efficiency and Renewable Energy	Annex 2 - Renewable Energy

Title: ***Annex II to the Implementing Arrangement between the United States of America and the Federative Republic of Brazil for Cooperation in the Area of Energy Technology in the Field of Renewable Energy***

Comment: Collaboration on renewables resource assessment, integration in electric utility, policy analysis, and identification of opportunities for renewable energy in Brazil.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
281	412	10/14/1997	10/14/2002	Secondary DOE	☑	75	Primary DOE	Energy Efficiency and Renewable Energy	Annex 3- Energy Efficiency
	Title:	*Annex III - to the Implementing Arrangement between the United States of America and the Federative Republic of Brazil for Cooperation in the Area of Energy Technology in the Field of Energy Efficiency*							
	Comment:	Collaboration to increase energy, efficiency, promote global environmental protection, and stimulate the market in Brazil for energy efficiency goods and services.							
76	332	4/18/1994	4/18/2004	Primary DOE	☑		None	Arms Control and Nonproliferation	International Safeguards Applications
	Title:	*Agreement between the United States Department of Energy and the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials Concerning Research and Development in Nuclear Material Control, Accountancy, Verification, and Advanced Containment and Surveillance Technologies for International Safeguards Applications*							
	Comment:								
77	376	9/19/1995	9/19/2000	Primary DOE	☑		None	Arms Control and Nonproliferation	International Safeguards Applications
	Title:	*Agreement between the United States Department of Energy and the National Nuclear Energy Commission of Brazil Concerning Research and Development in Nuclear Material Control, Accountancy, Verification, and Physical Protection, and Advanced Containment and Surveillance Technologies for International Safeguards Applications*							
	Comment:								

Country: *Canada*

28	363	7/21/1995		Statement of Intent	☐	21	Broad	Energy Efficiency and Renewable Energy	Building Energy Simulation Tools
	Title:	*Statement of Intent between the United States Department of Energy and the Department of Natural Resources of Canada on Building Energy Simulation Tools*							
	Comment:	Collaborate in building energy simulation R&D and information dissemination.							
81	425	3/18/1998	3/18/2008	Primary DOE	☐		None	Energy Research and Development	Energy R&D
	Title:	*Memorandum of Understanding between the Department of Energy of the United States of America and the Department of Natural Resources of Canada on Collaboration in Energy Research and Development*							
	Comment:	Establish wider areas of cooperation for mutual benefit							
524	469	2/1/2000	2/1/2005	Secondary DOE	☑	81	Primary DOE	Fossil Energy	DOE/NRCan Fuel Cells Implementing Arrangement
	Title:	*Implementing Arrangement between the Department of Energy of the United States of America and the Department of Natural resources Canada for Cooperation in the area of Fuel Cells*							
	Comment:	Automatic Renewal after 5 years with written agreement of the participants.							
525	470	2/1/2000	2/1/2005	Secondary DOE	☑	81	Primary DOE	Fossil Energy	DOE/NRCan Fossil Fuels Implementing Arrangement
	Title:	*Implementing Arrangement between Department of Energy of the United States of America and the Department of Natural Resources Canada for Cooperation in the area of Fossil Fuels*							
	Comment:	Automatic renewal for 5 years with written agreement of the participants.							

Country: *Chile*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
35	352	3/7/1995		Statement of Intent	☐		None	Energy Efficiency and Renewable Energy	Control Emissions of Greenhouse Gases
	Title:	*Statement of Intent for Sustainable Development Cooperation and Joint Implementation of Measures to Control Emissions of Greenhouse Gases Between the Department of Energy of the United States of America and the National Energy Commission of Chile*							
	Comment:	Intent to facilitate the development of joint implementation projects in order to encourage: market deployment of greenhouse gas-reducing technologies, including energy efficiency and renewable energy technologies; education and training programs, etc.							
474	430	4/18/1998	4/12/2000	Statement of Intent	☐		None	Energy Efficiency and Renewable Energy	Natural Gas-Powered Bus Pilot Project
	Title:	*Statement of Intent Concerning the Natural Gas-Powered Bus Pilot Project in the Metropolitan Region of Chile*							
	Comment:	Signed in Santiago, Chile, during the SOAII							

Country: *China*

1	427	1/31/1979	4/30/2001	Intergovernmental	☑		None	Science and Technology	Gov't to Gov't S&T
	Title:	*Agreement between the Government of United States of America and the Government of People's Republic of China on Cooperation in Science and Technology*							
	Comment:	Need copy of agreement							
238	123	5/11/1983	4/30/2001	Primary DOE	☑	1	Intergovernmental	Fusion Energy	Protocol on Nuclear Physics and Magnetic Fusion
	Title:	*Protocol between the Department of Energy of the United States of America and the Ministry of Science and Technology of the People's Republic of China on Cooperation in the Fields of Nuclear Physics and Controlled Magnetic Fusion Research*							
	Comment:	Cooperate in promoting each other's program in Nuclear Physics and Controlled Magnetic Fusion. Co-terminates with umbrella S&T agreement.							
290	223	9/28/1987	4/30/2001	Secondary DOE	☑	239	Primary DOE	Fossil Energy	Annex 2 - Mine Safety and Health
	Title:	*Annex II to the Protocol on Cooperation in the Field of Fossil Energy Research and Development between the Department of Energy of the United States of America and the Ministry of Coal Industry of the People's Republic of China in the Area of Mine Safety and Health*							
	Comment:	Co-terminates with the Protocol							
291	217	8/19/1987	4/30/2001	Secondary DOE	☑	239	Primary DOE	Energy Research and Development	Annex 3 - Atmospheric Trace Gasses
	Title:	*Annex III to the protocol on fossil energy R&D on Cooperation in the field of atmospheric trace gases*							
	Comment:	Co-terminates with the Protocol							
292	226	10/13/1987	4/30/2001	Secondary DOE	☑	239	Primary DOE	Fossil Energy	Annex 4 - Coal Preparation & Waste Stream Utilization
	Title:	*Annex IV to protocol on cooperation in field of fossil energy R&D between U.S. Department of Energy & Ministry of Coal Industry of the People's Republic of China in the area of coal preparation and waste stream utilization*							
	Comment:	TASKS PLANNED WERE COMPLETED IN 10/90. DISCUSSIONS ON POSSIBLE FURTHER COOPERATION IN COAL PREP. Co-terminates with the Protocol							

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
293	227	10/13/1987	4/30/2001	Secondary DOE	☑	239	Primary DOE	Fossil Energy	Annex 5 - Atmospheric Fluidized Bed Combustion Info Exchange

Title: ***Annex V to protocol on cooperation in field of fossil energy R&D between U.S. Department of Energy - Ministry of Coal Industry of the People's Republic of China in the area of atmospheric fluidized bed (AFB) combustion information exchange***

Comment: EXCHANGE OF REPORTS AND DATA. Co-terminates with Protocol

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
296	349	2/23/1995	2/23/2000	Secondary DOE	☑	239	Primary DOE	Fossil Energy	Annex 11 - Coal Bed Methane Recovery and Utilization

Title: ***Annex XI to the Protocol for Cooperation in the Field of Fossil Energy Research and Development between the Department Energy of the United States of America and the Ministry of Coal Industry of the People's Republic of China for Cooperation in the Area of Coalbed Methane Recovery and Utilization***

Comment: Promote technological and economic cooperation in coal bed methane recovery and utilization technology in order to make positive contributions toward improving recovery efficiency and utilization of globally significant natural gas energy resources.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
297	348	2/23/1995	2/23/2000	Secondary DOE	☑	239	Primary DOE	Fossil Energy	Annex 12 - Regional Climate Research

Title: ***Annex XII to the Protocol on Cooperation in the Field of Fossil Energy Research and Development between the Department Energy of the United States of America and the Ministry of Coal Industry of the People's Republic of China for Cooperation in the Area of Regional Climate Research with the China Meteorological Administration***

Comment: Establish a program of joint R&D and information exchange to document regional climate and climate change, to predict regional climate and climate change and to identify regional impacts of climate change.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
485	439	11/14/1997	11/14/2002	Secondary DOE	☑	239	Primary DOE	Fossil Energy	Annex 13 - Fossil Fuel Utilization

Title: ***Annex XIII to the Protocol for Cooperation in the Field of Fossil Energy Research and Development between the Department of Energy of the United States of America and the Ministry of Coal Industry of the People's Republic of China in the Area of Fossil Fuel Utilization for Production of Chemicals***

Comment: Co-terminiates with Protocol

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
298	413	11/14/1997	11/14/2002	Secondary DOE	☑	239	Primary DOE	Fossil Energy	Annex 14 - Bilateral Consultations on Coal Industry

Title: ***Annex XIV to the Protocol for Cooperation in the field of Fossil Energy Research & Development between the Department of Energy of the United States of America and the Ministry of Coal Industry of the People's Republic of China on Bilateral Consultations and Exchanges on Coal Industry Development and Information***

Comment: Co-terminates with the Protocol

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
240	351	2/23/1995	2/22/2005	Primary DOE	☑	1	Intergovernmental	Energy Efficiency and Renewable Energy	Protocol for Energy Efficiency and Renewable Energy

Title: ***Protocol for Cooperation in the Fields of Energy Efficiency and Renewable Energy Technology Development and Utilization between the Department of Energy of the United States of America and the Ministry of Science and Technology of the People's Republic of China***

Comment: Desire to conduct bilateral energy consultations by forming a Chinese-American Ministerial Working Group to enhance the understanding of energy issues and promote the exchange of information on energy policies, programs and technologies.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
478	432	6/27/1995	6/27/2000	Secondary DOE	☑	240	Primary DOE	Energy Efficiency and Renewable Energy	Annex 1 - 100 Counties Renewable Energy

Title: ***Annex I to the Protocol for Cooperation in the Field of Energy Efficiency and Renewable Energy between the Department of Energy of the United States of America and the Ministry of Science and Technology of the People's Republic of China for Developing Cooperative Activities in the Area of Renewable Energy Under the Hundred Counties Integrated Rural Energy Development Program in China between the Department of Energy of the United States of America and the Ministry of Agriculture of the People's Republic of China***

Comment: Remains in force for five years or until termination of the Protocol, whichever occurs first

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
299	420	10/25/1996	10/25/2001	Secondary DOE	☑	240	Primary DOE	Energy Efficiency and Renewable Energy	Annex 2 - Wind Energy Development
		Title:	***Wind Energy Development in China Developing Cooperative Activities between the Department of Energy of the United States of America and the Ministry of Electric Power of the People's Republic of China ANNEX II under the Protocol for Cooperation in the Fields of Energy Efficiency and Renewable Energy Technology Development and Utilization between the Department of Energy of the United States of America and the State Science and Technology Commission of the People's Republic of China***						
		Comment:	Remains in force for five years or until termination of the Protocol, whichever occurs first.						
300	422	10/25/1996	10/25/2001	Secondary DOE	☑	240	Primary DOE	Energy Efficiency and Renewable Energy	Annex 3 - Energy Efficiency
		Title:	***Annex III to the Protocol for Cooperation in the Fields of Energy Efficiency and Renewable Energy Technology Development and utilization between the Department of Energy of the United States of America and the State Science and Technology Commission of the People's Republic of China for Cooperation Between the Department of Energy of the United States of America and the State Planning Commission of the People's Republic of China in the Area of Energy Efficiency***						
		Comment:	Remains in force for five years or until termination of the Protocol, whichever occurs first						
301	421	10/25/1996	10/25/2001	Secondary DOE	☑	240	Primary DOE	Energy Efficiency and Renewable Energy	Annex 4 - Renewable Energy Business Development
		Title:	***Renewable Energy Business Development ANNEX IV Cooperative Activities between the Department of Energy of the United States of America and the State Economic and Trade Commission of the People's Republic of China***						
		Comment:	Remains in force for five years or until termination of the Protocol, whichever occurs first						
302	414	11/18/1997	11/18/2002	Secondary DOE	☑	240	Primary DOE	Energy Efficiency and Renewable Energy	Annex 5 - Electric Vehicle Development
		Title:	***The Department of Energy of the United States of America and the Ministry of Science and Technology of the People's Republic of China for Cooperation in the Field of Energy Efficiency and Renewable Energy Technology Development and Utilization Annex V Electric Vehicle and Hybrid-Electric Vehicle Development***						
		Comment:	Remains in force for five years or until termination of the Protocol, whichever occurs first.						
303	415	11/18/1997	11/18/2002	Secondary DOE	☑	240	Primary DOE	Energy Efficiency and Renewable Energy	Annex 6 - Geothermal Production and Use
		Title:	***Geothermal Production and Use Cooperative Activities between the Department of Energy of the United States of America and the Ministry of Science and Technology of the People's Republic of China Annex VI under The Protocol for cooperation in the Field of Energy Efficiency and renewable Energy Technology Development and Utilization between the Department of Energy of the United States of America and the State Science and Technology Commission of the People's Republic of China***						
		Comment:	Remains in force for five years or until termination of the Protocol, whichever occurs first.						
490	443	7/9/1998		Secondary DOE	☐	240	Primary DOE	Energy Efficiency and Renewable Energy	Design Criteria for Energy Efficient Building
		Title:	***Statement of Work between the Department of Energy of the United States of America and the Ministry of Science and Technology of the People's Republic of China***						
		Comment:							
563	486	5/11/2000	5/11/2005	Secondary DOE	☑	240	Primary DOE	Energy Efficiency and Renewable Energy	Annex 7 - Renewable Energy Policy and Planning
		Title:	***Renewable Energy Policy and Planning Annex VII Cooperative Activities between Department of Energy of the United States of America and the State Development Planning Commission of the People's Republic of China***						
		Comment:	Remains in force for five years or until termination of the Protocol, whichever occurs first.						

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
241	38	1/31/1979	4/30/2001	Primary DOE	☑	1	Intergovernmental	High Energy Physics	High Energy Physics
	Title:	*Implementing Accord between the U.S. Department of Energy and the State Scientific and Technological Commission of the People's Republic of China on Cooperation in the Field of High Energy Physics.*							
	Comment:	Co-Terminates with the S&T Agreement							
242	311	11/4/1992	11/4/2002	Primary DOE	☑	1	Intergovernmental	High Energy Physics	Superconducting Super Collider
	Title:	*Implementing Accord between the U.S. Department of Energy and the Chinese Academy of Sciences for a Program of Collaboration on the Superconducting Super Collider*							
	Comment:								
522	467	1/12/2000	1/12/2005	Primary DOE	☑	1	Intergovernmental	Information and/or Personnel Exchange	Exchange of Energy Information
	Title:	*Protocol for Cooperation Concerning the Exchange of Energy Information between the Department of Energy of the United States of America and the National Bureau of Statistics of the People's Republic of China*							
	Comment:								
531	476	4/20/2000	4/30/2001	Primary DOE	☑	1	Intergovernmental	Fossil Energy	Fossil Energy Protocol
	Title:	*Protocol for Cooperation in the Field of Fossil Energy Technology Development and Utilization between the Department of Energy of the United States of America and the Ministry of Science and Technology of the People's Republic of China*							
	Comment:	Remains in force for 5 years from date of signature or as long as the Umbrella Agreement (US-China S&T) remains in force, whichever is shorter.							
3	410	10/29/1997		Intergovernmental	☐		None	*Other - Energy and Environment	Energy and Environment Cooperation Initiative
	Title:	*United States of American and People's Republic of China Energy and Environment Cooperation Initiative*							
	Comment:								
31	347	2/23/1995		Statement of Intent	☐		None	Nuclear Energy	Research Reactor Fuel
	Title:	*Statement of Intent between the Department of Energy of the United States of America and the China Atomic Energy Authority of the People's Republic of China on Research Reactor Fuel*							
	Comment:	Exchange information and views on opportunities for the conversion of research reactors to the use of low enriched uranium.							
493	445	6/29/1998	6/29/2003	Primary DOE	☑		None	Nuclear Energy	Nuclear Technologies Agreement
	Title:	*Agreement between the Department of Energy of the United States of America and the State Development Planning Commission of the People's Republic of China on Cooperation Concerning Peaceful Uses of Nuclear Technologies*							
	Comment:	Subject to the Gov't to Gov't Peaceful Uses of Nuclear Energy Agreement signed July 23, 1985.							
494	445	6/29/1998	6/29/2003	Secondary DOE	☑	493	Primary DOE	Nuclear Energy	Annex I - IPR
	Title:	*Annex I- Intellectual Property*							
	Comment:	Attached to original agreement.							

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
554	483	3/29/1999		Statement of Intent	☐		None	*Other - Energy and Environment	MOU on Clean Energy Projects and Technologies

Title: *Memorandum of Understanding Among The State Development Planning Commission of the People's Republic of China, China Development Bank, The United States Department of Energy, and Export Import Bank of the United States Regarding Cooperation on Clean Energy Projects and Technologies*

Comment:

84	345	2/23/1995		Primary DOE	☐		None	*Other - Bilateral Energy Consultations	Bilateral Energy Consultations

Title: *Memorandum of Understanding between the Department of Energy of the United States of America and the State Planning Commission of the People's Republic of China on Bilateral Energy Consultations*

Comment: Desire to conduct bilateral energy consultations by forming a Chinese-American Ministerial Working Group to enhance the understanding of energy issues and promote the exchange of information on energy policies, programs and technologies.

Country: *Costa Rica*

36	401	5/9/1997	5/9/2002	Statement of Intent	☐		None	Energy Efficiency and Renewable Energy	Electric Transport

Title: *Statement of Intent by the Ministry of Environment and Energy of Costa Rica and the Department of Energy of the United States of America for Cooperation in the Field of Electric Transport*

Comment:

504	451	11/17/1998	11/17/2003	Primary DOE	☐		None	Arms Control and Nonproliferation	Sister Lab Arrangement

Title: *Arrangement for Information Exchange and Cooperation in the Area of Peaceful Uses of Nuclear Energy between Argonne National Laboratory and Atomic Energy Commission of Costa Rica*

Comment: ACDA led sister lab.

Country: *Czech Republic*

4	300	10/22/1991	10/22/2001	Intergovernmental	☑		None	Science and Technology	Science & Technology

Title: *Agreement between the Government of the Czech and Slovak Federal Republic and the Government of the United States of America for Scientific and Technological Cooperation*

Comment: Develop, support and facilitate S&T cooperation between cooperating organizations between the two countries in the areas of basic science, environmental protection, medical sciences and health, agriculture, engineering research, energy, natural resources and their useful utilization, standardization, S&T policy and management.

Country: *Egypt*

517	463	7/1/1999	7/1/2004	Primary DOE	☐		None	Energy Research and Development	Energy Technology Agreement

Title: *Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Electricity and Energy of the Arab Republic of Egypt for Cooperation in Energy Technology*

Comment:

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
527	472	2/23/2000	2/23/2005	Secondary DOE	☑	517	Primary DOE	Energy Efficiency and Renewable Energy	Annex I - Renewable Energy

Title: *Annex I to the Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Electricity and Energy of the Arab Republic of Egypt in the Field of Renewable Energy*

Comment:

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
528	473	2/23/2000	2/23/2005	Secondary DOE	☑	517	Primary DOE	Energy Efficiency and Renewable Energy	Annex 2 - Fuel Cells

Title: *Annex II to the Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Electricity and Energy of the Arab Republic of Egypt for Cooperation in Energy Technology in the Field of Fuel Cells*

Comment:

Country: *Estonia*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
526	471	2/4/2000	2/4/2003	Primary DOE	☑		None	Fossil Energy	Oil Shale Research and Utilization

Title: *Agreement between the Department of Energy of the United States of America and the Ministry of Economic Affairs of the Republic of Estonia for Scientific and Technology Cooperation on Oil Shale Research and Utilization*

Comment: Establishes a Joint Coordinating Committee to manage cooperative work under the agreement.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
99	353	3/13/1995	3/13/2000	Primary DOE	☑		None	Environmental Restoration and Waste Management	Technical Cooperation in Clean-up Paldiski Site

Title: *Memorandum of Understanding between the Department of Energy of the United States and the Ministry of Economy of Estonia for Technical Cooperation in the Clean-up of the Paldiski Nuclear Training Site*

Comment: Cooperate and share interests and objectives in environmental restoration and in the safe and effective management of hazardous wastes and the clean-up of the environment at and around the nuclear training site at Paldiski, Estonia.

Country: *European Atomic Energy Community (EURATOM)*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
568	490	1/6/1995	1/6/2005	Primary DOE	☑		None	International Safeguards	EURATOM Safeguards

Title: *Agreement between the European Atomic Energy Community Represented by the Commission of the European Communities and the United States Department of Energy in the field of Nuclear Materials Safeguards Research and Development*

Comment: Auto renewal for five years periods.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
576	490	2/18/1999	2/18/2001	Secondary DOE	☑	568	Primary DOE	International Safeguards	Action Sheet 10 - Tank Analysis

Title: *Action Sheet 10 - The United States Department of Energy (DOE) and The European Atomic Energy Community represented by The Commission of European Communities (EURATOM) for Computer Code Development for Automated Acquisition and Real-Time Analysis of Volume Measurement Data*

Comment:

Country: *Finland*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
116	393	1/17/1997	1/17/2001	Primary DOE	☑		None	Energy Research and Development	Energy R&D

Title: *Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Trade and Industry of Finland for Cooperation in Energy Research and Development*

Comment: Auto renewal for 5 years

Country: *France*

39	132	10/27/1983		Secondary DOE	☐	121	Primary DOE	Environmental Restoration and Waste Management	Radioactive Waste Management--West Valley

Title: *Statement of Intent between the United States Department of Energy and the French Commissariat a l'Energie Atomique on the West Valley Demonstration Project*

Comment: Cooperate in the areas of treatment of radioactive waste and decontamination and decommissioning activities throughout the course of the DOE Demonstration Project at the Western New York Nuclear Service Center located at West Valley, New York.

40	185	6/20/1986		Secondary DOE	☐	121	Primary DOE	Civilian Radioactive Waste Management	Low-Level Radioactive Waste

Title: *Statement of Intent between the United States Department of Energy and the French Commissariat a l'Energie Atomique in the Field of Low-Level Radioactive Waste*

Comment: Confirm intent to expand radioactive waste management cooperation in the area of surface and subsurface disposal and storage of low-level radioactive waste, as well as defined activities.

128	416	12/29/1997	12/29/2002	Primary DOE	☑		None	Arms Control and Nonproliferation	Material Control and Accounting

Title: *Agreement between the Department of Energy of the United States and the Commissariate a l'Eenergie Atomique of France Concerning Research and Development in the Field of Nuclear Material Control and Accounting Measures*

Comment: Cooperate on research, development, testing and evaluation in the area of nuclear material control and accounting measures.

577	416	1/20/2000	1/20/2001	Secondary DOE	☑	128	Primary DOE	Arms Control and Nonproliferation	Action Sheet 2 - Isotopic Analysis Evaluation Using the PC/FRAM Physics Isotopics Software

Title: *Action Sheet No. 2 The United States Department of Energy (DOE) and The Commissariat a l'Energie Atomique (CNEA) of France for Isotopic Analysis Evaluation Using the PC/FRAM Physics Isotopics Software*

Comment:

129	417	12/29/1997	12/29/2002	Primary DOE	☑		None	Arms Control and Nonproliferation	Physical Protection of Nuclear Materials

Title: *Agreement between the Department of Energy of the United States and the Commissariat a l'Energie Atomique of France Concerning Research and Development in the Field of Physical Protection of Nuclear Materials and Facilities*

Comment: Improve the US & France nuclear materials and facilities physical protection procedures

567	417	3/14/2000	3/14/2002	Secondary DOE	☑	129	Primary DOE	International Safeguards	Action Sheet 3 - Nuclear Materials Transportation Security

Title: *Action Sheet No. 3 The United States Department of Energy (DOE) and the Commissariat a l'Energie Atomique of France (CEA) for Nuclear Transportation Security*

Comment:

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
130	357	4/26/1995	4/26/2005	Primary DOE	☑		None	High Energy Physics	Accelerator Driven Technology
	Title:	***Agreement between the Department of Energy and the Commissariat a l'Energie Atomique for Cooperation in Research Development and Application for Accelerators driven Technology***							
	Comment:	Conduct cooperative program of scientific and technical engineering in research, development and application for accelerator driven technology							
131	377	9/20/1995	9/20/2000	Primary DOE	☑		None	Civilian Radioactive Waste Management	Radioactive Waste Management
	Title:	***Agreement between the United States Department of Energy and the French Commissariat a l'Energie Atomique in the field of Radioactive Waste Management***							
	Comment:	Cooperation in the management of radioactive wastes for the purpose of minimizing the consequences of radioactive contamination on health and environment and promoting the safe and economic application of nuclear energy. Cooperation includes: characterization of geologic formations; field/laboratory testing; preparation/packaging of radioactive wastes; disposal in geologic formations; environmental and safety issues, etc.							
132	379	10/8/1995	10/8/2000	Primary DOE	☑		None	Civilian Radioactive Waste Management	Radioactive Waste Management
	Title:	***Agreement between the United States Department of Energy and the National Radioactive Waste Management Agency of France in the Field of Radioactive Waste Management***							
	Comment:	Cooperate for purposes of minimizing consequences of radioactive contamination on health and environment and promoting safe and economic application of nuclear energy.							
564	487	5/9/2000	5/9/2005	Primary DOE	☑		None	Defense Programs	DOE/DGA Emerging Technologies
	Title:	***Technical Arrangement between the Department of Energy of the United States of America and the Minster of Defense of the French Republic Concerning Cooperation in the Application of Emerging Technologies***							
	Comment:	Auto Renewal for 5 year periods.							
582	257	8/9/1994	8/9/2004	Primary DOE	☑		None	Defense Programs	1994- High Energy Lasers
	Title:	***Agreement between the Department of Energy of the United States of America and the Commissariat a l'Energie Atomique of France of Cooperation in Research, Development and Applications of High Energy Lasers and high Energy Laser-Mater Interaction Physics***							
	Comment:								
316	342	11/19/1994		Secondary DOE	☑	582	Primary DOE	Defense Programs	Megajoule-Class Solid State Lasers - IA #1
	Title:	***Implementing Arrangement I between the United States Department of Energy and the French Atomic Energy Commission concerning Sharing of Science and Technology Information Related to Megajoule-class Solid State Lasers***							
	Comment:	Sharing of specific S&T information related to megajoule-class solid state lasers.							
317	343	11/19/1994	8/9/2004	Secondary DOE	☑	582	Primary DOE	Defense Programs	Megajoule-Class Solid State Laser Technology - IA #2
	Title:	***Implementing Arrangement #2 between the United States Department of Energy and the French Commissariat a l'Energie Atomique on Cooperation in Megajoule-Class Solid State Laser Technology***							
	Comment:	Implement cooperative activities in research and development in megajoule-class solid state laser technology (high-power, high-energy solid state lasers and target experimental chambers and support systems)							
601	496	9/18/2000	9/18/2005	Primary DOE	☑		None	Nuclear Energy	Advanced Nuclear Reactor
	Title:	***Agreement between The Department of Energy of the United States of America and The Commissariat A L'Energie Atomique of France for Cooperation in Advanced Nuclear Reactor Science and Technology***							
	Comment:								

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
Country: *Germany*									
88	419	2/20/1998	2/20/2003	Primary DOE	☑		None	Energy Research and Development	Energy Research
	Title: ***Agreement Between the Department of Energy of the United States of America and the Federal Ministry of Education, Science, Research and Technology of the Federal Republic of Germany on Cooperation in Energy Research, Science and Technology, and Development***								
	Comment: Auto renewal for 5 year periods. Broad-based umbrella agreement to allow formal cooperation in various program areas								
480	434	5/12/1998	5/12/2001	Secondary DOE	☑	88	Primary DOE	Environmental Restoration and Waste Management	Project: Transportation of Rad Waste
	Title: ***Project Agreement between the Department of Energy of the United States of America and the Federal Institute for Material Research and Testing of the Federal Republic of Germany: Technical Exchange and Cooperation on Transportation Requirements in the Field of Management of Radioactive Waste***								
	Comment:								
93	31	9/27/1977		Primary DOE	☑		None	Arms Control and Nonproliferation	Nuclear Materials Safeguards/Physical Security
	Title: ***Agreement between the United States Department of Energy and the Federal Minister for Research and Technology of Germany Cooperate in the field of Nuclear Material Safeguards and Physical Security Research and Development***								
	Comment: Open-end expiration date								
Country: *Ghana*									
149	392	10/1/1996	10/1/2001	Primary DOE	☑		None	Energy Research and Development	Energy Policy, S&T and Development
	Title: ***Memorandum of Understanding between the Department of Energy of the United States of America and the Ministry of Mines and Energy of the Republic of Ghana on Cooperation in Energy Policy, Science and Technology, and, Development***								
	Comment: Facilitate and establish cooperative activities in such areas as: energy efficiency and renewable energy; fossil energy, including natural gas, liquefied petroleum gas, and clean coal technologies; environmental management, including utilization of energy technologies, particularly cost-effective technologies aimed at reducing emissions of greenhouse gases and minimizing environmental impacts; independent power project development, etc.								
330	399	2/27/1997	2/27/2001	Secondary DOE	☑	149	Primary DOE	Energy Efficiency and Renewable Energy	Industrial Assessment Center
	Title: ***Implementing Arrangement Between the Department of Energy of the United States of America and the Ministry of Mines and Energy of the Republic of Ghana: Exchange of Information, Technical Assistance and Collaboration for the Establishment of the Industrial Assessment Center at the University of Science and Technology in Kumasi, Ghana***								
	Comment:								
43	378	9/29/1995		Statement of Intent	☐		None	Energy Efficiency and Renewable Energy	Energy Efficiency and Renewable Energy
	Title: ***Statement of Intent between the Department of Energy of the United States and the Ministry of Mines and Energy of the Republic of Ghana to Cooperate in the Fields of Energy Efficiency and Renewable Energy***								
	Comment: Exchanging experience and views on opportunities for the utilization of energy efficiency and renewable energy technologies.								

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
44	380	10/30/1995		Primary DOE	☐		None	Nuclear Energy	Peaceful Uses of Nuclear Energy

Title: *Memorandum of Understanding for the Exchange of Technical Information and for Cooperation in the Field of Peaceful Uses of Nuclear Energy between the Ghana Atomic Energy Commission and Argonne National Laboratory*

Comment: Establish the basis for a cooperative institutional relationship for the exchange of S&T information regarding the peaceful uses of atomic energy. This is between Ghana Atomic Energy Commission and ARGONNE NATIONAL LAB)

Country: *Israel*

156	384	2/1/1996	2/1/2001	Primary DOE	☑		None	Energy Efficiency and Renewable Energy	Energy Cooperation

Title: *Agreement between the Department of Energy of the United States of America and the Ministry of Energy and Infrastructure of Israel Concerning Energy Cooperation*

Comment: Establish a framework for collaboration in energy R&D activities including: solar energy; biomass; energy efficiency; wind energy; fossil energy, including oil, gas and coal; electric power production and transmission. Annex I on Intellectual Property and Annex II on Security Obligations are attached. Discussion underway in clean coal technology and electric vehicles.

530	475	2/22/2000		Statement of Intent	☐		None	Arms Control and Nonproliferation	SOI on Nonproliferation, Arms Control and Regional Security

Title: *Letter of Intent between the Department of Energy of the United States of America and the Atomic Energy Commission of Israel on cooperation in the Fields of Non-Proliferation, Arms Control, and Regional Security*

Comment:

Country: *Italy*

160	358	5/26/1995	5/26/2000	Primary DOE	☑		None	Energy Research and Development	Energy R&D

Title: *Agreement between the Department of Energy of the United States of America and the Ministry of Industry, Commerce and Handicraft of the Italian Republic in the Field of Energy Research and Development*

Comment: continues 1985 MOU in Energy R&D

344	358	5/7/1997		Secondary DOE	☑	160	Primary DOE	Fossil Energy	Annex 3 - Fossil Energy

Title: *Annex III to the Agreement between the Department of Energy of the United States of America and the Ministry of Industry, Commerce and Handicraft of the Republic of Italy to Cooperate in the Field of Fossil Energy*

Comment: Two additional areas were added in March 1998;fuel cells for power applications and externally fired combined cycle systems

345	358	3/24/1998	3/24/2003	Secondary DOE	☑	160	Primary DOE	Energy Efficiency and Renewable Energy	Annex 4 - Advanced Geothermal Technology

Title: *Annex IV to the Agreement between the Department of Energy of the United States of America and the Ministry of Industry, Commerce and handicraft of the Republic of Italy in the Field of Energy Research and Development for Cooperation on Advanced Geothermal Technology*

Comment: Provides for collaboration between Ladrello and the Geyser Geothermal Facilities

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
346	358	3/24/1998	3/24/2008	Secondary DOE	☑	160	Primary DOE	Energy Efficiency and Renewable Energy	Annex 5 - Biomass Energy

Title: ***Annex V to the Agreement between the Department of Energy of the United States of America and the Ministry of Industry, Commerce and Handicraft of the Republic of Italy in the Field of Energy Research and Development for Cooperation in the Field of Biomass Energy***

Comment: Information Exchange on biomass systems. Task sharing on hot gas clean-up for medium-scale gasifiers.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
347	358	3/24/1998	3/24/2008	Secondary DOE	☑	160	Primary DOE	Energy Efficiency and Renewable Energy	Annex 6 - Photovoltaic Technology

Title: ***Annex VI to the Agreement between the Department of Energy of the United States of America and the Ministry of Industry, Commerce and Handicraft of the Republic of Italy in the Field of Energy Research and Development for Cooperation in the Field of Photovoltaic Technology***

Comment: Info exchange on reducing manufacturing costs of PV cells. Cooperation on guidelines for building integrated PV systems.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
492	444	7/10/1998	7/10/2003	Secondary DOE	☑	160	Primary DOE	Energy Research and Development	Annex 7 - Electric and Hybrid Vehicles

Title: ***Annex VII to the Agreement between the Department of Energy of the United States of America and the Ministry of Industry, Commerce and Handicraft of the Republic of Italy in the Field of Energy Research and Development for Cooperation in the Field of Electric and Hybrid Vehicles***

Comment: Remains in force for 5 years or until the Agreement expires, whichever is sooner.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
7	323	10/4/1993	10/4/2003	Intergovernmental	☑		None	Science and Technology	Gov't to Govt S & T

Title: ***Agreement between the Government of the United States of America and the Government of the Italian Republic for Scientific and Technological Cooperation***

Comment: Science and Technology agreement between the United States and the Government of Italy which allows U.S. Government agencies to undertake cooperation in their respective areas of responsibility. Renewed last in 1998.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
46	323	10/31/1989		Statement of Intent	☐	7	Intergovernmental	Information and/or Personnel Exchange	Synchrotron Light Source

Title: ***Protocol of Intent of Intent between the Department of Energy of the United States of America and the Ministry of the University and of Scientific and Technological Research of the Republic of Italy***

Comment:

Country: *Japan*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
251	385	5/3/1996	5/3/2001	Primary DOE	☑	10	Intergovernmental	Science and Technology	DOE/STA Basic Science & Technology

Title: ***Implementing Arrangement between the Department of Energy of the United States of America and the Science and Technology Agency of Japan in the Field of Basic Science and Technology***

Comment: Determine cooperation on joint projects in the field of basic S&T which may include nuclear physics; synchrotron radiation; medical application of the radiation produced by accelerators; spin physics program at the Relativistic Heavy Ion Collider and biologic effects of radiation.

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
166	195	12/3/1986	12/2/2001	Primary DOE	☑		None	Nuclear Energy	Radioactive Waste Management

Title: ***Agreement between the United State Department of Energy and the Power Reactor and Nuclear Fuel Development Corp of Japan in the Area of Radioactive Waste Management***

Comment: Study topics and develop cooperatively and jointly technology and techniques necessary for the safe management of radioactive wastes.

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
511	195	7/17/1998	7/17/2000	Secondary DOE	☑	166	Primary DOE	Civilian Radioactive Waste Management	Project Annex on Engineered Barriers
	Title:	*Project Annex for Cooperation in Near-Field Performance and Analyses on the Long-Term Behavior of the Engineered Barriers under the Agreement between the Department of Energy of the United States of America and the Power Reactor and Nuclear Fuel Development Corporation Japan in the Area of Radioactive Waste Management*							
	Comment:								
395	365	2/19/1997	5/19/2000	Secondary DOE	☑	171	Primary DOE	Arms Control and Nonproliferation	Action Sheet 30 - Randomized Inspection (PNC)
	Title:	*Action Sheet PNC 30 The United States Department of Energy (DOE) and The Power Reactor and Nuclear Fuel Development Corporation of Japan (PNC) for Joint Study of Improved Safeguards Methodology Using Non-Notice Randomized Inspection*							
	Comment:								
545	365	12/18/1998	12/18/2001	Secondary DOE	☑	171	Primary DOE	Arms Control and Nonproliferation	Action Sheet 37 - A-MAGB at Plutonium Fuel Production Facility
	Title:	*Action Sheet 37 between the United States Department of Energy (DOE) and the Japan Nuclear Cycle Development Institute (JNC) for Development of Plutonium Isotopic Systems for Measuring Containers in the Advanced Material Accountancy Glove Box at PFPF*							
	Comment:								
546	365	12/18/1998	12/18/2001	Secondary DOE	☑	171	Primary DOE	Arms Control and Nonproliferation	Action Sheet 38 - Remote Monitoring for Tokai
	Title:	*Action Sheet 38 between the United States Department of Energy (DOE) and the Japan Nuclear Cycle Development Institute (JNC) for Development of Remote Monitoring for Tokai Vitrification Facility Safeguards System*							
	Comment:								
547	365	3/12/1999	3/12/2002	Secondary DOE	☑	171	Primary DOE	Arms Control and Nonproliferation	Action Sheet 39 - Radiation Sensor Monitors at Monju
	Title:	*Action Sheet 39 between The United States Department of Energy (DOE) and The Japan Nuclear Cycle Development Institute (JNC) for Development of Radiation Sensor Monitors to Improve Dual C/S at Monju Reactor Core*							
	Comment:								
548	365	3/22/1999	3/22/2002	Secondary DOE	☑	171	Primary DOE	Arms Control and Nonproliferation	Action Sheet 40 - Isotope Dilution Gamma-Ray Spectrometry
	Title:	*Action Sheet (40) between The United States Department of Energy (DOE) and The Japan Nuclear Cycle Development Institute (JNC) for Joint Research and Development Study of the Metrology of the Isotope Dilution Gamma-Ray Spectrometry (IDGS)*							
	Comment:								
549	365	3/24/1999	9/24/2000	Secondary DOE	☑	171	Primary DOE	Arms Control and Nonproliferation	Action Sheet 41 Conceptual Design for RETF Safeguards System Phase 2.
	Title:	*Action Sheet 41 between The Japan Nuclear Cycle Development Institute (JNC) And The United States Department of Energy (DOE) For Joint Study on the Conceptual Design for the RETF Safeguards System (Phase-2)*							
	Comment:								

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
173	356	4/11/1995	4/11/2005	Primary DOE	☐		None	Nuclear Energy	Nuclear Reactor Technologies R&D
	Title:	*Memorandum of Understanding between the United States Research and Development Organizations and the Japanese Research Organizations for Cooperation in Nuclear Reactor Technologies Research and Development*							
	Comment:	Provide a vehicle for cooperation between DOE and its national laboratories, EPRI and the Advanced Reactor Corporation, and the Japanese R&D Organizations, including PNC, JAPC , JAERI and CRIEPI to cooperate in nuclear reactor technologies R&D.							
174	362	7/17/1995	7/17/2005	Primary DOE	☑		None	Nuclear Energy	Nuclear Research and Development - JAERI
	Title:	*Agreement between the Department of Energy of the United States of America and the Japan Atomic Energy Research Institute in the Field of Nuclear Research and Development*							
	Comment:	Cooperation to conduct programs associated with nuclear R&D in such areas as basic nuclear S&T, nuclear safety, and advanced nuclear technologies.							
397	428	4/23/1998	4/23/2001	Secondary DOE	☑	174	Primary DOE	High Energy Physics	Collaborative program for target development for high power spallation neutron sources
	Title:	*Specific Memorandum of Agreement between the Japan Atomic Energy Research Institute and the Department of Energy of the United States of America for Collaborative Program of Target Development for High Power Spallation Neutron Sources*							
	Comment:	Work will be preformed at the Alternating Gradient Synchrotron facility at Brookhaven National Laboratory							
481	435	6/9/1997	6/9/2007	Secondary DOE	☑	174	Primary DOE	Arms Control and Nonproliferation	SMA - Safeguards
	Title:	*Specific Memorandum of Agreement Between the Japan Atomic Energy Research Institute and the Department of Energy of the United States of America Concerning Research and Development in Nuclear Material Control, Accountancy, Verification and Physical Protection*							
	Comment:								
523	468	1/27/2000	1/27/2005	Primary DOE	☑		None	Arms Control and Nonproliferation	DOE/JNC Safeguards Agreement
	Title:	*Agreement between the Department of Energy of the United States of America and the Japan Nuclear Cycle Development Institute For Cooperation in Research and Development (R&D) Concerning Nuclear Material Control and Accounting Measures for Safeguards and Nonproliferation*							
	Comment:	Improving the efficiency and effectiveness of equipment and techniques for safeguards and nonproliferation to implement policies and procedures pursuant to the non-proliferation treaty.							
550	482	1/27/2000	7/27/2001	Secondary DOE	☑	523	Primary DOE	Arms Control and Nonproliferation	Action Sheet 42 Measurement Methods for Scrap Materials
	Title:	*Action Sheet 42 between The Japan Nuclear Cycle Development Institute (JNC) and The United States Department of Energy (DOE) For Investigation of Measurements Methods for Scrap Materials with High Impurities*							
	Comment:								
551	482	1/27/2000	1/27/2003	Secondary DOE	☑	523	Primary DOE	Arms Control and Nonproliferation	Action Sheet 43 NDA Techniques at Ningyo
	Title:	*Action Sheet 43 between The United States Department of Energy (DOE) and The Japan Nuclear Cycle Development Institute (JNC) for Design Studies and Development of NDA Techniques for In-Process and Waste Invention at the Ningyo Enrichment Plant*							
	Comment:								

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
552	482	1/27/2000	1/27/2002	Secondary DOE	☑	523	Primary DOE	Arms Control and Nonproliferation	Action Sheet 44 - Dry Reprocessing Methods
	Title:	*Action Sheet 44 between The Japan Nuclear Cycle Development Institute (JN) and The United States Department of Energy (DOE) for A Joint Study of Safeguards Systems for Dry Reprocessing Methods*							
	Comment:								
553	482	1/27/2000	1/27/2003	Secondary DOE	☑	523	Primary DOE	Arms Control and Nonproliferation	Action Sheet 45 Remote Monitoring System at PFPF
	Title:	*Action Sheet 45 between The United States Department of Energy (DOE) and The Japan Nuclear Cycle Development Institute (JNC) for Development of the Integrated Remote Monitoring System at the Plutonium Fuel Production Facility in Japan*							
	Comment:								
597	492	8/22/2000	8/22/2005	Primary DOE	☑		None	Nuclear Energy	Agreement for Nuclear Technologies
	Title:	*Agreement Between The Department of Energy of the United States of America and The Japan Nuclear Cycle Developments Institute in the Field of Nuclear Technologies.*							
	Comment:								
8	42	5/2/1979	5/1/2005	Intergovernmental	☑		None	Energy Research and Development	US/Japan Energy and Related Fields Agreement
	Title:	*Agreement between the Government of the United States of America and the Government of Japan on Cooperation in Research and Development in Energy and Related Fields*							
	Comment:	Maintaining and intensifying cooperation in research and development in energy and related fields.							
22	114	1/24/1983	5/1/2005	Broad	☑	8	Intergovernmental	Fusion Energy	Fusion Energy
	Title:	*Exchange of Notes establishing the Cooperation in Fusion Research and Development*							
	Comment:	A cooperative program for the exchange of information, personnel and equipment, and special activities as may be mutually agreed, in various technical areas of fusion energy between DOE and the Ministry of Education, the STA, MONBUSHO, and the MITI, as established by an exchange of diplomatic notes and separate agreements within each organization. Remains in force as long as the Agreement between US-Japan on Cooperation in Research and Development in Energy and Related Fields remains in force.							
255	116	1/25/1983	5/1/2005	Primary DOE	☑	22	Broad	Fusion Energy	Fusion Energy - MITI
	Title:	*Exchange of Letters establishing the MITI-DOE Cooperation in Fusion Research and Development*							
	Comment:	Remains in effect as long as the Exchange of Notes between USA-Japan on Cooperation in Fusion Research and Development							
256	117	1/25/1983	5/1/2005	Primary DOE	☑	22	Broad	Fusion Energy	Fusion Energy - STA - Primary DOE agreement
	Title:	*Exchange of Letters establishing the STA-DOE Cooperation in Fusion Research and Development*							
	Comment:	Remains in effect as long as the Exchange of Notes between USA-Japan on Cooperation in Fusion Research and Development							
417	134	11/8/1983	5/1/2005	Secondary DOE	☑	256	Primary DOE	Fusion Energy	Fusion Research and Development - JAERI
	Title:	*Implementing Arrangement between the Japan Atomic Energy Research Institute and the United States Department of Energy on Cooperation in Fusion Research and Development*							
	Comment:	Appoint coordinators to report to Fusion Committee and to cooperate in such areas as plasma-containment devices, such as tokamaks; joint research related to plasma physics; magnetic fusion concepts; magnetic systems for fusion devices; plasma engineering; fusion-reactor materials; fusion-systems engineering; environmental and safety aspects of fusion energy; plasma diagnostics and vacuum technology; and applications of fusion energy.							

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
463	133	11/8/1983	3/31/2004	Tertiary DOE	☑	417	Secondary DOE	Fusion Energy	Annex I - First Wall and Blanket Structural Materials
		Title: *Annex I to Implementing Arrangement between Japan Atomic Energy Research Institute and U.S. Department of Energy on Cooperation in Fusion Research and Development U.S.-Japan Collaborative Testing of First Wall and Blanket Structural Materials with Mixed Spectrum Fission Reactors*							
		Comment: JOINT IRRADIATION EXPERIMENTS AND EVALUATION OF RESULTS.							
466	210	6/11/1987	6/11/2001	Tertiary DOE	☑	417	Secondary DOE	Fusion Energy	Annex 4 - Fusion - Fuel Processing
		Title: *Annex IV to the Implementing Arrangement between the Japan Atomic Energy Research Institute and the United States Department of Energy on Cooperation in Fusion Research and Development for the DOE-JAERI Collaborative Program Technology for Fusion-Fuel Processing*							
		Comment: Define, conduct, evaluate the joint operation/experiments on fusion fuel technology with TSTA at LANL for the purposes of developing and demonstrating fuel process technology for fusion power systems; developing/testing environmental/personnel protective systems for tritium handling; developing/testing/qualifying equipment and material for tritium services in the fusion energy program, etc.							
471	270	1/11/1990	1/11/2005	Tertiary DOE	☑	417	Secondary DOE	Fusion Energy	Annex 9 - Data Link
		Title: *Annex IX to the Implementing Arrangement between the Japan Atomic Energy Research Institute and United States Department of Energy on Cooperation in Fusion Research and Development for the DOE-JAERI Collaboration on the Data Link*							
		Comment: Establish the Data Link to facilitate rapid information exchanges between fusion researchers of the Parties through (1) code development and/or usage; (2) data analysis and/or theory/experiment comparison; (3) access to computers in home countries by visiting scientists for computations related to purpose of visit; (4) administration of the Data Link. VISITS: Yes DURATION: To Be Determined DOE/HQ CONTACT: Arthur Katz, ER-523, (301) 903-4932; FTS: 233-4932							
257	115	1/29/1983	5/1/2005	Primary DOE	☑	22	Broad	Fusion Energy	Fusion Energy - Monbusho - Primary DOE agreement
		Title: *Exchange of Letters establishing the Monbusho-DOE Cooperation in Fusion Research and Development*							
		Comment: Remains in effect as long as the Exchange of Notes between USA-Japan on Cooperation in Fusion Research and Development							
419	214	7/17/1987	7/19/2001	Secondary DOE	☑	257	Primary DOE	Fusion Energy	Annex I - Irradiation Effects Utilizing Fission Reactor
		Title: *Annex I to 01/25/83 exchange of letters between Japan Ministry of Education (Monbusho) and USDOE on cooperation in fusion R&D for collaboration in fundamental studies of irradiation effects in fusion materials utilizing fission*							
		Comment: JOINT IRRADIATION AND EVALUATION EXPERIMENTS ON MATERIALS							
420	258	12/12/1988	12/21/2003	Secondary DOE	☑	257	Primary DOE	Fusion Energy	Annex 2 - Data Link & Data Link Projects for Fusion
		Title: *Annex II to the January 25, 1983 Exchange of Letters between Monbusho of Japan and the Department of Energy of the United States on Cooperation in Fusion Research and Development Monbusho-DOE Collaboration on a data Link and Data Link Projects for Fusion*							
		Comment: STEERING COMMITTEE MEETING							
602	497	1/17/2001	7/19/2007	Secondary DOE	☑	257	Primary DOE	Fusion Energy	Amedment 4 - Annex 1 Fusion Research and Development
		Title: *Amendment 4 of Annex I to the DOE - Monbusho Exchange of Letters on Cooperation in Fusian Research and Development*							
		Comment:							

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
259	228	10/16/1987	5/1/2005	Primary DOE	☑	8	Intergovernmental	Fossil Energy	Coal R&D - AIST and ANRE

Title: *Implementing Arrangement between the Agency of Industrial Science and Technology and the Agency of Natural Resources and Energy of Japan and the United States Department of Energy in Coal Research and Development*

Comment: Establish comprehensive cooperation in the area of coal energy R&D in order to accelerate development of coal R&D efforts, i.e., coal liquefaction, coal gasification; materials and components for coal conversion and utilization; pollution control technology related to coal conversion and utilization.

262	48	8/24/1979	5/1/2005	Primary DOE	☐	8	Intergovernmental	Fusion Energy	Fusion Energy/Coordinating Committee

Title: *Exchange of Letters Establishing a Coordinating Committee on Fusion Energy*

Comment: Establish a Coordinating Committee on Fusion Energy to facilitate the coordination and implementation of cooperative activities in the area of fusion as well as to assure proper balance and to ensure the overall planning and oversight of such cooperative activities.

263	50	8/28/1979	8/28/2000	Primary DOE	☑	8	Intergovernmental	Fusion Energy	Fusion Energy/Doublet III

Title: *Agreement between the United States Department of Energy and the Japan Atomic Energy Research Institute on Cooperation in Doublet III Project*

Comment: Undertake experimental research on tokamak plasmas with doublet and dee-shaped cross-sections in the Doublet III, a tokamak facility, located in LaJolla, California.

264	58	11/11/1979	5/1/2005	Primary DOE	☑	8	Intergovernmental	High Energy Physics	High Energy Physics

Title: *Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Education, Science and Culture of Japan on Cooperation in Field of High Energy Physics*

Comment: Establish a framework for cooperation in the field of high energy physics including research; accelerator and detector instrumentation R&D; the fabrication and subsequent use of new experimental devices and facilities. Remains in forces for the duration of the U.S.-Japan R&D in Energy and Related Fields Agreement signed on May 2, 1979

Country: *Kazakhstan*

186	402	7/12/1996		Primary DOE	☑		None	Science and Technology	Energy R&D and Tech exchange

Title: *Agreement between the Department of Energy of the United States of America and the Ministry of Science-Academy of Sciences of the Republic of Kazakhstan on Scientific Research and Development and Technology Exchange Programs*

Comment:

428	402	5/13/1997		Secondary DOE	☑	186	Primary DOE	*Other - Remote Sensing	Remote Sensing Mission

Title: *Annex 1 - For the Conduct of the Remote Sensing Mission (AMPS) in the Republic of Kazakhstan*

Comment:

529	474	12/19/2000		Primary DOE	☑		None	Arms Control and Nonproliferation	Decommissioning of the BN-350 Reactor

Title: *Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Energy, Industry and trade of the Republic of Kazakhstan Concerning Decommissioning of the BN-350 Reactor*

Comment:

Country: *Korea, Republic of*

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
180	389	6/14/1996	6/14/2001	Primary DOE	☑	11	Intergovernmental	Fusion Energy	Fusion Energy Research and Related Fields
	Title:	*Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Science and Technology of the Republic of Korea for Cooperation in the Area of Fusion Energy Research and Related Fields*							
	Comment:	Promote S&T cooperation in fusion energy research and related fields in order to enhance contributions. Remains in force for 5 years or until termination of the S&T Agreement, whichever occurs first.							
179	388	6/14/1996	6/14/2001	Primary DOE	☑		None	Nuclear Energy	Cooperative Laboratory Relationship
	Title:	*Memorandum of Understanding between the Department of Energy of the United States of America and the Ministry of Science and Technology of the Republic of Korea for a Cooperative Laboratory Relationship*							
	Comment:	Cooperate in the field of peaceful uses of nuclear energy including such areas as: nuclear waste management; nuclear safety and environment; nuclear safeguards technology; basic sciences; education; health physics; environmental research related to nuclear technology, etc							
595	388	6/29/2000	6/29/2005	Secondary DOE	☑	179	Primary DOE	Nuclear Energy	Annex 4 - Cintichem Process Technology (first project annex)
	Title:	*Annex 4 Joint Project on Cintichem Technology between the Department of Energy of the United States of America and the Korea Atomic Energy Research Institute under the Memorandum of Understanding between the Department of Energy of the United States of America and the Ministry of Science and Technology of the Republic of Korea for a Cooperative Laboratory Relationship*							
	Comment:								

Country: *Mexico*

12	41	6/15/1972		Intergovernmental	☑		None	Science and Technology	Science & Technology
	Title:	*Agreement Between the United States of America and Mexico for Scientific and Technical Cooperation*							
	Comment:	Effected by Exchange of Notes Signed at Washington June 15, 1972							
270	386	5/7/1996	5/7/2001	Primary DOE	☑	12	Intergovernmental	Energy Research and Development	Energy Cooperation
	Title:	*Agreement between the Department of Energy of the United States of America and the Secretariat of Energy of the United Mexican States for Energy Cooperation*							
	Comment:	Develop a framework for cooperation to facilitate establishment of cooperative activities in research, development and commercialization to promote improved use of renewable energy and energy efficienc and fossil energy technologies, giving due consideration to environmental concerns, as well as to exchange, develop, and analyze energy strategies and regulatory criteria and to encourage the promotion of energy trade opportunities.							
483	437	6/10/1998	6/10/2001	Secondary DOE	☑	270	Primary DOE	Energy Efficiency and Renewable Energy	Annex 1 - Renewable Energy
	Title:	*Project Annex 1 Cooperation in the Field of Renewable Energy*							
	Comment:	Project areas under discussion by SNL and CNEA (Mexico National Commission for Energy Savings)							
484	438	6/10/1998	6/10/2001	Secondary DOE	☑	270	Primary DOE	Energy Efficiency and Renewable Energy	Annex 2 - Energy Efficiency
	Title:	*Project Annex 2 Cooperation in the Field of Energy Efficiency*							
	Comment:	Project areas under discussion.							

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
498	447	10/21/1998	10/21/2001	Secondary DOE	☑	270	Primary DOE	Environmental Restoration and Waste Management	Annex 3 - Enviro Cooperation in hydrocarbons
	Title:	***Project Annex 3 - Environmental Cooperation in the Field of Hydrocarbons***							
	Comment:	Facilitating work between Mexico Institute of Petroleum and ORNL.							
519	465	12/7/1999	5/7/2001	Secondary DOE	☑	270	Primary DOE	Fossil Energy	Annex 4- Clean Fossil Energy Technologies
	Title:	***Project Annex 4 Cooperation in the field of Clean Fossil Energy Technologies***							
	Comment:	Annex is in force as long as the Agreement is in force.							
188	405	3/25/1985	3/25/2005	Primary DOE	☐		None	Arms Control and Nonproliferation	Sister Lab Arrangement
	Title:	***Memorandum of Understanding (MOU) for the Exchange of Technical Information and for Cooperation in the Field of Peaceful Uses of Nuclear Energy between the National Institute of Nuclear Research of Mexico and the Los Alamos National laboratory of the United States of America***							
	Comment:	Sister lab arrangement supporting Article IV of the NPT.							
604	499	3/9/2001		Broad	☐		None	Fifth Hemispheric Energy Ministers Meeting	Mexico Declaration
	Title:	***Fifth Hemispheric Energy Ministers Meeting Mexio City, Mexico - March 9, 2001. Mexico Declaration - Energy: A Crucial Factor for Integration and Sustainable Development in the Hemisphere***							
	Comment:								

Country: *Morocco*

599	494	10/16/2000	10/16/2005	Primary DOE	☑		None	Energy Efficiency and Renewable Energy	Agreement on Concerning Cooperation in Energy Efficiency and Renewable Energy
	Title:	***Agreement Between The Department of Energy of the United States of America and The Ministry of Industry, Commerce, Energy and Mines of the Kingdom of Morocco Concerning Cooperation in Energy Efficiency and Renewable Energy***							
	Comment:								

Country: *Nigeria*

48	76	7/23/1980		Statement of Intent	☐		None	Energy Research and Development	Energy R&D
	Title:	***Memorandum of Intent Concerning Energy Cooperation between the Government of the United States of America and the Government of the Federal Republic of Nigeria***							
	Comment:	Exploit and use conventional sources of energy, develop effective machinery to monitor environmental effects of energy, develop and demonstrate technologies to utilize new and renewable energy sources, training in energy planning and technology and strengthen bilateral relations through increased official cooperation. Formal cooperation never establish							
520	466	8/14/1999		Primary DOE	☐		None	*Other - Energy Policy	MOU on Energy Policy
	Title:	***Memorandum of Understanding between the Department of Energy of the United States of America and the Federal Ministry of Power and Steel of the Federal Republic of Nigeria on Energy Policy***							
	Comment:								

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
Country: ***Pakistan***									
49	339	9/24/1994		Statement of Intent	☐		None	*Other - Climate Change	Climate Change
		Title: ***Joint Statement of Intent between the Department of Energy of the United States of America and the Environment and Urban Affairs Division of the Islamic Republic of Pakistan***							
		Comment: Enhancing mutual environmental protection, in particular, controlling greenhouse gas emissions to limit potential adverse climate change impacts (Environment and Urban Affairs Division).							
50	338	9/24/1994		Statement of Intent	☐		None	Fossil Energy	Statement of Intent w/ Ministry of Petroleum and Natural Resources
		Title: ***Statement of Intent between the Department of Energy of the United States of America and the Ministry of Petroleum and Natural Resources, Government of the Islamic Republic of Pakistan***							
		Comment: Promoting trade, investment and cooperation between U.S. & Pakistan (Min of Petroleum and Natural Resources) public and private-sector entities in the fields of fossil fuels (petroleum and minerals, including coal) and new and renewable energy resources, related infrastructure development, and in the exchange of experience and views on opportunities in these sectors.							
51	340	9/24/1994		Statement of Intent	☐		None	Energy Efficiency and Renewable Energy	Statement of Intent w/ Ministry of Water and Power
		Title: ***Statement of Intent between the Department of Energy of the United States of America and the Ministry of Water and Power of the Islamic Republic of Pakistan***							
		Comment: Promoting trade, investment and cooperation between the U.S. and Pakistan (Ministry of Water and Power) private and public sector entities in the fields of fossil and renewable energy, and in the exchange of experience and views on opportunities for improving energy efficiency and enhancing electricity policy.							
Country: ***Palestinian Authority***									
535	479	2/22/2000		Statement of Intent	☐		None	Energy Research and Development	Energy Planning SOI
		Title: ***Joint Statement of Intent between the Department of Energy of the United States of America and the Palestinian Energy Authority on Cooperation in the Field of Energy***							
		Comment:							
Country: ***Peru***									
512	458	6/17/1991	6/16/2001	Primary DOE	☐		None	Arms Control and Nonproliferation	Sister Lab Arrangement
		Title: ***Arrangement for the Exchange of Technical Information and for Cooperation in the Field of Peaceful Uses of Nuclear Energy between the Peruvian Institute of Nuclear Energy and the Los Alamos National Laboratory***							
		Comment:							
603	498	3/8/2001		Statement of Intent	☐		None	Cooperation in the Field of Energy	Cooperation in the Field of Energy
		Title: ***Joint Statement of Intent between the Department of Energy of the United States of America and The Ministry of Energy and Mines of the Republic of Peru on Cooperation in the Field of Energy***							
		Comment:							
Country: ***Philippines***									

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
195	403	6/19/1997	6/19/2002	Primary DOE	☐		None	Information and/or Personnel Exchange	Info Exchange

Title: *Memorandum of Agreement between the Department of Energy of the United States of America and the Department of Energy of the Republic of the Philippines for the Exchange of Energy Information*

Comment:

Country: *Poland*

13	224	9/28/1987	9/28/2002	Intergovernmental	☑		None	Science and Technology	Science & Technology

Title: *Agreement between the Government of the United States of America and the Government of the Polish People's Republic on Cooperation in Science and Technology and its Funding*

Comment: Develop, support and facilitate S&T cooperation on the basis of the principles of equality, reciprocity, and mutual benefit. Joint projects of mutual interest are funded by a fund contributed to by the two governments. Renewed last in 1997.

198	367	8/21/1995	8/21/2000	Primary DOE	☑		None	Environmental Restoration and Waste Management	Environmental Restoration Hazardous Waste Mgmt

Title: *Agreement for Technical Exchange and Cooperating between the Department of Energy of the United States of America and the Institute for Ecology of Industrial Areas of the Republic of Poland in the Area of Environmental Restoration and Hazardous Waste Management*

Comment: Study topics associated with the safe management of hazardous wastes, e.g., risks associated with human exposure to environmental contamination from chemical and heavy metals in soils; demonstration of technologies or methodologies for soil cleaning; and other areas determined by both parties.

Country: *Romania*

513	459	3/29/1999	3/26/2004	Primary DOE	☐		None	Arms Control and Nonproliferation	Sister Lab Arrangement

Title: *Arrangement for Information Exchange and Cooperation in Area of Peaceful Uses of Atomic Energy between United States Department of Energy (DOE) and the Ministry of Industry and Commerce (MIC) - Romania*

Comment: Establishes the basis for a cooperative institutional relationship between the participants for the exchange of scientific and technological and other information regarding the peaceful uses of atomic energy.

Country: *Russian Federation*

203	395	9/16/1996	9/16/2001	Primary DOE	☑	14	Intergovernmental	Environmental Restoration and Waste Management	Environmental Restoration and Waste Management

Title: *Memorandum of Cooperation between the Department of Energy of United States of America and the Ministry of the Russian Federation on Atomic Energy in the Fields of Environmental Restoration and Waste Management*

Comment:

211	396	9/16/1996	9/16/2001	Primary DOE	☑	14	Intergovernmental	Nuclear Energy	Nuclear Reactor Safety

Title: *Memorandum of Cooperation between the United States of America and the Russian Federation in the Field of Civilian Nuclear Reactor Safety*

Comment: replaces MOU in Civilian Nuclear Reactor Safety signed 26 April, 1988

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
213	397	9/16/1996	9/16/2001	Primary DOE	☑	14	Intergovernmental	Fusion Energy	Magnetic Confinement Fusion
	Title:	*Memorandum of Cooperation between the Department of Energy of the United States of America and the Ministry of the Russian Federation on Atomic Energy in the Field of Magnetic Confinement Fusion*							
	Comment:	Focus on Fusion science research and development							
436	397	9/16/1996	9/16/2001	Secondary DOE	☑	213	Primary DOE	Nuclear Energy	Annex 1
	Title:	*Annex 1 - List of Organizations that could participate*							
	Comment:								
214	398	2/17/1997	2/17/2002	Primary DOE	☑	14	Intergovernmental	*Other - High Energy and Nuclear Physics	Fundamental Properties of Matter
	Title:	*Memorandum of Cooperation in the Field of Research on Fundamental Properties of Matter between the Department of Energy of the United States of America and the Ministry of Atomic Energy and the State Committee for Science & Technologies of the Russian Federation*							
	Comment:	activities coordinated by the Joint Coordinating Committee for Research in the Fundamental Properties of Matter (FCC-FPM)							
15	315	2/18/1993		Intergovernmental	☑		None	Nuclear Energy	Disposition HEU Extracted From Nuclear Weapons
	Title:	*Agreement between the Government of the United States of America and the Government of the Russian Federation Concerning the Disposition of Highly Enriched Uranium Extracted from Nuclear Weapons*							
	Comment:	Conversion of HEU extracted from nuclear weapons resulting from the reduction of nuclear weapons; the establishment of appropriate measures to fulfill the nonproliferation, physical protection, nuclear material accounting and control, and environmental requirements with respect to HEU and LEU.							
202	394	9/16/1996	9/16/2001	Primary DOE	☑		None	*Other - Fuel Cell Technology	RAFCO
	Title:	*Agreement between the Department of Energy of the United States of America and the Ministry of the Russian Federation on Atomic Energy Regarding a Russian-American Fuel Cell Consortium*							
	Comment:	Joint R&D work in fuel cell technology development							
208	324	1/14/1994	1/14/2004	Intergovernmental	☑		None	Environmental Safety Health	Radioactive Contamination Health & Environment
	Title:	*Agreement between the Government of the United States of America and the Government of the Russian Federation on Cooperation in Research on Radiation Effects for the Purpose of Minimizing th Consequences of Radioactive Contamination on Health and the Environment*							
	Comment:	Establish a framework for cooperation in research on radiation effects for the purpose of minimization of the consequences of radioactive contamination on health and the environment. DOE is the Executive Agent and is responisable for coordination of activities to implement the agreement.							
210	360	6/16/1995		Primary DOE	☑		None	Arms Control and Nonproliferation	Nonproliferation of Weapons/Weapons Expertise
	Title:	*Memorandum of Agreement between the Department of Energy of the United States of America and the International Science and Technology Center in the Russian Federation for Cooperation in Approved Projects to Facilitate the Nonproliferation of Weapons and Weapons Expertise*							
	Comment:	Facilitate cooperation under the ISTC agreement including the efforts to reduce or eliminate weapons of mass destruction in a safe and secure manner.							

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
209	359	6/15/1995		Secondary DOE	☑	210	Primary DOE	Fusion Energy	Annex I Weapons Expertise for the Globus-M Project
		Title: *Annex I to the Memorandum of Agreement between the Department of Energy of the United States of America and the International Science and Technology Center in the Russian Federation Concerning Cooperation in Approved Projects to Facilitate the Nonproliferation Weapons and Weapons Expertise for the Globus-M Project*							
		Comment: Cooperate to support the A.F. IOFFE Physics-Technical Institute in the completion of the GLOBUS-M project by participating in the modification (or reconstruction) of the experimental hall of the Institute in order to accommodate the new GLOBUS-M spherical tokamak device and the near-by supporting equipment, the buildings that house all the other device supporting systems, and the connections/conduits between the experimental hall and those buildings needed by the GLOBUS-M project.							
536	480	6/22/1999	6/22/2001	Secondary DOE	☑	210	Primary DOE	Fusion Energy	ISTC Annex III -Advanced Diagnostics equipment for Spherical Tokamak Globus-M
		Title: *Annex III to the Memorandum of Agreement between the Department of Energy of the United States of America and the International Science and Technology Center in the Russian Federation Concerning Cooperation in Approved Projects to Facilitate the Nonproliferation of Weaons and Weapons Expertise for Advanced Diagnostics Equipment for Sapherical Tokamak Globus-M (ISTC Project No. 1126)*							
		Comment:							
435	328	3/16/1994		Primary DOE	☐		None	Nuclear Energy	Replacement of Russian Pu Production Reactors
		Title: *Protocol of Meeting between the United States and the Russian Federation on the Replacement of Russian Plutonium Production Reactors*							
		Comment: Plan for replacement of plutonium production reactors with alternate energy sources.							
515	461	9/22/1998	9/22/2003	Intergovernmental	☑		None	Arms Control and Nonproliferation	Nuclear Cities Initiative
		Title: *Agreement between the Government of the United States of America and the Government of the Russian Federation on the Nuclear Cities Initiative*							
		Comment: DOE is the US Executive Agent for the carrying out provisions of the agreement. Ministry of the Russian Federation for Atomic Energy is the Executive agent for Russia							
518	464	3/24/1999	3/24/2004	Primary DOE	☑		None	Science and Technology	MOU w/ Russian Academy of Sciences
		Title: *Memorandum of Understanding between the Department of Energy of the United States of America and the Russian Academy of Sciences on Cooperation in Science and Technology*							
		Comment:							
565	488	5/15/2000	3/24/2004	Secondary DOE	☑	518	Primary DOE	Environmental Restoration and Waste Management	DOE/RAS Implementing Arrangement 1
		Title: *Implementing Arrangement #1 Under the Memorandum of Understanding between the United States Department of Energy and the Russian Academy of Sciences on Cooperation in Science and Technology - Geologic Analogues, Migration and Accumulation of Radionuclides in Geologic Media*							
		Comment:							
590	488	5/16/2000	9/20/2002	Tertiary DOE	☑	565	Secondary DOE	Environmental Restoration and Waste Management	Appendix D - Uranium Mass Transport Phenomena
		Title: *Appendix D Implementing Arrangement #1 of the U.S. Department of Energy/Russian Academy of Sciences Memorandum of Understanding Uranium Mass Transport Phenomena in Fractured Welded Tuffs*							
		Comment:							

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
593	488	5/18/2000	9/30/2003	Tertiary DOE	☑	565	Secondary DOE	Civilian Radioactive Waste Management	Appendix G - Interaction of Actinides and Fission Products

Title: *Appendix G Implementing Arrangement #1 of the U.S. Department of Energy/Russian Academy of Science Memorandum of Understanding The Interaction of Actinides and Fission Products with Environmental Matrices*

Comment:

594	488	5/18/2000	9/30/2003	Tertiary DOE	☑	565	Secondary DOE	Civilian Radioactive Waste Management	Appendix H - Actinide Speciation

Title: *Appendix H Implementing Arrangement #1 of the U.S. Department of Energy/Russian Academy of sciences Memorandum of Understanding Actinide Speciation in the Environment to Support Safety Assessment of Geologic Repositories and for the Remediation of Contaminated Sites*

Comment:

566	489	5/15/2000	3/24/2004	Secondary DOE	☑	518	Primary DOE	Environmental Restoration and Waste Management	DOE/RAS Implementing Arrangement 2

Title: *Implementing Arrangement #2 Under the Memorandum of Understanding between the United States Department of Energy and the Russian Academy of Sciences on Cooperation in Science and Technology - Risk Assessment and Advanced Modeling Regarding Geologic Disposal*

Comment:

589	489	6/2/2000	9/30/2003	Tertiary DOE	☑	566	Secondary DOE	Civilian Radioactive Waste Management	Appendix C - Contaminant Transport Processes in Unsaturated Rocks

Title: *Appendix C Implementing Arrangement #2 of the U.S. Department of Energy/Russian Academy of Sciences Memorandum of Understanding Interdisciplinary Fundamental Research to Further Develop the Methods of Describing and Modeling Contaminant Transport Process in Unsaturated Rocks*

Comment:

591	489	5/31/2000	9/30/2002	Tertiary DOE	☑	566	Secondary DOE	Environmental Restoration and Waste Management	Appendix D- Annex A - Chara. Of Contaminated Territories

Title: *Annex A of Appendix D Implementing Arrangement #2 of the U.S. Department of Energy/Russian Academy of Sciences Memorandum of Understanding Characterization of Contaminated Territories, Monitoring Network Optimization, and Cost Minimization*

Comment:

592	489	5/31/2000	9/30/2002	Tertiary DOE	☑	566	Secondary DOE	Environmental Restoration and Waste Management	Appendix D - Annex B - Uncertainty Assessment

Title: *Annex B of Appendix D Implementing Arrangement #2 under the DOE-RAS Memorandum of Understanding Uncertainty Assessment Through Incorporation of Mathematical Geology in Development of Inverse Flow and Transport Models*

Comment:

605	500	4/25/2001	4/25/2004	Secondary DOE	☑	518	Primary DOE	Science and Technology	Appendix K w/ the Russian Academy of Sciences

Title: *Appendix K Under Implementing Arrangement #1 of the Memorandum of Understanding Between the U.S. Department of Energy and Russian Academy of Sciences on Cooperation in Science and Technology*

Comment:

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
606	501	10/1/2000	10/1/2002	Secondary DOE	☑	518	Primary DOE	Uranium Mass Transport Phenomena in Fractured Welded Tuffs	Appendix D of Implementing Arrangement #1w/ Russian Academy of Sciences MOU
		Title: *Appendix D Implementing Arrangement #1 of The U.S. Department of Energy/Russian Academy of Sciences Memorandum of Understanding Uranium Mass Transport Phenomena in Fractured Welded Tuffs*							
		Comment:							
52	302	3/18/1992		Statement of Intent	☐		None	Information and/or Personnel Exchange	Electric Power Technologies
		Title: *U.S.-Russia Task Force on Cooperation in Electric Power Technologies Joint Statement of Intent*							
		Comment: Exchange information on developments in the electric power industries and encourage more extensive contacts among experts in this field in both countries.							
537	481	7/24/1998	7/24/2003	Intergovernmental	☑		None	Arms Control and Nonproliferation	Plutonium Management
		Title: *Agreement between the Government of the United States of America and the Government of the Russian Federation on Scientific and Technical Cooperation in the Management of Plutonium that has been withdrawn from Nuclear Military Programs*							
		Comment: DOE is the Executive Agent for the US. The agreement establishes the U.S.-Russian Joint Steering Committee on Plutonium Management							

Country: *Senegal*

479	433	4/2/1998		Statement of Intent	☐		None	Energy Research and Development	SOI - Energy R&D
		Title: *Memorandum of Understanding between the Republic of Senegal and the United States of America for Cooperation on Energy Policy, Science and Technology, and Research and Development*							
		Comment:							
516	462	3/19/1999	3/19/2004	Primary DOE	☑		None	Energy Research and Development	Energy Policy, S and T, and R and D
		Title: *Agreement between the Department of Energy and the Ministry of Energy, Mines and Industry of the Republic of Senegal on Cooperation in Energy Policy, Science and Technology, Research and Development*							
		Comment: The objective of this Agreement is to facilitate and establish cooperative activities by the Parties.							

Country: *South Africa*

20	368	12/4/1997	12/4/2022	Intergovernmental	☑		None	Nuclear Energy	Peaceful Uses of Nuclear Energy
		Title: *Agreement for Cooperation between the United States of America and the Republic of South Africa Concerning Peaceful Uses of Nuclear Energy*							
		Comment: Cooperate in the development, use and control of peaceful uses of nuclear energy which must be undertaken with a view to protecting the international environment from radioactive, chemical and thermal contamination. Agreement was signed on 8/25/95 ratified by exchange of diplomatic notes on 12/4/97.							
230	369	8/25/1995		Primary DOE	☐		None	Energy Research and Development	Sustainable Energy Development Committee
		Title: *Terms of Reference on the Sustainable Energy Development Committee of the U.S. - South Africa Binational Commission*							
		Comment:							

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
231	371	8/25/1995		Primary DOE	☐		None	Energy Research and Development	Sustainable Development Resource Center
	Title:	***Memorandum of Understanding between the World Wildlife Fund-South Africa, EarthKind International, U.S. Department of Energy and U.S. Agency for International Development on Creating the Sustainable Development Resource Center***							
	Comment:	Cooperate on the creation of the Sustainable Development Resource enter to advance policies and programs on the use of renewable energy and energy efficiency technologies and participation by nongovernmental organization in the decision making process. Other signatories are EarthKind Intl (Jan Hartke) and USAID (Larry Byrne)							
232	372	8/25/1995		Primary DOE	☐		None	Energy Efficiency and Renewable Energy	Renewable and Energy Efficiency Technologies
	Title:	***Memorandum of Understanding***							
	Comment:	Promotion of renewable energy and energy efficient technologies as a cost-effective means of increasing access to energy of the majority of South Africa disadvantaged population (w/USAID as a partner).							
233	374	8/25/1995		Primary DOE	☐		None	Energy Efficiency and Renewable Energy	Electrification of Rural Clinics (Cape Town)
	Title:	***Memorandum of Understanding between Sandia National Laboratories of Albuquerque New Mexico, USA and the Independent Development Trust Cape Town, Republic of South Africa***							
	Comment:	Sandia National Lab, as signatory of this MOU, has agreed to co-fund the Independent Development Trust model clinic electrification program and to provide other technical assistance as agreed by mutual consent.							
234	381	12/5/1995	12/5/2000	Primary DOE	☑		None	Energy Research and Development	Energy Policy, S&T and Development
	Title:	***Implementing Agreement between the United States Department of Energy and the Department of Mineral and Energy Affairs of South Africa on Collaboration on Energy, Policy, Science, Technology and Development***							
	Comment:	Facilitate and establish cooperative activities in energy policy, science, technology, development and commercialization activities in such areas as: fossil energy, including clean coal; energy planning, efficiency, renewable energy; environmental management; environment enhancing energy technologies; and private power project development							
55	423	8/25/1995		Statement of Intent	☐		None	Information and/or Personnel Exchange	Energy Information Exchange
	Title:	***Joint Statement of Intent between the Department of Energy of the United States of American and the Department of Mineral and Energy Affairs of the Republic of South Africa on an Energy Information Exchange***							
	Comment:								
56	370	8/25/1995		Statement of Intent	☐		None	Energy Research and Development	Energy Policy, S&T and Development
	Title:	***Joint Statement of Intent between the Department of Energy of the United States of American and the Department of Mineral and Energy Affairs of the Republic of South Africa on Energy Policy, Science and Technology, and Development***							
	Comment:	Facilitate joint activities related to energy policy, S&T, development and commercialization in an environmentally and economically sound manner.							
57	373	8/25/1995		Statement of Intent	☐		None	Energy Efficiency and Renewable Energy	Renewable Energy (Guguletu Township)
	Title:	***Joint Statement of Intent for Integrated Industrial/Educational Development in Guguletu Township between the United States Department of Energy, United States Department of Energy National Laboratories, and the Guguletu RDP Forum***							
	Comment:	Establishment of a light industrial part in Guguletu Township.							

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
58	375	8/25/1995		Statement of Intent	☐		None	Energy Efficiency and Renewable Energy	Renewable Energy (The Csir, South Africa)
	Title:	*Statement of Intent on Renewable Energy Technologies between the National Renewable Energy Laboratory, U.S.A. and Sandia national Laboratories, U.S.A. and the CSIR (Council for Scientific and Industrial Research), Republic of South Africa*							
	Comment:	NREL and Sandia, by being signatories of this Statement, have agreed to exchange experience and views on opportunities for the appropriate utilization of renewable energy technologies with The Csir, Republic of South Africa. Witnessed by Secretary O'Leary.							
59	383	12/5/1995		Statement of Intent	☐		None	Fossil Energy	Mitigation of Greenhouse Gases
	Title:	*Statement of Intent concerning Cooperation in Sustainable Energy Development and the Mitigation of Greenhouse gases between the Republic of South Africa and the United States of America*							
	Comment:	Investigate pilot studies the feasibility of the development of projects which could achieve additional mitigation of climate change by addressing anthropogenic emissions by sources and removal by sinks in an environmentally sound and socially and economically equitable fashion through deployment of greenhouse gas mitigation technologies; education/training programs; diversification of energy sources; conservation, restoration and enhancement of natural carbon sinks, etc.							
60	382	12/5/1995		Statement of Intent	☐		None	Energy Research and Development	South Africa/Provincial Gov'ts Cooperation Agreement - Statement of Intent
	Title:	*Cooperative Agreement between Provincial Governments of the Republic of South Africa on Regional Cooperation in Energy*							
	Comment:	Intention to cooperate in a manner which will facilitate joint activities related to energy development in an environmentally and economically sound way with the following provincial governments of South Africa: Province of the Free State; Northern Cape Province; Eastern Cape Province							

Country: *Spain*

100	404	9/15/1997	9/15/2007	Primary DOE	☑		None	Environmental Safety Health	Research on Radiological Evaluations
	Title:	*Implementing Arrangement between the Department of Energy of the United States of America and the Ministry of Industry and Energy of the Kingdom of Spain on Cooperation in Research on Radiological Evaluations*							
	Comment:								
307	404	9/15/1997	9/15/2007	Secondary DOE	☑	100	Primary DOE	Environmental Safety Health	Annex I
	Title:	*Project Annex I - cooperation on research in radiological evaluations*							
	Comment:	Related to radioactive waste management.							
5	171	12/12/1985		Primary DOE	☑		None	Science and Technology	Science & Technology
	Title:	*Agreement between the United States Department of Energy and the United States-Spain Joint Committee for Scientific and Technological Cooperation*							
	Comment:	Establish responsibilities, guidelines and procedures for evaluating, funding and coordinating research proposals, projects and related activities in the field of energy selected and funded by the US-Spain Joint Committee for S&T Cooperation.							
596	491	7/15/2000	7/15/2006	Primary DOE	☑		None	Energy Research and Development	MOU for Energy Cooperation
	Title:	*Memorandum of Understanding Between The Ministry of Science and Technology of the Kingdom of Spain and The Department of Energy of the United States of America Concerning Cooperation in Energy*							
	Comment:								

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
Country: *Sweden*									
218	235	2/11/1988		Primary DOE	☑		None	*Other - Classified	Subject and Umbrella contents are classified
	Title: ***Subject and Umbrella contents are classified***								
	Comment: Description not available in History								
580	442	10/23/1995	10/23/2000	Primary DOE	☑		None	Civilian Radioactive Waste Management	Radioactive Waste Management
	Title: ***Agreement between the United States Department of Energy and the Swedish Nuclear Fuel and Waste Management Company Concerning a Cooperative Program in the Field of Radioactive waste Management***								
	Comment:								
Country: *Switzerland*									
225	418	12/23/1997	12/23/2002	Primary DOE	☑		None	Civilian Radioactive Waste Management	Radioactive Waste Management
	Title: ***Agreement between the Department of Energy of the United States of America and the National Cooperative for the Disposal of Radioactive Waste in Switzerland in the Field of Radioactive Waste Management***								
	Comment: Auto extension for 5 yr. Periods.								
Country: *Thailand*									
227	400	3/20/1997		Primary DOE	☐		None	Arms Control and Nonproliferation	Lab-to-Lab arrangement
	Title: ***Arrangement for the Exchange of Technical Information and for Cooperation in the Field of Peaceful Uses of Nuclear Energy between the Office of Atomic Energy for Peace of Thailand and the United States Department of Energy***								
	Comment: Open ended.								
538	400	3/6/2000		Secondary DOE	☐	227	Primary DOE	Arms Control and Nonproliferation	Action Sheet 1 - Preliminary Safety Anaysis Repo.
	Title: ***Action Sheet 1 between the Office of Atomic Energy for Peace of Thailand and the United States Department of Energy for Preliminary Safety Analysis Report Review***								
	Comment:								
Country: *Ukraine*									
507	454	4/26/1996		Intergovernmental	☐		None	*Other - Radioactive Waste	Chornobly Center
	Title: ***Memorandum of Understanding on Participation In and Support of the Activities of the International Chornobyl Center on Nuclear Safety, Radioactive Waste and Radioecology***								
	Comment:								

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
508	455	7/22/1998	7/22/2003	Intergovernmental	☑		None	*Other - Radioactive Waste	Int'l Radioecology Lab
		Title: *Agreement between the Government of the United States of America and the Government of Ukraine Concerning the International Radioecology Laboratory of the International Chornobly Center on Nuclear Safety, Radioactive Waste and Radioecology*							
		Comment: Department of Energy is the Executive Agent							
510	457	5/6/1998	5/4/2028	Intergovernmental	☑		None	Nuclear Energy	US-Ukraine PNC
		Title: *Agreement for Cooperation between the United States of America and Ukraine Concerning Peaceful Uses of Nuclear Energy*							
		Comment:							
54	330	4/8/1994		Statement of Intent	☐		None	Nuclear Energy	Shutdown Chernobyl Nuclear Power Plant
		Title: *Joint Statement About Paths to the Soonest Possible Shutdown of the Chernobyl Nuclear Power Plant*							
		Comment: Undertake near-term joint analysis of options for earliest possible closure of the Chernobyl power plant.							

Country: *United Kingdom*

319	159	5/14/1985	6/11/2000	Secondary DOE	☐		Primary DOE	Information and/or Personnel Exchange	Energy-Related Information
		Title: *Memorandum of Understanding between the Government of The United States of America as Represented by the Department of Energy and the Government of the United Kingdom of Great Britain and Northern Ireland as Represented by Department of Energy*							
		Comment: Exchange of information as to the existence and availability of energy-related literature.							
41	364	7/25/1995		Statement of Intent	☐		None	Environmental Restoration and Waste Management	Nuclear Clean-Up
		Title: *Heads of Agreement for Cooperation Between the United States Department of Energy and the United Kingdom Department of Trade and Industry on their Perspective Program for Nuclear Clean-up*							
		Comment: Cooperate, through sharing of information, on similar issues associated with nuclear decommissioning and clean-up							
42	390	9/5/1996		Statement of Intent	☐		None	Environmental Restoration and Waste Management	Environmental Restoration and Waste Manageme
		Title: *Statement of Intent between the United States Department of Energy and the United Kingdom Department of Trade and Industry*							
		Comment: Establish framework for cooperation in R&D of technologies for the treatment, packaging, disposal of aluminum-based spent nuclear fuel.							
598	493	11/6/2000	11/6/2010	Primary DOE	☑		None	Energy Research and Development	MOU on Energy Research and Development
		Title: *Memorandum of Understanding Between The Department of Energy of the United States of America and The Department of Trade and Industry of the United Kingdom of Great Britain and Northern Ireland on Collaboration in Energy Research and Development*							
		Comment: Provides for cooperation in Fossil Energy, Energy Efficiency, Renewable Energy and the waste-related management and the environment.							

Country: *Venezuela*

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ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
228	408	10/13/1997	10/13/2002	Primary DOE	☑		None	Energy Research and Development	Energy Cooperation
	Title:	***Agreement for Energy Cooperation between the Department of Energy of the United States of America and the Ministry of Energy and Mines of the Republic of Venezuela***							
	Comment:	Supersedes the March 6, 1980 Energy R&D agreement							
443	73	7/10/1980	10/13/2002	Secondary DOE	☑	228	Primary DOE	Fossil Energy	Project Annex 1 - Crude Characterization
	Title:	***Project Annex I between the Department of Energy of the United States of America and the Ministry of Energy and Mines of Venezuela for the Joint Characterization of Heavy Crude Oils***							
	Comment:	Exchange published technical information and jointly modify or develop new techniques for the characterization of heavy crude oil and heavy ends.							
444	82	9/29/1980	10/13/2002	Secondary DOE	☑	228	Primary DOE	Fossil Energy	Project Annex 4 - Enhanced Oil Recovery Thermal Processes
	Title:	***Project Annex IV between the Department of Energy of the United States of America and the Ministry of Energy and Mines of the Republic of Venezuela in the Area of Enhanced Oil Recovery Thermal Process***							
	Comment:	Cooperate in the application of additives to steam injection for the recovery of heavy oil thereby further efforts on the understanding of the thermal processes and the reservoir and its fluids where these processes are conducted.							
445	137	3/14/1984	10/13/2002	Secondary DOE	☑	228	Primary DOE	Fossil Energy	Project Annex 10 - Training of Petroleum Engineers
	Title:	***Project Annex X between the Department of Energy of the United States of America and the Ministry of Energy and Mines of the Republic of Venezuela for On-Site Training of Petroleum Engineers***							
	Comment:	Training of Venezuelan petroleum engineers at Elks Hills Naval Petroleum Facility.							
446	264	2/16/1989	10/13/2002	Secondary DOE	☑	228	Primary DOE	Fossil Energy	Project Annex 14 - Exchange of Energy-Related Personnel
	Title:	***Project Annex XIV between the Department of Energy of the United States of America and the Ministry of Energy and Mines of the Republic of Venezuela for the Exchange of Energy-Related Personnel***							
	Comment:	DOE and MEMV shall cooperate in using their good offices and taking all reasonable steps to facilitate the exchange of energy-related personnel between Venezuela and the U.S. in the areas of fossil energy.							
447	333	4/26/1994	10/13/2002	Secondary DOE	☑	228	Primary DOE	Fossil Energy	Project Annex 15 - Oil Recovery Information and Tech. Transfer
	Title:	***Implementing Agreement XV to the Memorandum of Understanding between the Department of Energy of the United States of America and the Ministry of Energy and Mines of the Republic of Venezuela in the Area of "Oil Recovery Information and Technology Transfer"***							
	Comment:	Evaluate past and ongoing improved oil recovery projects in US and Venezuela; Data base compilation and exchange							
499	448	8/15/1995	10/13/2002	Secondary DOE	☐	228	Primary DOE	Fossil Energy	Annex 16 - Oil and Petrochemical Ecology and Environmental Research
	Title:	***Implementing Agreement XVI to the Memorandum of Understanding between the Department of Energy of the United States of America and the Ministry of Energy and Mines of the Republic of Venezuela in the Area of Oil and Petrochemistry Ecology and Environmental Research***							
	Comment:	Information exchange, biotechnology update and analysis of industrial and environmental trends.							

All In Force Bilateral Agreements

ID	File#	Start Date	End Date	Agreement Type	Legally Binding	Parent ID	Parent Type	Subject	Brief Description
500	449	9/7/1995	10/13/2002	Secondary DOE	☑	228	Primary DOE	Fossil Energy	Annex 17 - Drilling Technology

Title: ***Implementing Agreement XVII to the Memorandum of Understanding between the Department of Energy of the United States of America and the Ministry of Energy and Mines of the Republic of Venezuela In the Area of Drilling Technology***

Comment: Exchange information and training of personnel on drilling technologies for more efficient and cost-effective methods drilling.