

MEMORANDUM OF UNDERSTANDING
BETWEEN THE
UNITED STATES DEPARTMENT OF ENERGY
AND THE
ATOMIC ENERGY OF CANADA LIMITED - L'ENERGIE ATOMIQUE DU CANADA LIMITEE
FOR COOPERATION IN THE FIELD OF MAGNETIC FUSION ENERGY

WHEREAS the United States Department of Energy (DOE) and the Atomic Energy of Canada Limited - L'Energie Atomique du Canada, Limitee (AECL), hereinafter referred to as the Parties, wish to enter into a Memorandum of Understanding, hereinafter referred to as the "MOU", for cooperation in the field of magnetic fusion energy;

WHEREAS there is a history of productive cooperation between the Parties in specific areas of fusion research and development; and

WHEREAS the Parties have capabilities which can assist each other in specific areas in their effort to advance the status of research and development in magnetic fusion energy as a potential energy source and desire to facilitate coordination of certain efforts in magnetic fusion energy research and development;

IT IS THEREFORE AGREED AS FOLLOWS:

ARTICLE 1 - Objective

Cooperation under this MOU will be directed toward finding solutions to mutually agreed upon problems associated with the development of magnetic fusion as a source of energy. The activities undertaken in accordance with this MOU are intended to result in substantial mutual benefit and are intended to occur in specific areas where the magnetic fusion research programs of the Parties complement one another as well as those in which comparability exists.

ARTICLE 2 - Areas of Cooperation

1. The areas of cooperation covered under this MOU may include, but are not limited to, the following areas:
 - a) Fusion fuel handling and processing technology including instrumentation, tritium-materials data, tritium clean-up technology and operational safety techniques;
 - b) Fusion specific remote maintenance technology;
 - c) Radiation damage of fusion reactor materials;
 - d) Fusion blanket technology;
 - e) Specific areas of confinement physics and other plasma phenomena in toroidal confinement devices;

- f) Specific plasma diagnostics; and
 - g) Other areas of magnetic fusion research as may be added by written agreement of the Parties.
2. Each Party shall coordinate its activities under Article 2.1 of this MOU, as appropriate, with other international activities related to these areas of research and development in magnetic fusion in which the other Party is a participant, in order to minimize unnecessary duplication of effort.

ARTICLE 3 - Forms of Cooperation

1. Cooperation in accordance with this MOU may include, but is not limited to, the following forms:
- a. exchange and provision of information and data on scientific and technical activities, developments, practices and results, and on program policies and plans including exchange of proprietary information on the terms and conditions in accordance with Article 7.2;
 - b. exchange of scientists, engineers and other specialists for agreed periods of time in order to participate in experiments, analysis, design and other research and development activities at existing and new research centers, laboratories, engineering offices and other facilities and enterprises of each of the Parties or its associated organizations or contractors in accordance with Article 6;

- c. meetings of various forms to discuss and exchange information on scientific and technological aspects of general or specific subjects in the areas listed in Article 2, and to identify cooperative actions which may be usefully undertaken;
- d. exchange and provision of samples, materials, instruments and components for experiments, testing and evaluation in accordance with Article 5;
- e. execution of joint studies, projects or experiments including their joint design, construction and operation in accordance with Article 5;
- f. establishment of data links in accordance with Article 5;
- g. other specific forms of cooperation may be added by mutual written agreement of the Parties pursuant to Article 5.

ARTICLE 4 - Management

1. To supervise the execution of this MOU, the Parties shall establish a Coordinating Committee. The Coordinating Committee shall consist of four members, two to be appointed by each Party. The Parties shall each name a Co-Chairman.
2. The Coordinating Committee shall meet each year, alternately in the United States and Canada, or at a place and time mutually agreed upon.

The Coordinating Committee shall have as its general objective the maintenance and improvement of the joint efforts of the Parties devoted to resolving any outstanding scientific and technological problems in the areas of magnetic fusion energy listed in Article 2. This shall be accomplished by reviewing the previous year's and proposed future activities including the objectives and scope of work and by identifying and approving appropriate activities.

3. All decisions of the Coordinating Committee shall be by unanimity. For making such decisions, the Coordinating Committee delegation from each Party shall have one vote, to be cast by the Co-Chairman, or the designated alternate. The Coordinating Committee may, where appropriate, make decisions by exchanging correspondence between the Co-Chairmen of the Committee.
4. For periods between meetings of the Coordinating Committee, each Party shall nominate an Executive Secretary to act on its behalf in all matters concerning cooperation under this MOU. The Executive Secretaries shall be responsible for day-to-day management of the cooperation.

ARTICLE 5 - Project Agreements

When the Parties agree to undertake a form of cooperation as set forth in Article 3 d. through g., the Parties shall execute a Project Agreement. Each Project Agreement shall include all detailed provisions carrying out the specific forms of cooperation and shall include such matters as technical scope, exchange of information, exchange of personnel and materials,

management, patents, exchange of equipment, costs, cost-sharing between the Parties, and project scheduling specific to the particular joint project.

ARTICLE 6 - Exchange of Personnel

1. Whenever a personnel exchange is contemplated under this MOU, each Party shall ensure that qualified staff is selected for assignment to the other Party or its contractors.
2. Each such assignment shall be the subject of a separate exchange agreement between the Parties.
3. Each Party shall be responsible for the salaries, insurance, and allowances to be paid its staff.
4. Each Party shall pay for the travel and living expenses of its staff while on assignment to the host Party, unless otherwise agreed in writing.
5. The host establishment shall do its best to arrange for comparable accommodations for the attached staff and their families on a mutually agreeable, reciprocal basis.
6. Each Party shall provide all necessary assistance to the assigned staff (and their families) as regards administrative formalities, such as travel arrangements and immigration services.

7. The attached staff of each Party shall conform to the general and special rules of work and safety regulations in force at the host establishment, or as agreed in a separate personnel exchange agreement.

ARTICLE 7 - Exchange of Information

1. General

The Parties support the widest possible dissemination of information provided or exchanged under this MOU, subject to the need to protect proprietary information exchanged hereunder, and to the provisions of Article 8 of this MOU. Each Party shall have the right to use, disclose, publish, or disseminate such information for any and all purposes whatsoever, subject to sub-paragraph 7.2 below and Article 8.

2. Use of Proprietary Information

- a. Definitions as used in this MOU:

- i) The term "information" means scientific or technical data, results or methods of research and development, and any other information intended to be provided or exchanged under this MOU.
- ii) The term "proprietary information" means information developed prior to or outside this MOU which contains trade secrets or

commercial or financial information which is privileged or confidential, and may only include such information which:

- a) has been held in confidence by its owner;
- b) is of a type which is customarily held in confidence by its owner;
- c) has not been transmitted by the transmitting Party to other entities (including the receiving Party) except on the basis that it be held in confidence; and
- d) is not otherwise available to the receiving Party from another source without restriction on its further dissemination.

b. Procedures

- i) A Party receiving proprietary information pursuant to this MOU shall respect the privileged nature thereof. Any document which contains proprietary information shall be clearly marked with the following (or substantially similar) restrictive legend:

"This document contains proprietary information furnished in confidence under an Memorandum of Understanding dated

_____ between the United States Department of

Energy and the Atomic Energy of Canada Limited - L'Energie Atomique Du Canada Limitee, and shall not be disseminated outside these organizations, their contractors, and the concerned departments and agencies of the Governments of the United States and Canada without prior approval of

_____.

This notice shall be marked on any reproduction, hereof, in whole or in part. These limitations shall automatically terminate when this information is disclosed by the owner without restriction."

- ii) Proprietary information received in confidence under this MOU may be disseminated by the receiving Party to:
 - a) persons within or employed by the receiving Party, and other concerned Government departments and Government agencies in the country of the receiving Party; and
 - b) prime or subcontractors of the receiving Party located within the geographical limits of the receiving Party's nation, for use only within the framework of their contracts with the receiving Party in work relating to the subject matter of the proprietary information;

provided, that any proprietary information so disseminated shall be pursuant to an agreement of confidentiality and shall

be marked with a restrictive legend substantially identical to that appearing in section 2.b.(i) above.

iii) With the prior written consent of the Party providing proprietary information under this MOU, the receiving Party may disseminate such proprietary information more widely than otherwise permitted in the foregoing sub-section (ii). The Parties shall cooperate with each other in developing procedures for requesting and obtaining prior written consent for such wider dissemination, and each Party shall grant such approval to the extent permitted by its national policies, regulations and laws.

- c. Each Party shall exercise its best efforts to ensure that proprietary information received by it under this MOU shall be controlled as provided herein. If one of the Parties becomes aware that it will be, or may reasonably be expected to become, unable to meet the non-dissemination provisions of this Article, it shall immediately inform the other Party. The Parties shall thereafter consult to define an appropriate course of action.
- d. Information arising from seminars and other meetings arranged under this MOU and information arising from the attachments of staff shall be treated by the Parties according to the principles specified in this Article; provided, however, no proprietary information orally communicated shall be subject to the limited disclosure requirements of this MOU unless the individual communicating such information

places the recipient on notice as to the proprietary character of the information communicated and forthwith confirms the notice in writing.

- e. Nothing contained in this MOU shall preclude the use or dissemination of information received by a Party through arrangements other than those provided for under this MOU.

3. Transmission of Information

Information transmitted by one Party to the other Party under this MOU shall be accurate to the best knowledge and belief of the transmitting Party, but the transmitting Party does not warrant the suitability of the information transmitted for any particular use or application by the receiving Party or by any third Party. Information developed jointly by the Parties shall be accurate to the best knowledge and belief of both Parties. Neither Party warrants the accuracy of the jointly developed information or its suitability for any particular use or application by either Party or by any third Party.

ARTICLE 8 - Patents

- 1. With respect to any invention or discovery made or conceived in the course of or under this MOU:

- a. If made or conceived by personnel of one Party (the Assigning Party) or its contractors while assigned to the other Party (the Recipient Party) or its contractors in connection with exchanges of scientists, engineers and other specialists under this MOU in accordance with paragraph 1.a of Article 3 of this MOU:
 - i) The Recipient Party shall acquire all right, title and interest in and to any such invention or discovery in its own country and in third countries, subject to a non-exclusive, irrevocable, royalty-free license in all such countries to the Assigning Party, its Government, and its nationals designated by it, in and to any such invention or discovery and any patent application, patent, or other protection relating thereto.
 - ii) The Assigning Party shall acquire all right, title and interest in and to any such invention or discovery in its own country, subject to a non-exclusive, irrevocable, royalty-free license to the Recipient Party, its Government, and its nationals designated by it in and to any such invention or discovery and any patent application, patent, or other protection relating thereto.

- b. If made or conceived by a Party or its contractors as a direct result of employing information which has been communicated to it under this MOU in accordance with paragraphs 1.c., 1.e., and 1.f. of Article 3 of this MOU by the other Party or its contractors or communicated during seminars or other joint meetings, the Party

making the invention shall acquire all right, title and interest in and to such invention or discovery in all countries, subject to a grant to the other Party, its Government, and its nationals designated by it, of a non-exclusive, irrevocable, royalty-free license in all countries in and to any such invention or discovery and any patent application, patent, or other protection relating thereto.

2. Each Party shall, without prejudice to any rights of inventors or authors under its national laws, take all necessary steps to provide the cooperation from its inventors and authors required to carry out the provisions Articles 8 and 9 of this MOU. Each Party shall assume the responsibility to pay awards or compensation required to be paid to its own nationals according to its own laws.

3. With respect to any inventions or discoveries made or conceived in the course of or under this MOU which are improvements to materials, samples, instruments and components for testing or equipment provided under this MOU in accordance with paragraph 1.d. of Article 3 of this MOU, the providing Party shall acquire all right, title and interest in and to any such inventions or discoveries in its own country and third countries, subject to a non-exclusive, irrevocable, royalty-free license to the receiving Party, its Government and its nationals designated by it. The receiving Party shall acquire all right, title and interest in and to any such inventions or discoveries in its own country, subject to a non-exclusive, irrevocable, royalty-free license to the providing Party, its Government and its nationals designated by it.

ARTICLE 9 - Copyrights

Copyrights of the Parties or of cooperating organizations and persons shall be accorded treatment consistent with internationally recognized standards of protection. As to copyrights on materials within the scope of paragraph 1 of Article 7 owned or controlled by a Party, that Party shall make efforts to grant to the other Party a license to reproduce copyrighted material.

ARTICLE 10 - Equipment

Each Party agrees that, unless otherwise agreed in writing, in the event equipment is to be exchanged or supplied by one Party to the other Party, the following provisions shall apply covering the shipment and use of the equipment:

1. The sending Party shall supply as soon as possible a detailed list of the equipment to be provided together with the associated specifications and technical information documentation.
2. The equipment, spare parts, and documentation supplied by the sending Party shall remain the property of the sending Party and shall be returned to the sending Party upon completion of the mutually agreed upon activity unless otherwise agreed.
3. The host establishment shall provide the necessary premises and shelter for the equipment, and shall provide for electric power, water, gas, etc., in accordance with technical requirements which shall be mutually agreed upon.

4. Responsibility for expenses, safekeeping and insurance during the transport of the material from the original location in the country of the sending Party to the place of entry in the country of the receiving Party shall rest with the sending Party. If the sending Party elects to have the material returned, it shall be responsible for expenses, safekeeping, and insurance during the transport of the material from the original point of entry in the country of the receiving Party to the final destination in the country of the sending Party.

5. Responsibility for expenses, safekeeping, and insurance during the transport of the material from the place of entry in the country of the receiving Party to the final destination in the country of the receiving Party shall rest with the receiving Party. If the sending Party elects to have the material returned, the receiving Party shall be responsible for expenses, safekeeping, and insurance during the transport of the material from the final destination in the country of the receiving Party to the original point of entry in the country of the receiving Party.

6. The equipment provided by the sending Party for carrying out mutually agreed upon activities shall be considered to be scientific, not having a commercial character.

ARTICLE 11 - Materials and Samples

The Parties agree that, unless otherwise agreed in writing, in the event materials or samples are provided by one Party to the other Party, the

following provisions shall apply with respect to the transportation and use of such materials or samples:

1. All materials or samples provided by the sending Party to the receiving Party shall become the property of the receiving Party upon delivery, and shall not be returned to the sending Party.
2. Where one Party requests that materials or samples be provided by the other Party, the Party making the request shall bear all costs and expenses associated with the transportation of the materials or samples from the location of the sending Party to the final destination.
3. Each Party shall promptly disclose to the other Party all information arising from the examination or testing of materials or samples exchanged under this MOU. The Parties agree that proprietary information as defined in clause 7.2.a.(ii) which was developed prior to or outside the scope of this MOU shall remain proprietary even though it is contained in the results of an examination or testing of materials or samples. Such information shall be identified as proprietary information by the Party asserting its proprietary nature as soon as possible after disclosure of all information arising from the examination or testing is made to such Party and the other Party shall be immediately advised of that identification. All information identified as proprietary information shall be controlled as provided under Article 7.2.b. It is further understood and agreed that one Party providing materials or samples to the other Party may also provide a partial or complete list of the types

of information which will arise from the examination or testing of such materials or samples and which is proprietary as defined in Article 7.2.a.(ii) and all such proprietary information is to be controlled as set out in clause 7.2.b.

ARTICLE 12 - General Provisions

1. Cooperation under this MOU shall be in accordance with the laws and regulations of the respective countries. All questions related to the MOU arising during its term shall be settled by the Parties by mutual agreement.
2. Compensation for damages incurred during the implementation of this MOU shall be in accordance with the applicable laws of the countries of the Parties.
3. It is understood that this MOU does not constitute a treaty. The obligations described herein are binding and enforceable in accordance with the existing domestic laws of both countries.

ARTICLE 13 - Funding

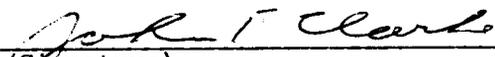
Unless otherwise specifically agreed in writing by the Parties, all costs resulting from cooperation under this MOU shall be borne by the Party that incurs them. It is understood that the ability of the Parties to carry out their obligations under this MOU is subject to the availability of appropriated funds.

ARTICLE 14 - Entry Into Force and Termination

This MOU shall enter into force upon signature by both Parties and remain in force for five (5) years. This MOU may be amended or extended by mutual written agreement. This MOU may be terminated at any time by either Party upon six (6) months written notice to the other Party. Such termination shall be without prejudice to the rights that may have accrued under this MOU to either Party up to the date of termination. All joint efforts and experiments not completed at the expiration of this MOU may be continued until their completion under the terms of this MOU.

Done in duplicate at Washington, DC this 19th day of November 1987.

FOR THE UNITED STATES
DEPARTMENT OF ENERGY



(Signature)

John F. Clarke
(Printed Name)

Associate Director
Office of Fusion Energy
(Title)

FOR THE ATOMIC ENERGY OF CANADA LIMITED -
L'ENERGIE ATOMIQUE DU CANADA, LIMITEE



(Signature)

David P. Jackson
(Printed Name)

Director
National Fusion Program
(Title)