

**No. 26566**

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**UNITED STATES OF AMERICA  
and  
UNITED KINGDOM OF GREAT BRITAIN  
AND NORTHERN IRELAND**

**Agreement in the field of liquid metal-cooled fast breeder  
reactors. Signed at Washington on 20 September 1976**

**Exchange of letters constituting an agreement amending the  
above-mentioned Agreement (with addendum). Wash-  
ington, 14 August 1978, and Warrington, United King-  
dom, 18 August 1978**

**Extension**

*Authentic text: English.*

*Registered by the United States of America on 26 May 1989.*

## AGREEMENT<sup>1</sup> BETWEEN THE UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION AND THE UNITED KINGDOM ATOMIC ENERGY AUTHORITY IN THE FIELD OF LIQUID METAL-COOLED FAST BREEDER REACTORS

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This Agreement is made as of the 20th day of September, 1976, between the United States Energy Research and Development Administration (hereinafter referred to as "ERDA") having their principal office at 20 Massachusetts Avenue, N.W., Washington, D.C. 20545, and the United Kingdom Atomic Energy Authority (hereinafter referred to as "UKAEA") having their principal office at 11 Charles II Street, London, SW1Y 4QP, hereinafter called the Parties.

### Whereas

The United States Atomic Energy Commission (USAEC) and UKAEA have exchanged research and development information in the field of fast reactors under the terms of an "Arrangement" between them that became effective on 11 February 1965.

Certain responsibilities of the USAEC were transferred to ERDA on 18 January 1975, and the exchange of fast reactor information between the USAEC and UKAEA has continued as between ERDA and UKAEA since that date.

The "Arrangement" of 11 February 1965 has been terminated on 20 July 1976, with the expiration of the Agreement between the Governments of the United States and the United Kingdom for Co-operation on the Civil Uses of Atomic Energy signed on 15 June 1955, as amended.<sup>2</sup>

ERDA and UKAEA have a mutual interest in developing the Liquid Metal-cooled Fast Breeder Reactor (LMFBR) and in maintaining important roles in such development.

ERDA and UKAEA wish to continue close and long term co-operation in the field of LMFBR technology which, for purposes of this Agreement, includes research, development and demonstration.

ERDA and UKAEA recognize the need to establish procedures governing the protection of privileged or confidential information in connection with activities under this Agreement.

It is agreed as follows:

### *Article 1*

The objective of cooperation under this Agreement is to establish, for the mutual benefit of the Parties, a reasonably balanced exchange of LMFBR technology. The areas and forms of cooperation are listed under Articles 2 and 3, respectively.

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<sup>1</sup> Came into force on 20 September 1976 by signature, in accordance with article 13 (1).

<sup>2</sup> United Nations, *Treaty Series*, vol. 229, p. 73, and annex A in volumes 252, 482, 532, 548, 573 and 764.

### *Article 2*

The areas of cooperation in LMFBR technology covered by this Agreement may include:

1. Reactor neutronics analysis and experimentation, to include reactor shielding and nuclear data;
2. Reactor safety;
3. Fuels and materials, to include structural, component, absorber and circuit materials;
4. Fuel cycle including fabrication, reprocessing, waste processing and storage;
5. Reactor and sodium systems and their associated components, to include component and system design, instrumentation and control, thermal hydraulics and structural analysis;
6. Sodium technology, to include detection of impurities, purification, control, component decontamination, sodium leaks and sodium fires;
7. Non-nuclear test facilities which support LMFBR programs;
8. Quality assurance and non-destructive practices;
9. Overall LMFBR programs of the US and UK;
10. Operation of LMFBR's;
11. Economic and environmental considerations;
12. Topics of interest to industry (design, construction experience, quality assurance).

Other areas of cooperation may be added by mutual agreement.

### *Article 3*

Cooperation in accordance with this Agreement may include but is not limited to the following forms:

1. Exchange of scientists, engineers and other specialists for participation in agreed research, development, analysis, design and experimental activities conducted in scientific centers, laboratories, engineering offices and reactor facilities of each of the Parties or its contractors for agreed periods. Such exchanges of staff shall be in accordance with Article 9 of this Agreement.

2. Exchange of samples, materials, instruments and components for testing.

3. Exchange of scientific and technical information and results and methods of research and development.

4. The organization of seminars and other meetings on specific agreed topics concerning LMFBR technology in the areas listed in Article 2, in a manner agreed by the Joint Coordinating Committee (Article 4). Such seminars shall normally be held alternately in the US and UK for each topic.

5. Short visits by specialist teams or individuals to the LMFBR facilities of the other Party.

6. The use by one Party of the facilities owned or operated by the other Party. Such use of facilities shall be the subject of separate agreements between the Parties, and may be subject to commercial terms and conditions.

7. Joint projects in which the Parties agree to share the work and/or costs. Each such joint project shall be the subject of a separate agreement between the Parties.

Other specific forms of cooperation may be agreed by the Parties and approved by the Joint Coordinating Committee.

#### *Article 4*

1. To supervise the execution of this Agreement, a Joint ERDA/UKAEA Coordinating Committee in the field of Liquid Metal-cooled Fast Breeder Reactors shall be established. This Committee shall meet each year alternately in the US and UK, or at other agreed times and places. The Head of the Delegation of the Receiving Party shall act as Chairman during meetings of the Committee.

2. At its meetings, the Joint Coordinating Committee shall evaluate the status of cooperation under this Agreement. This evaluation shall include a comprehensive review of each Party's LMFBR program status and plans, an assessment of the balance of exchanges in the various areas of cooperation listed in Article 2, and a consideration of measures required to correct any imbalances. In addition, the Joint Coordinating Committee shall consider and act on any major new proposals for cooperation.

3. For periods between meetings of the Joint Coordinating Committee, each Party shall nominate one person to act on its behalf in all matters concerning cooperation under this Agreement.

4. Day to day management of the cooperation under this Agreement shall be carried out by correspondents or others designated by the persons nominated under paragraph 3 of this Article.

#### *Article 5*

1. Where it is decided a cooperative program or project under this Agreement should be subject to a formalized specific memorandum of agreement executed by both Parties, the specific agreement should cover all detailed provisions for implementing that agreement including such matters as patents, exchange of equipment and information disclosure specific to the particular program or project.

#### *Article 6*

##### *1. General*

The Parties support the widest possible dissemination of information provided or exchanged under this Agreement, subject to the need to protect proprietary information exchanged hereunder, and to the provisions of Article 8.

##### *2. Use of Proprietary Information*

###### *A. Definitions as used in this Agreement*

(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 Agreement.

(ii) The term "proprietary information" means information 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 Agreement 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 Agreement dated . . . . . between the United States Energy Research and Development Administration and the United Kingdom Atomic Energy Authority and shall not be disseminated outside these organizations, their contractors, licensees and the concerned departments and agencies of the governments of the US and UK without the 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 Agreement may be disseminated by the receiving Party to:

- a) Persons within or employed by the receiving Party, and concerned Government departments and Government agencies in the country of the receiving Party;
- 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;
- c) Organizations licensed by the receiving Party in the field of development, design and construction of LMFBR's and their fuel for use only within the terms of such licenses,

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 subparagraph 2.B(i) above.

(iii) With the prior written consent of the Party providing proprietary information under this Agreement, the receiving Party may disseminate such proprietary information more widely than otherwise permitted in the foregoing subsection (ii). The Parties shall cooperate with each other in developing procedures for requesting and obtaining approval for such wider dissemination, and each Party will 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 Agreement is 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 Agreement and information arising from the attachments of staff, use of facilities and joint projects 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 Agreement unless the individual communicating such information places the recipient on notice as to the proprietary character of the information communicated.

E. Nothing contained in this Agreement shall preclude the use or dissemination of information received by a Party other than pursuant to this Agreement.

### *Article 7*

Information transmitted by one Party to the other Party under this Agreement 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*

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

*a.* If made or conceived by personnel of one Party (the Assigning Party) or its contractors while assigned to the other Party (Recipient Party) or its contractors, in connection with exchanges of scientists, engineers and other specialists:

(1) 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, with the right to grant sublicenses, under any such invention or discovery and any patent application, patent or other protection relating thereto, for use in the production or utilization of special nuclear material or atomic energy.

(2) 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, with the right to grant sublicenses, under any such invention or discovery and any patent application, patent or other protection relating thereto, for use in the production or utilization of special nuclear material or atomic energy.

*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 Agreement 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 of a royalty-free, non-exclusive, irrevocable license with the right to grant sublicenses in and to any such invention or discovery and any patent application, patent or other protection relating thereto, in all countries for use in the production or utilization of special nuclear materials or atomic energy.

c. With regard to other specific forms of cooperation, including loans or exchanges of materials, instruments and equipment for special joint research projects, the Parties shall provide for appropriate distribution of rights to inventions or discoveries resulting from such cooperation. In general, however, each Party should normally own the rights to such inventions or discoveries in its own country with a non-exclusive, irrevocable, royalty-free license to the other Party, and the rights to such inventions or discoveries in other countries should be agreed by the Parties on an equitable basis.

d. It is understood that after the European Patent Conventions have come into force, either Party may request a modification of this paragraph 1 for the purpose of according equivalent rights as provided in subparagraphs 1a.-c. above under the European Patent Conventions.

2. Neither Party shall discriminate against citizens of the country of the other Party with respect to granting any license or sublicense under any invention or discovery pursuant to paragraph 1 above. It is understood that the licensing policies and practices of each Party may be affected because of the rights of both Parties to grant licenses within a single jurisdiction. Accordingly, either Party may request, in regard to a single invention or discovery or class of inventions or discoveries, that the Parties consult in an effort to lessen or eliminate any detrimental effect that the parallel licensing authorities may have on the policies and practices of the Parties.

3. Each Party shall assume the responsibility to pay awards or compensation required to be paid to its own nationals according to its own laws.

#### *Article 9*

1. Whenever an exchange of staff is contemplated under this Agreement, each Party shall ensure that qualified staff are selected for attachment to the other Party.

2. Each such attachment of staff shall be the subject of a separate attachment agreement between the Parties.

3. Each Party shall be responsible for the salaries, insurance and allowances to be paid to its personnel.

4. Each Party shall pay for the travel and living expenses of its personnel while on attachment to the host Party unless otherwise agreed.

5. The host establishment shall arrange for comparable accommodations for the other Party's personnel and their families on a mutually agreeable reciprocal basis.

6. Each Party shall provide all necessary assistance to the attached staff (and their families) of the other Party as regards administrative formalities (travel arrangements, etc.).

7. The personnel 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 separate attachment of staff agreements.

8. Liabilities incurred during attachment of staff shall be covered in separate attachment of staff agreements.

#### *Article 10*

The provisions of this Agreement shall not affect the rights or duties of the Parties hereto under other agreements or arrangements. This Agreement also in no way precludes commercial firms or other legally constituted enterprises in each of

the two countries from engaging in commercial dealings in accordance with the applicable laws of each country; nor does it preclude the Parties from engaging in activities with other Governments or persons. Moreover, it is expected that the present Agreement should facilitate industrial and commercial exchanges in the field of LMFBFR between the firms of the countries of the Parties with a view to mutual benefits from such exchanges for both countries. UKAEA has funded and expects to continue to fund substantial development work on fast reactor technology. Use of the results of such technology by industrial organizations in the UK is governed by appropriate regulations and agreements involving UKAEA. Accordingly, UKAEA will seek to coordinate arrangements with UK industrial organizations involving such technology. ERDA shall act as the point of coordination for contracts and arrangements involving US commercial firms when such firms or enterprises act on behalf of the US Government under the terms of this Agreement. It is understood that all such contracts and arrangements shall conform with applicable laws and regulations under which each Party operates.

#### *Article 11*

Cooperation under this Agreement shall be in accordance with laws of the respective countries and the regulations of the respective Parties. All questions related to the Agreement arising during its term shall be settled by the Parties by mutual agreement.

#### *Article 12*

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

#### *Article 13*

1. This Agreement shall enter into force upon signature and, subject to paragraph 2 of this Article, shall continue for a five (5)-year period. This Agreement may be extended subject to agreement by the Parties following a review of accomplishments under the Agreement.

2. This Agreement may be terminated at any time at the discretion of either Party, upon six (6) months advance notification in writing by the Party seeking to terminate the Agreement. Such termination shall be without prejudice to the rights which may have accrued under this Agreement to either Party up to the date of such termination.

3. The Parties agree that all discussions, meetings, exchanges of documents or other acts of cooperation between them since the termination of the "Arrangement" of 11 February 1965, and prior to signature of this Agreement which, if they had occurred subsequent to the signature of this Agreement, would have been subject to this Agreement, shall be subject to the terms hereof.

4. In the event that, during the period of this Agreement, the nature of either Party's LMFBFR program should change substantially whether this be by substantial expansion, reduction, transformation or amalgamation of major elements with the LMFBFR program of a third Party, either Party shall have the right to request revisions in the scope and/or terms of this Agreement.



5. All joint efforts and experiments not completed at the termination of this Agreement shall be continued until their completion under the terms of this Agreement.

DONE at Washington, D.C., this 20th day of September 1976.

For the United States  
Energy Research  
and Development Administration:

[Signed — Signé]<sup>1</sup>

*Name:*

*Title:* Director  
Division of Reactor Develop-  
ment and Demonstration

For the United Kingdom  
Atomic Energy Authority:

[Signed — Signé]<sup>2</sup>

*Name:*

*Title:* Deputy Managing Director  
The Reactor Group

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<sup>1</sup> Signed by Eric S. Beckjord — Signé par Eric S. Beckjord.

<sup>2</sup> Signed by T. N. Marsham — Signé par T. N. Marsham.

EXCHANGE OF LETTERS CONSTITUTING AN AGREEMENT<sup>1</sup> BETWEEN THE UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION AND THE UNITED KINGDOM ATOMIC ENERGY AUTHORITY AMENDING THE AGREEMENT OF 20 SEPTEMBER 1976<sup>2</sup> IN THE FIELD OF LIQUID METAL-COOLED FAST BREEDER REACTORS

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I

DEPARTMENT OF ENERGY  
WASHINGTON, D.C.

Aug. 14, 1978

Dear Dr. Marsham:

Further to the discussions in Washington on March 10 between our staffs regarding possible amendments to the ERDA/UKAEA LMFBF Agreement of September 20, 1976,<sup>2</sup> I enclose our proposals which have been agreed to by interested Washington departments and agencies.

*Recital*

We feel it appropriate for the USDOE/UKAEA agreement to reflect the increasing international awareness of the dangers posed by the possible proliferation of nuclear weapons technology and of weapons-useable material.

*Article 1*

We consider it would be mutually profitable for USDOE and UKAEA to have a consideration of safeguards become an integral part of all appropriate cooperation in LMFBF development. In this connection, we note that both the UK and US have agreed, under Article 12 of the Nuclear Suppliers' Guidelines, to "... support the IAEA in increasing further the adequacy of safeguards in the light of technical developments ...". Moreover, since our existing agreement foresees cooperation in LMFBF fuel cycle work, we each have an explicit obligation under Article 13 to encourage the design of sensitive equipment in such a way as to aid in the application of safeguards. Finally, both the US and UK are committed to entry into force of arrangements with the IAEA which will bring installations in our respective countries under IAEA safeguards in the near future.

By way of further clarification, we are here using the term "safeguards" to mean "international safeguards", i.e., measures to detect, and by the threat of detection to deter, the diversion of significant quantities of nuclear material from peaceful activities to the manufacture of nuclear weapons or other nuclear explosive devices or to other unauthorized purposes or purposes unknown. As you know, international safeguards do not include measures for the physical prevention of diversion or for

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<sup>1</sup> Came into force on 18 August 1978, in accordance with the provisions of the said letters.

<sup>2</sup> See p. 348 of this volume.

the physical protection of nuclear materials or equipment against theft or sabotage, which are considered to be a separate category.

### Article 2

Again in the interest of promoting non-proliferation, USDOE is very much interested in research and development of alternative breeder fuel cycles. Further, we would hope that information on thorium based fuels being developed by our Oak Ridge National Laboratory would be of interest to UKAEA.

Of course, our proposals are in no way meant to alter our understanding of the original intent of the Parties to the Agreement to establish, for their mutual benefit and by their mutual consent, a reasonably balanced exchange of LMFBR technology.

If the enclosed proposed Addendum is acceptable, please indicate your agreement by signing and dating below. The Addendum will become a part of the Agreement upon our receipt of the countersigned copy of this letter.

Sincerely,

[Signed]

GEORGE W. CUNNINGHAM

Program Director for Nuclear Energy

Enclosure:  
Proposed Addendum

The United Kingdom  
Atomic Energy Authority:

By: [Signed — Signé]<sup>1</sup>

Date: 18 August 1978

cc:/w/encl: Dr. John Gaunt, British Embassy

Dr. T. N. Marsham  
Managing Director  
Risley Nuclear Power Development Establishment  
UKAEA, Risley  
Warrington, England

<sup>1</sup> Signed by J. Moore — Signé par J. Moore.

ADDENDUM TO THE AGREEMENT CONCLUDED ON SEPTEMBER 20, 1976, BETWEEN THE UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION AND THE UNITED KINGDOM ATOMIC ENERGY AUTHORITY IN THE FIELD OF LIQUID METAL-COOLED FAST BREEDER REACTORS

1. *Recital.* Add following paragraph two:

“On October 1, 1977, all the functions vested by law in ERDA were transferred to the United States Department of Energy (USDOE). Henceforth, all references in this Agreement to ERDA shall be read as USDOE.”

2. *Recital.* Change paragraph four to read:

“USDOE and UKAEA have a mutual interest in developing the Liquid Metal-cooled Fast Breeder Reactor (LMFBR) and in maintaining important roles in such development, taking cognizance of the conclusions that may be reached by the International Fuel Cycle Evaluation for restraining the proliferation of nuclear weapons.”

3. *Article 1.* Add second paragraph:

“In the course of implementing this Agreement, the Parties may exchange safeguards technology as applicable to the areas of cooperation listed in Article 2.”

4. *Article 2.* Change paragraph three to read:

“3. Fuels and materials, to include structural, component, absorber and circuit materials, and fuels which would tend to reduce or eliminate the production of material directly useable in nuclear weapons;”.

5. *Article 2.* Change paragraph four to read:

“4. Fuel cycle, including fabrication, reprocessing, waste processing, storage, and fuel cycles which may be resistant to the diversion of material for the production of nuclear weapons;”.

## II

RISLEY NUCLEAR POWER  
DEVELOPMENT ESTABLISHMENTUNITED KINGDOM ATOMIC ENERGY AUTHORITY  
(NORTHERN DIVISION)  
RISLEY  
WARRINGTONRISLEY  
NUCLEAR POWER DEVELOPMENT ESTABLISHMENT

18 August 1978

Dear Dr. Cunningham

Many thanks for your letter of 14 August addressed to Dr. Marsham.

Dr. Marsham is on summer holiday at present so I have countersigned your letter thereby indicating the agreement of the UKAEA to the proposed addendum to the Agreement of 20 September 1976 between US DOE and UKAEA in the Field of Liquid Metal-Cooled Fast Breeder Reactors.

I note that it will take effect upon receipt of the countersigned letter by the US DOE.

Yours sincerely

[Signed]

J. MOORE

Director/

Fast Reactor Development Directorate

Dr. G. W. Cunningham  
US DOE  
Germantown  
Washington, D.C.  
USA

## EXTENSION OF THE AGREEMENT IN THE FIELD OF LIQUID METAL-COOLED FAST BREEDER REACTORS OF 20 SEPTEMBER 1976<sup>1</sup>

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By an Agreement in the form of an exchange of notes dated at Warrington and Washington on 30 April 1981, and at Washington on 12 August 1981, which came into force on 12 August 1981 by the exchange of the said letters, it was agreed to extend the above-mentioned Agreement, as amended,<sup>1</sup> until 20 September 1986.

*Certified statement was registered by the United States of America on 26 May 1989.*

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<sup>1</sup> See p. 348 of this volume.

## II

RISLEY NUCLEAR POWER  
DEVELOPMENT ESTABLISHMENTATOMIC ENERGY AUTHORITY DU ROYAUME-UNI  
(NORTHERN DIVISION)RISLEY  
WARRINGTONRISLEY  
NUCLEAR POWER DEVELOPMENT ESTABLISHMENT

Le 18 août 1978

Monsieur le Directeur,

Je vous remercie de votre lettre en date du 14 août adressée à Monsieur Marsham.

Monsieur Marsham se trouve actuellement en vacances et j'ai donc contresigné moi-même votre lettre indiquant ainsi l'accord de l'UKAEA avec votre projet d'additif à l'Accord du 20 septembre 1976 entre l'USDOE et l'UKAEA dans le domaine des réacteurs surrégénérateurs à neutrons rapides refroidis aux métaux liquides.

J'ai noté que l'additif entrera en vigueur sur réception par l'USDOE de la lettre contresignée.

Je vous prie d'agréer, etc.

Le Directeur  
Direction du développement des réacteurs surrégénérateurs  
à neutrons rapides,  
[Signé]  
J. MOORE

Monsieur G. W. Cunningham  
Département de l'Energie  
Washington (D.C.)  
Etats-Unis

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