

SPECIFIC MEMORANDUM OF AGREEMENT

between

THE UNITED STATES DEPARTMENT OF ENERGY

and

THE UNITED KINGDOM ATOMIC ENERGY AUTHORITY

in the area of

A COMMON APPROACH TO LMFBR SAFETY DESIGN PRINCIPLES

This Specific Memorandum of Agreement to be called "THE SAFETY DESIGN PRINCIPLES AGREEMENT" is made between the UNITED STATES DEPARTMENT OF ENERGY (hereinafter referred to as "DOE") and the UNITED KINGDOM ATOMIC ENERGY AUTHORITY (hereinafter referred to as "UKAEA") hereinafter called the "Parties."

WHEREAS

The Energy Research and Development Administration (ERDA) and UKAEA under the Liquid Metal Fast Breeder Reactors Agreement of 20 September 1976 (hereinafter referred to as "the LMFBR Agreement") agreed to continue close and long term cooperation in the field of LMFBR technology.

Pursuant to the Department of Energy Organization Act of 1977, ERDA was abolished and all functions transferred to and vested in DOE.

The Parties are each conducting research and development programmes to support safety cases that will be presented by either party to aid the granting of

licenses for the construction of future fast reactors in both the United States and the United Kingdom.

The Parties recognise the merits of a collaborative research and development programme which would avoid unnecessary duplication and would make the best use of each country's respective expertise, with a view to advancing the state of fast reactor development to a stage where it is a demonstrated commercial option.

The Parties have an interest in close cooperation to ensure that both Parties achieve, where possible, a common approach to the various safety issues for submission in safety cases. The Parties believe that collaboration on safety topics and exchange of information on basic safety principles and presentation leading toward a common approach would be of significant benefit to both Parties.

It is the intention of both Parties to collaborate in a cooperative programme in an attempt to achieve this common approach.

IT IS AGREED AS FOLLOWS

ARTICLE 1 - OBJECTIVES

1.1 The objectives of cooperation under this Specific Memorandum of Agreement (SMA) which will involve a full exchange of unfettered, relevant safety information between the Parties are:

1. to identify and establish agreement on the safety issues relevant to the licensing of fast reactors;

ii. to develop an agreed common approach to these safety issues thereby facilitating the development of common safety principles for LMFBRs;

iii. to assemble and, where necessary, develop compatible information for inclusion in the documents being prepared to support the safety cases for licensing future fast reactors in the United States and the United Kingdom.

1.2 This cooperation shall be a joint project under and as envisaged in the LMFBR Agreement.

ARTICLE 2 - PROGRAMME

2.1 A Programme to meet the objective of this SMA has been agreed between the Parties and is given in 2.2 It is recognised at the outset that the Programme may be subject to change as the work progresses. Any changes to the Programme shall require the prior agreement in writing of the Parties.

2.2 The Programme envisages the following steps:

1. Establish key safety issues which the Parties agree should be addressed.
2. Develop a common approach to these issues.
3. Develop recommendations for joint safety design principles.
4. Compare existing research and development programmes and approaches to safety issues.

5. Adopt a cooperative safety research and development programme to address these safety issues and safety features.
6. Communicate with the United States Nuclear Regulatory Commission and UK-NII in parallel with the above process to inform them of progress.

2.3 Targets and Products of this SMA.

To meet the objectives, two key products will be developed.

2.3.1 A Common Safety Approach to Safety Issues

The safety approach document will treat LMFBR issues in a general way taking into account the existing safety design criteria in the United States and the United Kingdom. In particular, one would expect to address such issues as:

Balance between accident prevention and consequence limitation

Reliance on inherent safety capabilities including utilization of natural circulation

Rules to be applied to consequence limiting features

Utilization of probabilistic risk assessment in safety presentations and in design choice guidance

Common mode failure aspects including redundancy and diversity of shutdown and shutdown heat removal systems

Debris retention devices

Containment approach

Vessel head design

Detection of local faults

In-service inspection and monitoring

Human factors including role of operators and man-machine interface

Where these issues are of general application to all reactor systems only topics peculiar to LMFBR's will be considered.

2.3.2 Cooperative Safety Research and Development Plan

To the extent that understanding has been developed concerning the scope of knowledge of each country about common safety issues of significance, a cooperative research and development plan will be developed, and the terms and conditions for such a plan will be set forth in an agreement between the Parties. This will identify the degree of participation of each country, scheduling, information, patents, and management of research and development to address agreed controversial issues. Development of new safety design features and assessment of capability of existing features will be conducted as part of the research and development plan taking into account plant cost and availability.

2.3.3 Completion Targets

The following target dates are agreed:

- a. Common Safety Approach - 2 years after signature of this SMA.
- b. Cooperative Safety Research and Development Plan - 3 years after signature of this SMA.

2.4 This Programme will be implemented by:

- a. The exchange of scientific information and results and methods of research and development, as documents, reports and correspondence;
- b. The organisation of meetings, discussions and seminars on agreed topics;
- c. Short visits by teams and individuals;
- d. An annual review meeting by the representatives nominated under Article 6 to review the progress of the Programme.

ARTICLE 3 - PARTICIPATION

The Parties recognise the role of utilities and industry in the development of common safety design approaches. Representatives from Government departments, Government agencies, utilities, and prime or sub-contractors and licensees may be invited to participate in discussions and meetings. The Parties are responsible for ensuring that such invited participants shall follow the provisions of the LMFBF Agreement concerning the handling of proprietary information and inventions or discoveries.

ARTICLE 4 - GENERAL PROVISIONS

Articles 6, 7, 8 (paragraphs 1b, 2, and 3 only), 11 & 12 of the LMFBF Agreement are hereby incorporated by reference.

ARTICLE 5 - USE AND DISCLOSURE OF INFORMATION

- 5.1 Information developed prior to or outside the scope of the Programme which is proprietary pursuant to Article 6 of the LMFBR Agreement shall be treated as prescribed therein.
- 5.2 The Parties recognise that in certain cases information contained in the results of activities conducted during the Programme as set forth in Articles 2.2, 2.3.1, and 2.4 may disclose proprietary information as defined in Article 6 of the LMFBR Agreement. Such information shall be identified as soon as possible after it arises by the Party asserting that proprietary information may be disclosed and the other Party advised of that identification. Results which may lead to such disclosure shall be considered to be proprietary information and shall be controlled as provided in Article 6 of the LMFBR Agreement. Either Party may provide to the other a non-exclusive list of those types of information arising under the Programme which may disclose proprietary information as defined in Article 6 of the LMFBR Agreement and which are to be treated as prescribed therein.
- 5.3 Each Party shall make available to the other Party information from other programmes of work agreed to be relevant to the Programme and may agree to exchange computer programs to implement or support the Programme.

ARTICLE 6 - MANAGEMENT OF THE PROJECT

- 6.1 Pursuant to the terms of Article 4 of the LMFBR Agreement the DOE/UKAEA Joint Coordinating Committee shall be responsible for review, evaluation, assessment and approval of the Programme to be implemented under this SMA.
- 6.2 One person shall be nominated by each Party for the purposes of day-to-day management of the Programme in the country of that Party.
- 6.3 Each Party shall nominate one or more representatives who at periodic meetings shall together review the progress of the Programme and consider and, where appropriate, make decisions on any necessary or desirable modifications to the Programme taking into account information arising from the Programme and elsewhere, and shall report such decisions to the persons nominated for day-to-day management of the Programme for implementation, and to the Joint Coordinating Committee.

ARTICLE 7 - FACILITIES AND EQUIPMENT

Each Party shall at all times be responsible for the operation of its own facilities and for any consequences arising from such operation. The Parties shall discuss any modifications to the Programme which may

be necessary for safety or operational reasons but each Party shall retain the right to suspend operation of its facilities at any time for operational or safety reasons.

ARTICLE 8 - LIABILITIES

Compensation for damages incurred during the implementation of this SMA shall be in accordance with the applicable laws of the countries of the Parties.

ARTICLE 9 - DELAYS

If during the course of this SMA, any event occurs which significantly delays the Programme, the Parties shall discuss the action to be taken to achieve an equitable solution.

ARTICLE 10 - DURATION AND TERMINATION

10.1 This SMA shall enter into force upon signature by both Parties and, except as otherwise provided in this Article, shall continue for four years.

10.2 This SMA may be amended or extended at any time by mutual agreement of the Parties in writing.

10.3 This SMA may be terminated at any time at the discretion of either Party upon one year's advance notification in writing by the Party seeking to terminate the SMA. Such termination shall be without prejudice to the rights which may have accrued under this SMA to either Party up to the date of such termination.

10.4 In the event of termination of this SMA, Articles 6, 7 and 8 of the LMFBR Agreement incorporated by reference into this SMA shall survive its termination.

FOR THE UNITED STATES
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DATE .August.27..1982.....

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