

IMPLEMENTING ARRANGEMENT #2

BETWEEN THE

DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA

AND

HER MAJESTY THE QUEEN IN RIGHT OF CANADA

AS REPRESENTED BY

THE MINISTER OF ENERGY, MINES AND RESOURCES OF CANADA

IN THE AREA OF

NATURAL GAS HYDRATES RESEARCH AND DEVELOPMENT

WHEREAS, the United States Department of Energy (DOE) and the Minister of Energy, Mines and Resources of Canada (MEMR) (hereinafter referred to as the "Parties") desire to cooperate in the field of energy research and development;

WHEREAS, in the furtherance of their mutual interest, DOE and MEMR entered into a Memorandum of Understanding in the field of Energy Research and Development signed on December 4, 1986 (hereinafter referred to as the Energy R&D MOU;

WHEREAS, DOE and MEMR have a mutual interest in joint planning and exchange of information and personnel in the field of natural gas hydrates research and development;

It is agreed as follows:

Article 1. Objective

The objective of this Implementing Arrangement is to establish a framework for collaboration between the Parties in research and development in the field of natural gas hydrates.

Article 2. Areas of Cooperation

The areas of mutual interest between the Parties are set forth below. The Parties recognize that the level of and areas of collaboration will be, however, in keeping with the specific interests and capabilities of each Party to this Implementing Arrangement.

1. To study the hazards and problems created by the presence and/or formation of gas hydrates during exploration and production drilling for gas and oil and to develop the technology to overcome these hazards and problems.
2. To discover the extent and nature of the natural gas hydrate resource and develop methods to extract it as a useful gas supply.
3. To study, analyze, and evaluate the geologic controls and environments of hydrate formation and the possible role of hydrates in the modification of other resources; for example, the process of denuding (gas removal) oil reservoirs by the formation of hydrates and determining the impact of this phenomenon on the oil reservoir.
4. To study the probability of a gas trap created by the formation of gas hydrates; to evaluate the potential of producing the "free" gas trapped by the overlying gas hydrates and to develop the technology required to produce the "free" gas.

### Article 3. Forms of Collaboration

Collaboration in accordance with this Implementing Arrangement shall include the following Tasks:

#### Task 1 - Technical Workshops/Program Reviews

Periodic technical workshops and or program reviews shall be held alternatively in Canada and the U.S. to enhance research contacts and information transfer.

#### Task 2 - Annual Program/Co-Project Officers Meeting

An annual meeting of Co-Project Officers shall be held to discuss research priorities and new initiatives, and to improve cost-effectiveness and reduce unnecessary duplication of effort between the two parties.

#### Task 3 - Exchange of Samples/Personnel

For specific research investigations, the Parties shall participate in the exchange of natural gas hydrate samples between laboratories. In addition, the Parties may exchange researchers involved in laboratory determination of hydrate properties.

Task 4 - Preparation of Hydrate Maps/Reports

The Parties shall jointly prepare maps and reports delineating hydrate occurrences through North America and adjacent ocean areas for publication.

Task 5 - Development and Testing of Tools

The Parties shall cooperate in the planning of joint field projects to develop and test state-of-art equipment, and to gain a better understanding of the geological environment of gas hydrate occurrences.

Task 6 - Geological Surveys

The Parties shall participate in the planning of joint geological, geochemical, and geophysical surveys in both onshore and offshore environments.

Task 7 - Assessment of Environmental Hazards

The Parties shall conduct a joint assessment of the environmental hazards caused by the presence of natural gas hydrates and identify mitigative technologies that can be proposed.

Task 8 - International Conference

The Parties shall organize and participate in the first international conference on gas hydrates to be held in 1988 or 1989.

Other Tasks may be added upon mutual written agreement of the Parties.

Article 4. Management

1. To supervise the execution of the Arrangement a Joint DOE/MEMR Coordinating Committee (JCC) for Natural Gas Hydrates R&D shall be established. The JCC shall consist of up to three representatives from each Party, the members of which shall be appointed by each Party, and shall meet at agreed times and places. The Head of Delegation of the receiving Party shall act as Chairman during meetings of the JCC. The JCC shall coordinate its activities with the Lead Coordinators designated under Article 5 of the Energy R&D MOU.
2. At its meetings, the JCC shall evaluate the status of cooperation under this Arrangement. This evaluation shall include an assessment of the balance of exchanges in the various areas of cooperation listed in Article 2 and, if necessary, a consideration of measures required to correct any imbalance.

3. The Parties shall select a Co-Project Officer for each of the Tasks under Article 3 above. It shall be the responsibility of the Co-Project Officers to handle the day to day activities associated with the implementation of their respective Tasks. The Co-Project Officers shall coordinate their activities with the JCC.

#### Article 5. Exchange of Personnel

Paragraph 3 of Implementing Arrangement #1 is hereby incorporated by reference.

#### Article 6. Intellectual Property Rights

Paragraphs 4. "Exchange of Information", 5. "Patents", and 6. "Copyrights" under Implementing Arrangement #1 are hereby incorporated by reference with the following paragraph to be substituted:

Paragraph 4.B.1.ii) of Implementing Arrangement #1 shall be changed in this Implementing Arrangement #2 to read as follows:

"The term "proprietary information" means information developed prior to or outside this Implementing Arrangement which contains trade secrets or technical 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".

Article 7. General Provisions

1. Articles 7 and 8 of the Energy R&D MOU are hereby incorporated by reference.
2. Implementing Arrangement #1, and the Energy R&D MOU are hereby attached to this Implementing Arrangement #2 as reference documents.

Article 8. Effective Date: Termination

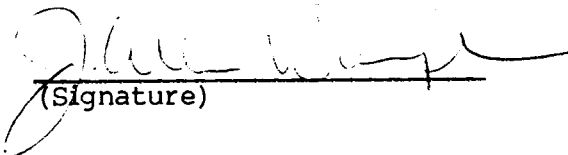
1. This implementing Arrangement becomes effective upon the latter date of signature and shall remain in force for ten (10) years. This Implementing Arrangement may be amended or extended by mutual written agreement.

This Implementing Arrangement may be terminated at any time by either Party upon six (6) months written prior notice to the other Party.

2. This Implementing Arrangement creates legally binding obligations between the Parties.

Done in duplicate

FOR THE DEPARTMENT OF ENERGY  
OF THE UNITED STATES OF  
AMERICA

  
(Signature)

J. Allen Wampler  
(Printed Name)

Assistant Secretary  
Fossil Energy  
(Title)

February 16, 1988  
(Date)

FOR THE MINISTER OF ENERGY,  
MINES AND RESOURCES OF  
CANADA

  
(Signature)

R.A. Price  
(Printed Name)

Assistant Deputy Minister  
Geological Survey of Canada Sector  
(Title)

December 11, 1987  
(Date)