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INTERNATIONAL ENERGY AGENCY	
IMPLEMENTING AGREEMENT	
FOR A PROGRAMME OF RESEARCH,	
DEVELOPMENT AND DEMONSTRATION	
ON ENHANCED RECOVERY OF OIL	

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INTERNATIONAL ENERGY AGENCY

IMPLEMENTING AGREEMENT FOR A PROGRAMME OF RESEARCH, DEVELOPMENT AND DEMONSTRATION ON ENHANCED RECOVERY OF OIL

The Contracting Parties

Considering that the Contracting Parties, being either governments of International Energy Agency ("Agency") countries, governments of other countries invited by the Governing Board of the Agency to be Contracting Parties, international organizations or parties designated by their respective governments, wish to take part in the establishment and operation of a Programme of Research, Development and Demonstration on Enhanced Recovery of Oil (the "Programme") as provided in this Agreement;

Considering that the Contracting Parties which are governments of Agency Countries and the governments of Agency Countries which have designated Contracting Parties (referred to collectively as the "Governments") have agreed in Article 41 of the Agreement on an International Energy Program (the "I.E.P. Agreement") to undertake national programmes in the areas set out in Article 42 of the I.E.P. Agreement, including energy research and development, and have referred in Chapter IV of the Long-Term Cooperation Programme, adopted by the Governing Board on 30th January, 1976, to the establishment of programmes in new energy research and development areas and that the enhanced recovery of oil would aid the Agency Participating Countries in meeting their energy objectives;

Considering that in the Governing Board of the Agency on 30th March, 1979, the governments approved the Programme as a special activity under Article 65 of the I.E.P. Agreement;

Considering that the Agency has recognized the establishment of the Programme as an important component of international co-operation in the field of energy research and development;

HAVE AGREED as follows:

OBJECTIVES

- (a) Scope of Activity. The Programme to be carried out by the Contracting Parties within the framework of this Agreement shall consist of co-operative research, development, demonstrations and exchanges of information regarding enhanced recovery of oil.
- (b) Method of Implementation. Each Contracting Party shall implement the Programme by undertaking one or more Tasks as provided in the attached Annex.
- (c) Task Co-ordination and Co-operation. The Contracting Parties shall co-operate in co-ordinating the work of the various Tasks in the attached Annex and in advancing the research and development activities of all Contracting Parties in the field of enhanced recovery of oil.
- (d) Additional Tasks. Additional Tasks may be joined to the Programme by amendment of the attached Annex to this Agreement as provided in Article 10 (c) hereto.

Article 2

THE EXECUTIVE COMMITTEE

- (a) Supervisory Control. Control of the Programme shall be vested in the Executive Committee constituted under this Article.
- (b) Membership. The Executive Committee shall consist of one member designated by each Contracting Party; each Contracting Party shall also designate an alternate member to serve on the Executive Committee in the event that its designated member is unable to do so.
- (c) Responsibilities. The Executive Committee shall:
 - (1) Adopt for each year, acting by unanimity, the Programme of Work for the Tasks of the attached Annex, together with an indicative programme of work for the following two years; the Executive Committee may, as required, make adjustments within the framework of the Programme of Work:
 - (2) Make such rules and regulations as may be required for the sound management of the Tasks;
 - (3) Carry out the other functions conferred upon it by this Agreement and the Annex hereto; and

- (4) Consider any matters submitted to it by the Operating Agent or by any Contracting Party.
- (d) Procedure. The Executive Committee shall carry out its responsibilities in accordance with the following procedures:
 - (1) The Executive Committee shall each year elect a Chairman and one or more Vice-Chairmen;
 - (2) The Executive Committee may establish such subsidiary bodies and rules of procedure as are required for its proper functioning. A representative of the Agency may attend meetings of the Executive Committee and its subsidiary bodies in an advisory capacity;
 - (3) The Executive Committee shall meet in regular session twice each year; a special meeting shall be convened upon the request of any Contracting Party which can demonstrate the need therefor;
 - (4) Meetings of the Executive Committee shall be held at such time and in such office or offices as may be designated by the Committee;
 - (5) At least twenty-eight days before each meeting of the Executive Committee, notice of the time, place and purpose of the meeting shall be given to each Contracting Party and to other persons or entities entitled to attend the meeting; notice need not be given to any person or entity otherwise entitled thereto if notice is waived before or after the meeting;
 - (6) The quorum for the transaction of business in meetings of the Executive Committee shall be one-half of the members plus one (less any resulting fraction).

(e) Voting.

- (1) Where this Agreement requires the Executive Committee to act by unanimity, this shall require the agreement of each member or alternate member present and voting at the meeting at which the decision is taken. The Executive Committee shall adopt decisions and recommendations, for which no express voting provision is made in this Agreement, by majority vote of the members or alternate members present and voting;
- (2) With the agreement of each Contracting Party a decision or recommendation may be made by telex or cable without the necessity for calling a meeting. The Chairman of the Executive Committee shall have the responsibility of ensuring that all Contracting Parties are informed of each decision or recommendation made pursuant to this paragraph.
- (f) Reports. The Executive Committee shall, at least annually, provide the Agency with periodic reports on the progress of the Programme.

THE OPERATING AGENT

- (a) Designation. United States Department of Energy.
- (b) Scope of Authority to Act on Behalf of Contracting Parties. Subject to the provisions of Article 6 hereof, the Operating Agent shall perform all legals acts required to carry out its functions as defined in the Annex hereto.
- (c) Replacement. A Contracting Party may, with the consent of the Executive Committee, acting by unanimity, designate another entity as Operating Agent in place of the Contracting Party or other Operating Agent designated by it. The adoption of any consequential amendments to this Agreement and the Annex hereto as well as the arrangements for transfer of the Operating Agent's responsibilities shall require a decision of the Executive Committee, acting by unanimity.
- (d) Resignation. The Operating Agent shall have the right to resign at any time, by giving six months written notice to that effect to the Executive Committee, provided that:
 - (1) A Contracting Party, or entity designated by a Contracting Party, is at such time willing to assume the duties and obligations of the Operating Agent and so notifies the Executive Committee and the other Contracting Parties to that effect, in writing, not less than three months in advance of the effective date of such resignation; and
 - (2) Such Contracting Party or entity is approved by the Executive Committee, acting by unanimity.

Article 4

ADMINISTRATION AND STAFF

- (a) Administration of Tasks. The Operating Agent shall be responsible to the Executive Committee for implementing its responsibilities in accordance with this Agreement, the Annex hereto and the decisions of the Executive Committee.
- (b) Information and Reports. The Operating Agent shall furnish to the Executive Committee such information concerning the Annex hereto as the Committee may request and shall each year submit, not later than two months after the end of the financial year. a report on the status of the Annex hereto.
- (c) Staff. It shall be the responsibility of the Operating Agent to retain such staff as may be required to carry out its responsibilities in accordance with rules determined by the Executive Committee. The Operating Agent may also, as required, utilize the

services of personnel employed by other Contracting Parties (or organizations or other entities designated by Contracting Parties) and made available to the Operating Agent by secondment or otherwise, subject to arrangements to be agreed between the Operating Agent and the employer of such personnel.

Article 5

FINANCE

- (a) Each Contracting Party will individually bear all costs associated with the execution of its activities as provided in this Agreement and the Annex hereto, including:
 - (1) The costs of carrying out the research and development activities undertaken by it in the various Tasks;
 - (2) The costs of formulating or transmitting reports and of reimbursing its employees for travel and other per diem expenses incurred in connection with its work on the Tasks.
- (b) The costs of workshops and meetings of experts will be borne by the Host Country.
- (c) The level of effort in man-years for each Contracting Party will be as shown in paragraph 7 of the Annex.

Article 6

INFORMATION AND INTELLECTUAL PROPERTY

- (a) Executive Committee's Powers. The publication, distribution, handling, protection and ownership of information and intellectual property arising from activities conducted under this Agreement shall be determined by the Executive Committee, acting by unanimity, in conformity with this Agreement.
- (b) Right to Publish. Subject only to patents and copyright restrictions of this Agreement, the Contracting Parties shall have the right to publish all information arising from the Programme except proprietary information, but they shall not publish it with a view to profit except as agreed by the Executive Committee, acting by unanimity.
- (c) Proprietary Information. The Contracting Parties shall take all necessary measures in accordance with this Article, the laws of their respective countries and international law to protect proprietary information. For the purposes of this Agreement, proprietary information shall mean information of a confidential nature such as trade secrets and know-how (for example, computer programmes, design procedures and

techniques, chemical composition of materials, or manufacturing methods, processes, or treatments) which is appropriately marked, provided such information:

- (1) Is not generally known or publicly available from other sources;
- (2) Has not previously been made available by the owner to others without obligation concerning its confidentiality; and
- (3) Is not already in the possession of the recipient Contracting Parties without obligation concerning its confidentiality.

It shall be the responsibility of each Contracting Party supplying proprietary information to identify the information as such and to ensure that it is appropriately marked.

- (d) Production of Relevant Information. The Operating Agent should encourage the governments of all Agency Participating Countries to make available or to identify to the Operating Agent all published or otherwise freely available information known to them that is relevant to the Tasks in the attached Annex. The Contracting Parties should notify the Operating Agent of all pre-existing information, and information developed independently of the Tasks known to them which is relevant to the Tasks and which can be made available to the Tasks without contractual or legal limitations.
- (e) Reports on Programme Work. Reports containing arising information and pre-existing information necessary for and used in each Task, including proprietary information, shall be provided to each Contracting Party by the Contracting Party performing the Task. It shall be the responsibility of each Contracting Party to identify information which qualifies as proprietary information under this Article and ensure that it is appropriately marked. The Operating Agent shall provide summary reports of work performed under the Annex hereto and the results thereof (arising information), excluding proprietary information, to the Executive Committee.
- (f) Licensing of Proprietary Information. Each Contracting Party agrees to license all arising proprietary information to the Contracting Parties, their governments, and the nationals of their respective countries designated by them:
 - (1) Royalty-free for use in their country only; and
 - (2) On reasonable terms and conditions for use in all other countries.

Each Contracting Party agrees to license all such arising proprietary information to all Agency Participating Countries on reasonable terms and conditions for use in their own country in order to meet their energy needs.

(g) Licensing of Patents Needed for Task. Patents solely owned or controlled by a Contracting Party which are needed for use in each Task shall be licensed to the Task Contracting Party for use in the Task only at no cost to such Contracting Party. If such patents are partially owned or controlled by a Contracting Party, then efforts shall be made by the Contracting Party to reduce or eliminate as possible the benefit that might accrue to it.

- (h) Arising Inventions. Inventions made or conceived in the course of or under any Task (arising inventions) shall be owned in all countries by the inventing Contracting Party. Information regarding inventions on which patent protection is to be obtained by the Contracting Party shall not be published or publicly disclosed by the other Contracting Parties until a patent application has been filed, provided, however, that this restriction on publication or disclosure shall not extend beyond six months from the date of receipt of such information. It shall be the responsibility of the inventing Contracting Party to appropriately mark reports which disclose inventions that have not been appropriately protected by the filing of a patent application.
- (i) Licensing of Inventions. Each Contracting Party agrees to license all arising inventions to the Contracting Parties, their governments and the nationals of their respective countries designated by them:
 - (1) Royalty-free for use in their country only; and
 - (2) On reasonable terms and conditions for use in all other countries.

Each Contracting Party agrees to license all such arising inventions to all Agency Participating Countries on reasonable terms and conditions for use in their own country in order to meet their energy needs.

- (j) Copyright. The Operating Agent or each Contracting Party for its own Task results may take appropriate measures necessary to protect copyrightable material generated under any Task. Copyrights obtained shall be the property of that Contracting Party or the Operating Agent for the benefit of the Contracting Parties, provided, however, that Contracting Parties may reproduce and distribute such material, but shall not publish it with a view to profit.
- (k) Inventors and Authors. Each Contracting Party shall, without prejudice to any rights of inventors or authors under its national laws, take all necessary steps to provide the co-operation from its authors and inventors required to carry out the provisions of this Article. Each Contracting Party will assume the responsibility to pay awards or compensation required to be paid to its employees according to the laws of its country.
- (1) Determination of "National". The Contracting Parties may establish guidelines to determine what constitutes a "national" of a Contracting Party.

Article 7

LEGAL RESPONSIBILITY

No Contracting Party shall be liable to compensate or contribute to any other Contracting Party for any loss or damage suffered in the course of carrying out the Programme.

LEGISLATIVE PROVISIONS

- (a) Accomplishment of Formalities. Each Contracting Party shall request the appropriate authorities of its country (or its Member States in the case of an international organization) to use their best endeavours, within the framework of applicable legislation, to facilitate the accomplishment of formalities involved in the movement of persons, the importation of materials and equipment and the transfer of currency which shall be required to operate the Programme.
- (b) Applicable Laws. In carrying out this Agreement and its Annex, the Contracting Parties shall be subject to the appropriation of funds by the appropriate governmental authority, where necessary, and to the constitution, laws and regulations applicable to the respective Contracting Parties, including, but not limited to, laws establishing prohibitions upon the payment of commissions, percentages, brokerage or contingent fees to persons retained to solicit governmental contracts and upon any share of such contracts accruing to governmental officials.
- (c) Decisions of Agency Governing Board. The Contracting Parties shall take account, as appropriate, of the Guiding Principles for Co-operation in the Field of Energy Research and Development, and any modification thereof, as well as other decisions of the Governing Board of the Agency in that field. The termination of the Guiding Principles shall not affect this Agreement, which shall remain in force in accordance with the terms hereof.
- (d) Settlement of Disputes. Any dispute among the Contracting Parties concerning the interpretation or the application of this Agreement which is not settled by negotiation or other agreed mode of settlement shall be referred to a tribunal of three arbitrators to be chosen by the Contracting Parties concerned who shall also choose the Chairman of the tribunal. Should the Contracting Parties concerned fail to agree upon the composition of the tribunal or the selection of its Chairman, the President of the International Court of Justice shall, at the request of any of the Contracting Parties concerned, exercise those responsibilities. The tribunal shall decide any such dispute by reference to the terms of this Agreement and any applicable laws and regulations, and its decision on a question of fact shall be final and binding on the Contracting Parties concerned. An Operating Agent which is not a Contracting Party shall be regarded as a Contracting Party for the purpose of this paragraph.

Article 9

ADMISSION AND WITHDRAWAL OF CONTRACTING PARTIES

(a) Admission of New Contracting Parties: Agency Countries. Upon the invitation of the Executive Committee, acting by unanimity, admission to the Agreement shall be open to the government of any Agency Participating Country (or a national

agency, public organization, private corporation, company or other entity designated by such government), which signs or accedes to this Agreement, accepts the rights and obligations of a Contracting Party and agrees to carry out work under at least one Task defined in the Annex hereto. Such admission of a Contracting Party shall become effective upon the signature of this Agreement by the new Contracting Party or its accession thereto and the adoption of any consequential amendments thereto.

- (b) Admission of New Contracting Parties: Other OECD Countries. The government of any Member of the Organisation for Economic Co-operation and Development which does not participate in the Agency may, on the proposal of the Executive Committee, acting by unanimity, be invited by the Governing Board of the Agency to become a Contracting Party to this Agreement (or to designate a national agency, public organization, private corporation, company, or other entity to do so), under the conditions stated in paragraph (a) above.
- (c) Participation by the European Communities. The European Communities may participate in this Agreement in accordance with arrangements to be made by the Executive Committee, acting by unanimity.
- (d) Contributions. The Executive Committee may require, as a condition to admission to participation, that the new Contracting Party accept obligations which are designed to compensate the Contracting Parties as appropriate for their prior contributions to the Programme.
- (e) Replacement of Contracting Parties. With the agreement of the Executive Committee, acting by unanimity, and upon the request of a government, a Contracting Party designated by that government may be replaced by another party. In the event of such replacement, the replacement party shall assume the rights and obligations of a Contracting Party as provided in paragraph (a) above and in accordance with the procedure provided therein.
- (f) Withdrawal. Any Contracting Party may withdraw from this Agreement either with the agreement of the Executive Committee, acting by unanimity, or by giving twelve months written Notice of Withdrawal to the Executive Director of the Agency, such Notice to be given not less than two years after the date hereof. The withdrawal of a Contracting Party under this paragraph shall not affect the rights and obligations of the other Contracting Parties.
- (g) Change of Status of Contracting Party. A Contracting Party other than a government or an international organization shall forthwith notify the Executive Committee of any significant change in its status or ownership, or of its becoming bankrupt or entering into liquidation. The Executive Committee shall determine whether any such change in status of a Contracting Party significantly affects the interests of the other Contracting Parties; if the Executive Committee so determines, then, unless the Executive Committee, acting upon the unanimous decision of the other Contracting Parties, otherwise agrees:
 - (1) That Contracting Party shall be deemed to have withdrawn from the Agreement under paragraph (f) above on a date to be fixed by the Executive Committee; and

- (2) The Executive Committee shall invite the government which designated that Contracting Party to designate, within a period of three months of the withdrawal of that Contracting Party, a different entity to become a Contracting Party; if approved by the Executive Committee, acting by unanimity, such entity shall become a Contracting Party with effect from the date on which it signs or accedes to this Agreement.
- (h) Failure to Fulfil Contractual Obligations. Any Contracting Party which fails to fulfil its obligations under this Agreement within sixty days after its receipt of notice specifying the nature of such failure and invoking this paragraph, may be deemed by the Executive Committee, acting by unanimity, to have withdrawn from this Agreement.

FINAL PROVISIONS

- (a) Term of Agreement. This Agreement shall remain in force for an initial period of two years from the date hereof, and shall continue in force thereafter unless and until the Executive Committee, acting by unanimity, decides on its termination.
- (b) Legal Relationship of Contracting Parties. Nothing in this Agreement shall be regarded as constituting a partnership between any of the Contracting Parties.
- (c) Amendment. This Agreement and the Annex hereto may be amended at any time by the Executive Committee, acting by unanimity. Such amendments shall come into force in a manner determined by the Executive Committee, acting by unanimity.
- (d) Deposit. The original of this Agreement shall be deposited with the Executive Director of the Agency and a certified copy thereof shall be furnished to each Contracting Party. A copy of this Agreement shall be furnished to each Agency Participating Country, to each Member country of the Organisation for Economic Co-operation and Development and to the European Communities.

Done in Paris, this 22nd day of May, 1979.

For the ÖMV AKTIENGESELLSCHAFT (designated by the Republic of Austria):

For the Department of Energy, Mines and Resources:

For the Minister of Energy, Mines and Resources on behalf of Her Majesty the Queen in Right of Canada

For the Kernforschungsanlage Jülich GmbH (designated by the Government of Germany):

For the Japan National Oil Corporation for and on behalf of the Government of Japan:

For the ROYAL MINISTRY OF PETROLEUM AND ENERGY for and on behalf of the Government of Norway:

For the Department of Energy for and on behalf of the Government of the United States of America:

ANNEX

CO-OPERATIVE STUDIES AND PRELIMINARY EXPERIMENTS ON TECHNIQUES FOR ENHANCED OIL RECOVERY

1. Background and Objectives

At present, the world-wide recoverable reserves of oil are, on an average, about 30% of the actual deposits of oil in place in these deposits, although this proportion varies somewhat according to location. Thus, any technological means which can be employed to enhance the rate of oil recovery economically will increase the total oil available.

The objectives of this co-operative research are, therefore, to carry out fundamental studies, laboratory experiments and field tests on various techniques for enhanced recovery of oil, with a view to applying the techniques developed to new and existing oil reservoirs, consistent with economic and environmental considerations.

2. Means

The Contracting Parties will undertake a co-ordinated Programme involving the sharing of Tasks as described in paragraph 3 below.

3. Responsibilities of the Contracting Parties

Task A: Development of Techniques for Measurement of Residual Oil Saturation on a Spatial Basis

- (a) The Contracting Parties participating in this Task are: Austria, Norway and the United States.
- (b) The Austrian Contracting Party will cut cores and test various logging techniques in an existing well.
- (c) The Norwegian Contracting Party will construct apparatus and perform laboratory water flooding on North Sea consolidated sandstones. Measurements will be conducted under reservoir conditions to determine residual oil saturation.
- (d) The United States Contracting Party will run a complete set of residual oil saturation determinations on a water-flooded consolidated sandstone reservoir.

Task B: Fundamental Research on Surfactants and Polymers

(a) The Contracting Parties participating in this Task are: Austria, Canada, Germany and the United States.

- (b) The Austrian Contracting Party will test chemicals attractive for enhanced oil recovery, initially in core samples.
- (c) The Canadian Contracting Party will conduct laboratory investigations on absorption characteristics related to the phase behaviour of surfactant/brine/oil systems and will also contribute studies of long-term polymer stability, polymer solution properties and the potential for use of polymers to recover oil from heterogenous media.
- (d) The German Contracting Party will conduct laboratory investigations to contribute to the determination of critical displacement ratios in oil reservoirs.
- (e) The United States Contracting Party will contribute research results from on-going laboratory investigations into various concepts of surfactant and polymer flooding.

Task C: Development of Techniques for Miscible Flooding

- (a) The Contracting Parties participating in this Task are: Canada, Germany, Japan, Norway and the United States.
- (b) The Canadian Contracting Party will conduct laboratory investigations of mixtures of CO₂/CH₄; CO₂/N₂; and CO₂/SO₂ for their applicability as improved secondary and tertiary recovery agents for both miscible and immiscible flooding. The investigations will be carried out with crude oil in consolidated and unconsolidated sandstones.
- (c) The German Contracting Party will contribute research results from ongoing work of an engineering study of CO₂ availability of natural and industrial sources within the Federal Republic of Germany, taking into account separation and transportation problems and economic considerations.
- (d) The Japanese Contracting Party will perform laboratory experiments on phase behaviour studies of CO₂/Hydrocarbon systems. In addition, engineering investigations of CO₂ availability of industrial sources in Japan will be conducted in relation to CO₂ gas compositions.
- (e) The Norwegian Contracting Party will conduct studies of gas miscible displacement on North Sea reservoirs, including laboratory research, modelling and economic evaluation.
- (f) The United States Contracting Party will contribute research results from on-going work on CO₂ flooding technology. In addition, the results from a study on CO₂ supply will be made available.

4. Results

The results of this Programme will be a report, as set forth in Paragraph 5 (b), on laboratory and field experiments, the experience and findings from which can be applied to improve knowledge of oil in place after primary extraction is completed, and to develop new materials and methods needed to achieve improved yields.

5. Specific Responsibilities of the Operating Agent

Overall co-ordination of work among the three Tasks will be assured by the Operating Agent. In addition, the Operating Agent shall:

- (a) Report the progress of work under each Task to the Executive Committee at least semi-annually;
- (b) Integrate all Programme results into a final report and distribute such report and supporting documentation to the Executive Committee within three months after the completion of the Programme of Work covered by the Annex.

6. Funding

The level of effort in man-years for each Contracting Party is expected to be:

Contracting Party	Man-Years				
	Task A	Task B	Task C	Totals	
Austria	12	4		16	
Canada		4	4	8	
Germany		8	2	10	
Japan			6	6	
Norway	 1-2		1	2-3	
United States	16	10	10	36	
Total Man-Years	29-30	26	23	78-79	