

IV

IMPLEMENTING AGREEMENT  
BETWEEN  
THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA  
AND  
THE MINISTRY OF ENERGY AND MINES OF THE REPUBLIC OF VENEZUELA  
IN THE AREA OF  
ENHANCED OIL RECOVERY THERMAL PROCESSES

WHEREAS, the United States Department of Energy (hereinafter referred to as DOE) and the Ministry of Energy and Mines of Venezuela (hereinafter referred to as MEMV) desire to cooperate in the field of energy research and development;

WHEREAS, in furtherance of their mutual interest DOE and MEMV entered into the Agreement in the field of Energy Research and Development signed March 6, 1980 (hereinafter referred to as the Energy R&D Agreement);

WHEREAS, DOE and MEMV have a mutual interest in the development of injection string thermal protection systems, instrumentation and control, and deep reservoir steam injection technology;

WHEREAS, DOE and MEMV have a mutual interest in improving their ability to deliver high quality steam at depth;

WHEREAS, the performance of the injection string thermal protection system is a critical factor in maintaining steam quality from the steam generator to the reservoir; MEMV has operating experience with injection string insulation and other components to depths of four thousand (4,000) feet; DOE is presently evaluating commercially available and advanced insulation systems together with thermal packers; and DOE and MEMV have a mutual interest in establishing a common base of information on thermal protection system performance as well as comparative performance evaluation;

WHEREAS, DOE and MEMV have a mutual interest in determining the steam conditions at the point of injection, in developing reliable and accurate methods to measure steam quality in the field, and in studying the effect of condensate on flow measurements, gauging and net oil measurements; and

WHEREAS, DOE and MEMV have a mutual interest in extending the economic use of steam drive technology to deeper reservoirs, and in developing downhole steam generators, together with other advanced steam injector techniques;

IT IS AGREED AS FOLLOWS:

## ARTICLE 1

In accordance with Article V of the Energy R&D Agreement, the Venezuelan representatives of the Steering Committee have designated INTEVEP, S.A. to act on behalf of MEMV under this Implementing Agreement. INTEVEP and DOE shall be hereinafter referred to as the Parties to this Implementing Agreement. The Assistant Secretary of Fossil Energy of DOE or his designee shall be primarily responsible for the programmatic aspects of this Implementing Agreement for DOE. Each Party shall designate one Project Manager for this Implementing Agreement; these Project Managers shall provide technical management and coordination of the tasks described below.

## ARTICLE 2

The Parties shall cooperate in tasks in the area of enhanced oil recovery thermal processes as set forth below:

### A. Thermal Protection System

Task 1 - DOE shall provide INTEVEP with detailed performance data on insulation, packers and other components of thermal protection systems which have been tested at DOE's laboratories by its contractors, Sandia Incorporated, as part of the DOE "Project Deep Steam."

Task 2 - INTEVEP shall provide DOE with field operational data on material characteristics, and performance data on components of thermal protection systems currently being employed or being developed for thermal enhanced oil recovery applications by INTEVEP. This shall include, but not be limited to, injection string insulation and thermal packers.

Task 3 - The Project Managers shall develop a plan for testing and evaluating available components of thermal protection systems. The plan shall establish costs, priorities, and schedules and shall specify test locations. In addition, the plan shall provide for preparation of a report of the results. The Project Managers shall arrange for such tests to be conducted by DOE and INTEVEP in accordance with the plan and shall provide progress reports to the Joint Steering Committee.

B. Instrumentation and Control

Task 4 - Within six (6) months after this Implementing Agreement enters into force, the Project Managers shall jointly prepare a report describing the requirements for improvements in measuring steam quality and other diagnostic instrumentation desirable for the support of steam quality measurements. The report shall include a state-of-the-art summary, a list of requirements by priority, and appendices outlining programs to address each of these requirements. The report shall address the problems of measuring steam quality at both surface and sub-surface locations.

C. Deep Reservoir Steam Injection Technology

Task 5 - The Project Managers shall conduct an economic systems analysis that compares down-hole steam generation against base cases for selected reservoirs in the United States and Venezuela.

Task 6 - Using the results of Task 5, the Project Managers shall prepare a design of a down-hole steam generator considering a wide range of reservoir and oil characteristics.

Task 7 - The Project Managers shall prepare a feasibility study of a field test in Venezuela and the United States for the down-hole steam generator system. Two specific sites in each country shall be selected for consideration in the study. Design techniques defined in Task 6 shall be used. The conduct of such joint tests shall be the subject of future Implementing Agreements.

ARTICLE 3

All costs attributable to this Implementing Agreement, including but not limited to research, reports, travel, salaries and associated expenses, shall be borne by the Party incurring the expenses. Responsibility and expenses for the transport of components, as set forth in Task 3, from the United States by plane or ship to an authorized port of entry in Venezuela convenient to the ultimate destination and also responsibility for their safekeeping and insurance en route shall rest with DOE.

INTEVEP shall undertake responsibility for safekeeping and insurance en route from the authorized port of entry to the ultimate destination and responsibility for safekeeping and insurance en route as well as return to an authorized port of entry in the United States convenient to the ultimate destination.

Both Parties agree to share equally the costs of joint testing work under Task 3, the report of Task 4, the analysis of Task 5, the design of Task 6 and the study of Task 7, subject to the availability of appropriated funds. If the Parties agree that the joint work under these Tasks shall be undertaken primarily or totally in the country of one Party, the other Party shall transfer to that Party a sum of money necessary to support its equitable share of the work pursuant to transfer procedures which shall have been agreed to in writing prior to the first transfer of funds.

The total cost of Task 3 shall not exceed \$250,000 in United States dollars, the total cost of Task 4 shall not exceed \$100,000 in United States dollars, and the costs of Tasks 5, 6 and 7 taken together shall not exceed \$250,000 in United States dollars over a period of 18 months without the express approval of the Joint Steering Committee.

#### ARTICLE 4

The Parties shall support the widest possible dissemination of information arising from this Implementing Agreement in accordance with Article 2 of the Annex to the Energy R&D Agreement. If a Party has access to proprietary information as defined in Article 2 of the Annex to the Energy R&D Agreement which would be useful to the activities under this Implementing Agreement,

such information shall be accepted for the tasks only on terms and conditions as agreed in writing by the Parties.

#### ARTICLE 5

Rights to any invention or discovery made or conceived in the course of or under this Implementing Agreement shall be distributed as provided in paragraph 1 of Article VI of the Energy R&D Agreement. As to third countries, rights to such inventions shall be decided by the Joint Steering Committee.

Each Party shall take all necessary steps to provide the cooperation from its inventors required to carry out this Article. 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 6

The existing terms and conditions of the Energy R&D Agreement shall continue and remain in full force and effect notwithstanding the terms of this Implementing Agreement. Articles 3, 4, 5, 6, 7, 8 and 9 of the Annex to the Energy R&D Agreement are hereby incorporated by reference.

#### ARTICLE 7

This Implementing Agreement shall enter into force upon the later date of signature and shall remain in force for a period of one and one-half years. It may be amended or extended by mutual written consent of the Parties in accordance with Article V of the Energy R&D Agreement.

ARTICLE 8


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

Done at Washington and Caracas

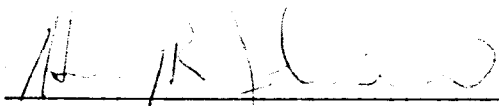
in the English and Spanish languages, each text being equally authentic.

THE JOINT STEERING COMMITTEE

On behalf of DOE

  
Member

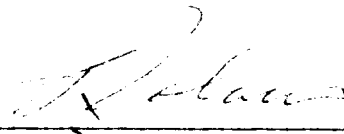
Martin R. Adams  
Member

  
Alternate Member

September 23, 1980

Date

On behalf of MEMV

  
Member

  
Member

  
Member

September 29, 1980

Date