

AGREEMENT

between

THE UNITED STATES DEPARTMENT OF ENERGY

and

THE FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY
OF THE FEDERAL REPUBLIC OF GERMANY

in the field of

REMOTE SYSTEMS TECHNOLOGY

WHEREAS

THE UNITED STATES DEPARTMENT OF ENERGY (DOE) AND THE FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY (BMFT) OF THE FEDERAL REPUBLIC OF GERMANY, hereinafter referred to as the Parties, are both carrying out activities in remote systems technology and their application to hostile environments and, in consideration of the high degree of compatibility between their respective remote systems technology programs in terms of current activities and future interest, DOE and BMFT have a mutual interest in establishing cooperation in the field of remote systems technology;

DOE and BMFT believe that a cooperative program of equitable sharing of their respective research and development data, technology and experience in remote systems technology would be of mutual benefit;

DOE and BMFT recognize the contribution such research and development in remote systems technology can make to safe and economical application of nuclear energy;

DOE and BMFT plan to promote cooperation in certain areas related to remote systems technology by using contractors, subsidiaries or associated industrial firms.

IT IS AGREED AS FOLLOWS:

ARTICLE 1 - OBJECTIVES

- (1) The objective of this Agreement (to be called the Remote Systems Technology Agreement) shall be to establish the

basis for cooperation between the Parties in the field of remote systems technology.

- (2) As a first step, this Agreement provides for an exchange of general information between the Parties regarding the studies and research, development, demonstration and operational activities carried out by each Party in the technical areas listed below in Article 2. Each Party shall provide sufficient information to enable the other Party to evaluate and assess the level and scope of knowledge acquired by the other in the technical areas listed in Article 2, so that the Parties are able to identify specific areas or topics which may lead to further and more extensive forms of cooperation in remote systems technology.
- (3) Such exchange of information shall be governed by the provisions of Article 6 of this Agreement.
- (4) Cooperation between and promoted by the Parties shall be on the basis of mutual benefit, equality and reciprocity.

ARTICLE 2 - AREAS OF COOPERATION

- (1) At the time of signing this Agreement, the following areas of cooperation have been identified:
 - a) Remote Connector Evaluations
 - b) Low-Flow Ventilation System, Off-Gas Technology
 - c) Robotic Process Samplers
 - d) Advanced Servomanipulator Hardware
 - e) Other Remote Technology as mutually agreed.

Detailed descriptions of these areas of cooperation under this Agreement are given in the Appendix.

- (2) The above list of areas of cooperation may be modified by mutual written consent of the Parties.

ARTICLE 3 - CONTENT AND FORMS OF COOPERATION

Cooperation under this Agreement may include:

- (1) Exchange of general and specific scientific and engineering information and research and development results and methods in remote systems technology by means of:
 - (a) Exchange on a current basis of periodic, topical, and letter reports;
 - (b) Organization of, and participation in, seminars or other meetings on specific agreed topics in remote systems technology, within the areas of cooperation of Article 2;
 - (c) Short visits by specialist teams or individuals to the experimental and operational remote systems technology facilities of the other Party, subject to the prior written agreement of the receiving Party, and
 - (d) Attachment of the staff of one Party, its contractors or subsidiaries to the remote systems technology facilities of the other Party, its contractors or subsidiaries for participation in agreed research,

development, design, analysis or other experimental activities, and ongoing operations in the field of remote systems technology. Such attachment shall be in accordance with Article 10 of this Agreement.

- (2) Exchange or loan of samples, materials or equipment for testing.
- (3) Joint projects in which the Parties agree to share the work and/or costs.
- (4) Other specific forms of cooperation, in remote systems technology not included.

ARTICLE 4 - IMPLEMENTING AGREEMENTS

- (1) If it is decided to employ a form of cooperation as given in Article 3, paragraph 2, 3 or 4, then an Implementing Agreement between the Parties shall be executed.
- (2) Moreover, if it is contemplated to exchange information that would include detailed design information such as drawings and specifications for full-scale components and industrial equipment and associated operational procedures and experience necessary to provide a working device then either Party may request that an Implementing Agreement between the Parties shall be executed.
- (3) Each Implementing Agreement shall include all detailed provisions for carrying out that activity, and shall cover

such matters as technical scope, total costs, cost-sharing between the Parties, project schedule, management of the cooperation, exchange of equipment, and provisions covering exchange of proprietary information, patents and information disclosure specific to the particular activity. In implementing its activities under Implementing Agreements, a Party may utilize, as appropriate, its associated firms or laboratories or its contractors or subsidiaries.

ARTICLE 5 - MANAGEMENT

- (1) To supervise the execution of this Agreement, each Party shall name a Principal Coordinator. The Principal Coordinators shall normally meet each year alternately in the United States and in the Federal Republic of Germany, or at such other times and places as agreed.
- (2) At their meetings, the Principal Coordinators shall evaluate the status of cooperation under this Agreement. This evaluation may include a review of each Party's remote systems technology program status and plans, a review of the past year's activities and accomplishments under this Agreement, a review of the activities planned for the coming year within each of the various areas of cooperation listed in Article 2, an assessment of the balances of exchanges under this Agreement within each of the areas of cooperation listed in Article 2, and a consideration of measures required to correct any imbalances. In addition, the Principal Coordinators shall consider new proposals for cooperation in accordance with Articles 2 and 3 and submit such proposals to the Parties for consideration. If such

new proposals are accepted by both Parties, this Agreement shall be amended accordingly. For additional areas of cooperation, the Appendix shall be revised accordingly.

- (3) Day-to-day management of the cooperation under this Agreement, and/or specific areas of cooperation under Implementing Agreements, if necessary, shall be carried out by Technical Coordinators designated by the Principal Coordinators. The Technical Coordinators shall agree on specific details of cooperation in the technical areas listed in Article 2, within policy guidelines established by the respective Principal Coordinators. Each Technical Coordinator shall be responsible for working contacts between the Parties in this respective area of cooperation. Technical Coordinators may, in turn, appoint correspondents for the purpose of day-to-day implementation of the exchange on specific topics or areas.
- (4) At periodic meetings, or by correspondence, as appropriate, Technical Coordinators of each Party shall together review the progress and balance of the Program and where appropriate, make recommendations on any necessary or desirable modifications taking into account information arising from the Agreement or elsewhere. Such recommendations shall be developed by the respective Technical Coordinators and agreed to by both. Technical Coordinators shall prepare reports to the Principal Coordinators for use by the Principal Coordinators at their meetings pursuant to Paragraph (1). The reports shall include a summary of the year's activities and the agreed-to recommendations.

- (5) Implementing Agreements executed pursuant to Article 4 for the performance of cooperative activities shall include appropriate provisions for the management of such activities.

ARTICLE 6 - INFORMATION

- (1) Each Party shall provide to the other Party on a current and timely basis information on its basic research and development activities and results thereof in areas listed in Article 2 and the detailed description thereof in the Appendix. The Parties agree that information provided, exchanged, generated or obtained under this Agreement may be given distribution as each Party chooses, except as noted in paragraphs (4) and (5) and Article 7, and as provided in Implementing Agreements, which means that a Party, its Government or its nationals have a right to freely use, translate, reproduce, publish and distribute such information for any and all purposes without any requirement of compensation whatsoever.
- (2) It is recognized by both Parties that in the process of exchanging information the Parties may provide to each other proprietary information, subject to the provisions of this Article.
- (3) Definitions as used in this Article:
 - a) 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.

- b) For the purpose of this Agreement, "proprietary information" shall mean information which contains trade secrets, or commercial or financial information which is privileged or confidential, and may only include such information which:
 - aa) has been held in confidence by its owner;
 - bb) is of a type which is customarily held in confidence by its owner;
 - cc) 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
 - dd) is not otherwise available to the receiving Party from another source without restriction on its further dissemination

(4) Procedures

- a) A Party receiving proprietary information, as defined in Paragraph (3) b), 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 DEPARTMENT OF ENERGY and the FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY OF THE FEDERAL REPUBLIC OF GERMANY and shall not be disseminated outside these organizations, their contractors, and the concerned departments and agencies of the Governments of the United States and the Federal Republic of Germany without prior approval of _____."

"This notice shall be marked on any reproduction thereof, in whole or in part. These limitations shall automatically terminate with this information is disclosed by the owner without restriction."

- b) Proprietary information, as defined in Paragraph (3) b), received in confidence under this Agreement may be disseminated on a need-to-know basis by the receiving Party to:
 - aa) persons within or employed by the receiving Party, and other concerned Government departments and Government agencies in the country of the receiving Party, and
 - bb) prime or subcontractors of the receiving Party located within the geographical limits of the receiving Party's legal jurisdiction for use only within the framework of their contract with the

receiving Party in work relating to the subject matter of the proprietary information;

provided, that any such 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 Paragraph (4) a), above.

- c) 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 Paragraph (4) b). The Parties shall cooperate with each other in developing procedures for requesting and obtaining approval for such wider dissemination, and each Party shall grant such approval to the extent permitted by its national policies, regulations and laws.
- (5) Each Party shall exercise its best efforts to ensure that proprietary information received by it under this Agreement shall be 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.
- (6) Information arising from seminars and other meetings arranged under this Agreement and attachment of staff 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 and forthwith confirms the notice in writing.

- (7) 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 - PATENTS

- (1) With respect to any invention or discovery made or conceived in the course or under this Agreement:
 - a) If made or conceived by the 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:
 - aa) The Recipient Party shall acquire all right, title, and interest in and to any such invention, discovery, patent application or patent in its own country and in third countries, subject to a non-exclusive, irrevocable, royalty-free license to the Assigning Party, with the right to grant

sublicenses, under any such invention, discovery, patent application, or patent.

- bb) The Assigning Party shall acquire all right, title, and interest in and to any such invention, discovery, patent application, or patent 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, discovery, patent application or patent.
- 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 of a royalty-free, non-exclusive, irrevocable license to the other Party, its Government and its nationals designated by it in all countries.
- c) With regard to other specific forms of cooperation set forth in Article 3, Paragraph (3), (3) or (4), the Parties shall provide for appropriate distribution of rights to inventions or discoveries resulting from such cooperation in each Implementing Agreement between the Parties pursuant to Article 4. In general, however, each Party should normally own the rights to such inventions or discoveries in its own country with

non-exclusive, irrevocable, royalty-free license to the other Party, its Government, and its nationals designated by it, and the rights to such inventions or discoveries in other countries should be agreed by the Parties on an equitable basis.

- (2) Each Party shall assume the responsibility to pay awards or compensation required to be paid to its own nationals according to its own laws.
- (3) It is understood that after the European Patent Conventions (Ubereinkommen uber die Erteilung europaischer Patente, Ubereinkommen uber das europaische Patent fur den Gemeinsamen Markt) have come into force, either Party may request a modification of this Article 7 for the purpose of according equivalent rights as provided in Paragraphs (1) a) and (1) b) above under the European Patent Conventions.

ARTICLE 8 - DISCLAIMER

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.

ARTICLE 9 - LIABILITIES

- (1) The Parties shall use all reasonable skill and care in carrying out their duties under this Agreement in accordance with the laws and regulations of their respective countries.
- (2) Compensation for damages incurred during the course of and under this Agreement shall be in accordance with the applicable laws of the countries of the Parties concerned.
- (3) The sending Party shall not be liable for damages of any nature, either direct or indirect, to property or personnel of the receiving Party or to any third Party resulting from the use by the receiving Party of information provided under this Agreement.

ARTICLE 10 - PERSONNEL ASSIGNMENTS

- (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 agreement between the Parties.
- (3) Each Party shall be responsible for the salaries, insurance and allowances to be paid to its staff.
- (4) Each Party shall pay for the travel and living expenses of its staff while on attachment to the host Party unless otherwise agreed.

- (5) The host establishment shall arrange or do its best to arrange for comparable accommodations for the other Party's staff 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 staff 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 the separate agreement.

ARTICLE 11 - LEGAL PROVISIONS

Each Party's activities under this Agreement shall be in accordance with its national laws and regulations. All questions related to the Agreement shall be settled by the Parties by mutual agreement.

ARTICLE 12 - LAND BERLIN

This Agreement shall also apply to Land Berlin, provided that the Federal Minister for Research and Technology of the Federal Republic of Germany does not make a contrary declaration to the Department of Energy of the United States of America within three months of the date of entry into force of this Agreement.

ARTICLE 13 - FINANCIAL OBLIGATIONS

Except when otherwise specifically agreed in writing, all costs resulting from cooperation under this Agreement shall be borne by

the Party that incurs them. It is understood that the responsibilities of each Party to carry out its obligations under this Agreement are subject to the availability of appropriated funds.

ARTICLE 14 - QUESTIONS ON AREAS OF COOPERATION

Each Party will be prepared to the best of its ability, upon specific request, to advise the other on particular questions involving areas of cooperation under this Agreement.

ARTICLE 15 - DURATION, AMENDMENT AND TERMINATION

- (1) This Agreement shall enter into force upon signature and, subject to Paragraphs (2), (3) and (4), shall continue for a 5-year period.
- (2) This Agreement may be amended or extended by mutual written agreement of the Parties.
- (3) 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.
- (4) All joint efforts and experiments not completed at the expiration or termination of this Agreement may be continued until their completion under the terms of this Agreement.

Done at Washington, D.C., in duplicate, in the English and German languages, each equally authentic, this 24th day of April, 1987.

FOR THE DEPARTMENT OF ENERGY
OF THE UNITED STATES OF
AMERICA

James W. Vaughan, Jr.

FOR THE FEDERAL MINISTER FOR
RESEARCH AND TECHNOLOGY
OF THE REPUBLIC OF GERMANY

Günter Fell.

APPENDIX
TO THE
AGREEMENT BETWEEN THE USDOE AND BMFT
IN THE FIELD OF
REMOTE SYSTEMS TECHNOLOGY

DETAILED TECHNICAL DESCRIPTION OF AREAS OF COOPERATION IN REMOTE
SYSTEMS TECHNOLOGY

Broad areas of technical interest are listed in Article 2 of the Agreement. The general scope of proposed technical exchange activities in these areas is described herein. Both the United States and the Federal Republic of Germany have adopted similar advanced concepts for remote maintenance to be implemented in future fuel cycle plants. These concepts use modularized equipment racks with advanced manipulators to perform the maintenance operations. Because of the similarity of the concepts, much can be gained through such an exchange. To a large extent the exchange will be on ideas and concepts, not detailed designs. However, in some areas such as connectors, exchange of practical operating data and experience with specific hardware will be valuable.

The following areas are considered fruitful for exchange:

I. Remote Connector Evaluation

The concepts employed rely on use of many piping connectors, which should be reliable and leak-free. Both the United States and the Federal Republic of Germany have carried out test programs to evaluate connector parameters in test beds. Exchanging these data and maintaining cognizance of future plans in this area should minimize the amount of testing each must do. All information available and that obtained in the future should be exchanged.

II. Low-Flow Ventilation System, Off-Gas Treatment

Both countries prefer low-flow ventilation systems, employing an inerted gas atmosphere for safety reasons and cost savings. Studies done by each country to examine this concept should be exchanged, and informal discussions to delve into the merits of the concept will be useful. Future work intended to further develop the concept and experimentally verify some of the information should be coordinated. The United States is presently building a low-flow ventilation test facility to examine some of the gas clean-up equipment and test equipment in the simulated chemical environment of the chamber.

Both countries have carried out extensive research and development examining various techniques for retaining and treating the chemical and fission gaseous waste streams from reprocessing advanced fuels.

Both countries have examined fluorocarbon absorption for scrubbing Kr from off-gas, using slightly different conditions. The flowsheet options could be compared and insights gained into the preferred methods.

Iodine retention methods could be compared, and the whole question of interaction of the chemical species in dissolver off-gas with the downstream retention system could be examined.

Exchange could be through informal discussion and reports.

III. Robotic Process Samplers

Two entirely different techniques for obtaining in-cell process samples are under development in the two countries.

The United States has developed a robot vehicle which traverses a track system collecting sample bottles from semi-conventional liquid sampler stations, while the Federal Republic of Germany uses pneumatic tubes to transfer sample bottles from analytical laboratories to special in-cell stations and back. Comparison of technical concepts and operational experiences of these two systems will be of value to both countries.

IV. Advanced Servomanipulator Systems

Both countries have been developing for several years Servomanipulator Systems for hostile environment application. Information about status and progress in developing technical solutions both for hardware and software of such systems and subsystems as:

- Transporter development
- Control systems
- Transmission of signals and power
- Sensors for in-cell inspection tasks

should be exchanged to stimulate progress in the further development of these items.

V. Other Remote Technology

Other items such as

- feature testing of remote maintenance hardware
- specific maintenance tasks
- remote pipe welding

will be reviewed in general periodically and from such, new areas for exchange might be identified.