

PROJECT ANNEX
FOR COOPERATION IN
NEAR-FIELD PERFORMANCE ANALYSES ON THE
LONG-TERM BEHAVIOR OF THE ENGINEERED BARRIERS
UNDER
AGREEMENT BETWEEN THE DEPARTMENT OF ENERGY
OF THE UNITED STATES OF AMERICA
AND
THE POWER REACTOR AND NUCLEAR FUEL DEVELOPMENT
CORPORATION OF JAPAN
IN THE AREA OF RADIOACTIVE WASTE MANAGEMENT

Whereas the Department of Energy of the United States of America (DOE) and the Power Reactor and Nuclear Fuel Development Corporation in Japan (PNC), hereinafter the "Parties," are engaged in an exchange of research and development information and participation in joint research efforts under the terms of an Agreement in the Area of Radioactive Waste Management dated December 3, 1986, as amended and extended November 21, 1996, hereinafter the "Waste Management Agreement ";

Whereas DOE and PNC have a mutual interest in conducting a joint project in the area of near-field performance analyses on the long-term behavior of the engineered barriers;

The Parties hereby agree as follows:

1. The objective of this cooperation under this Project Annex is to further the development of radioactive waste management technologies related to chemical modeling for the near-field environment and long-term mechanical modeling of engineered barrier system. Results from the joint project shall be used in both the United States and Japan.
2. Collaboration under the Project Annex will include the following activities: 1) chemical modeling of engineered system material interactions; 2) thermodynamic database validation and comparison; 3) engineered barrier performance assessment of unsaturated, oxidizing transient; 4) coupled displacement and degradation analysis of a carbon steel overpack embedded in bentonite; and (5) such other activities as the Parties agree to in writing. Analysis and experimental work will complement ongoing performance assessment and experimental work at PNC. Details of the Project Annex will be decided through discussions and deliberations at the DOE/PNC Technical Coordinators' annual meeting.
3. Each Party shall designate one Technical Coordinator and one alternate to supervise the activities under this Project Annex, and each Party shall inform the other Party in writing of such designations. The Technical coordinators shall meet semi-annually or more frequently if required , on dates and at locations mutually agreed upon. Decisions by the Technical Coordinators shall be by unanimity. The activities of the Technical Coordinators shall be under the general oversight of the DOE and PNC principal coordinators under the Waste Management Agreement.

4 DOE shall conduct the research described in paragraph 2 at the Lawrence Livermore National Laboratory (LLNL), in Livermore, California. Annual reports shall be prepared by LLNL. Technology and information developed under this Project Annex will be transferred to DOE and PNC through such means as reports, workshops, and personnel visits, in accordance with Articles VI and VII of the Waste Management Agreement.

5. DOE shall be responsible for the services of Yucca Mountain Project Participants and DOE contractors, the use of laboratories and other appropriate facilities, necessary equipment and supply costs, and ancillary staff services, as required, to support the tasks outlined in the Joint Work Statement attached hereto as Appendix A and made a part hereof. Such U.S. contributions to the Project Annex is estimated at approximately \$2.4 million over a 2-year period. The estimated breakdown by U.S. fiscal year (FY) is as follows:

FY 1998	\$1,200,000
FY 1999	\$1,200,000

6. PNC shall be responsible for the services of necessary PNC personnel, contractor staff and Lawrence Livermore National Laboratory staff to support the tasks outlined in Appendix A. These services shall include the costs of the required manpower over a 2-year period under this Project Annex. The costs for Japan's fiscal year 1998 are \$200,000; the costs for Japan's fiscal year 1999 shall be agreed up in writing by the Parties, subject to the approval of the budget by the Japanese Government.

7. Neither DOE, the U.S. Government, nor persons acting on its behalf guarantee the correctness of any cost estimate for the performance work (either for this Project Annex or individual tasks hereunder) and there shall be no liability on the part of DOE, the U.S. Government, or persons acting on its behalf by reason of errors in the computation of estimates or differences between estimates for the tasks and the actual cost of the work.

8. Prior to the exchange or assignment of staff under this Project Annex, the Parties shall execute a separate agreement as outlined in Article X of the Waste Management Agreement.

9. Both Parties agree that no information or equipment identified as requiring protection for national security reasons (such as that which is classified) by either Party shall be provided under this Project Annex. In the event that such information or equipment shall unintentionally be created or furnished in the course of projects of cooperation under this Project Annex, it shall be protected from unauthorized disclosure under applicable laws, regulations, and administrative practices. Where information or equipment has been inadvertently disclosed to unauthorized recipients, the originating Party shall be informed. Any **difficulties** in providing appropriate protection for sensitive information or equipment shall be the subject of consultations between the Parties.

10. This Project Annex is subject to the terms of the Waste Management Agreement

11. The work to be performed under this Project Annex shall be considered to be "joint research" within the meaning of Article VII.3.B(iii) of the Waste Management Agreement

12. The Parties intend that this Project Annex shall be carried out in a manner consistent with their respective international obligations, national laws and regulations regarding transfers and release of information and equipment subject to export and re-export laws and regulations.

13. Except when otherwise agreed in writing, all costs resulting **from** cooperation under this Project Annex shall be borne by the Party that incurs them. It is understood that the ability of each Party to carry out its obligations under this Project Annex is subject to the availability of appropriated **funds**.

14. This Project Annex shall enter into force upon signature by both Parties and remain in force for 2 years. It may be amended or extended by mutual written agreement (as long as the Waste Management Agreement remains in force), and it may be terminated at any time by either Party upon 6 months advance written notice to the other Party, without prejudice to the rights which may have accrued under this Project Annex to either Party up to the date of such termination. All joint efforts and experiments not completed at the expiration or termination of this Project Annex may be continued, upon mutual written consent, until their completion.

Signed, in duplicate, at Washington, D.C., United States of America, this 9th day of July, 1998, and at Tokyo, Japan, this ~~17th~~ day of July, 1998.

FOR THE DEPARTMENT OF ENERGY
OF THE UNITED STATES OF AMERICA



(Signature)

Lake H. Barrett
(Printed Name)

Acting Director, OCRWM
(Title)

FOR THE POWER REACTOR AND
NUCLEAR FUEL DEVELOPMENT
CORPORATION OF JAPAN



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Yoshiaki IMENO
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