

Original

AGREEMENT
BETWEEN
THE UNITED STATES NUCLEAR REGULATORY COMMISSION
AND
THE POWER REACTOR AND NUCLEAR FUEL DEVELOPMENT CORPORATION OF JAPAN
IN REGARD TO IMPROVEMENT OF
THE POOL REACTOR VERSION OF THE SUPER SYSTEM CODE (SSC-P)

Effective date:

A/74

AGREEMENT
BETWEEN
THE UNITED STATES NUCLEAR REGULATORY COMMISSION (NRC)
AND
THE POWER REACTOR AND NUCLEAR FUEL DEVELOPMENT CORPORATION OF JAPAN (PNC)
IN REGARD TO IMPROVEMENT OF
THE POOL REACTOR VERSION OF THE SUPER SYSTEM CODE (SSC-P)

WHEREAS, the NRC and the PNC are parties to a number of earlier, as well as currently ongoing cooperative agreements (December 11, 1984, March 21, 1984, March 10, 1983, February 26, 1982, November 14, 1980, and March 25, 1980, and April 10, 1973), in the field of research and development in nuclear reactor safety which provide for the exchange of technical information, the exchange of personnel and for the joint participation in specific research projects of mutual interest; and

WHEREAS, in keeping with the spirit and purpose of the aforesaid cooperative endeavors, PNC has requested NRC to improve and update the version of the Super System Code for pool-type reactors (SSC-P) for use in their program to develop liquid metal breeder reactors (LMFBR's).

NOW, THEREFORE, the parties agree as follows:

1. Scope of Work. For PNC's use, the NRC will arrange for and provide programmatic management of a program to improve and update the pool reactor version of the Super System Code (SSC-P). Since the SSC-P code

was developed in 1980, many improvements have been made in the Super System Code for loop type reactors SSC-L. PNC is interested in having these improvements incorporated into the pool-version of the code, SSC-P, for use in system-wide transient analysis and for analysis of certain accidents for evaluating advanced LMFBR's. This work is a development effort and no exchange of experimental data is involved. The scope of technical effort is specified further in ATTACHMENT A.

2. Financial Support. PNC shall provide financial support for the work performed hereunder in accordance with the schedule specified in ATTACHMENT B.

3. Use of Information

(a) The NRC and the PNC agree that until approval is granted by the transmitting party for publication, the information, once transmitted, will be freely available to government authorities and organizations cooperating with the NRC and the PNC for their own use, but not for publication. When required by administrative procedure in its own country, the NRC or the PNC may on its own responsibility disseminate or otherwise make use of information received.

(b) The NRC and the PNC agree that the application or use of any information exchanged or transferred among them shall be the responsibility of the party receiving the information, and the transmitting party does not warrant the suitability of the information for any particular use or application.

(c) The NRC shall not formally publish in the trade literature or similar publications, or have published therein, any findings that result from implementation of this agreement without the prior written consent of the PNC.

4. Patents

(a) With respect to any invention or discovery made or conceived in the course of or under this Agreement:

(1) 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 to 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.

(2) The party which owns an invention referred to in subparagraph 4(a)(1) above shall, upon request of the other party, grant a royalty-free license for such invention to the other party, its Government, and designated nationals.

(b) Each party shall assume the responsibility to pay awards or compensation required to be paid to its own nationals according to its own laws. Each party shall, without prejudice to any rights of inventors under its national laws, take all necessary steps to provide the cooperation from its inventors required to carry out the provisions of this article.

5. Responsibility for Information - Information furnished by the NRC to the PNC under this Agreement shall be accurate to the best knowledge and belief of the NRC; however, the NRC gives no warranty as to the accuracy of such information nor shall have any responsibility for the consequences of any use to which such information may be put by the PNC or by any third party.

6. Duration of Agreement - This Agreement shall enter force upon the last date of signature and shall remain in force until December 20, 1985.

IN WITNESS WHEREOF, this Agreement has been concluded on the day and year last entered below.

FOR THE UNITED STATES NUCLEAR
REGULATORY COMMISSION

By

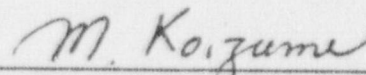


Title Executive Director for
Operations

Date March 6, 1985

FOR THE POWER REACTOR AND NUCLEAR
FUEL DEVELOPMENT CORPORATION OF JAPAN

By



Director, Technology
Title Management Div.

Date March 15, 1985

ATTACHMENT A

IMPROVEMENT OF THE POOL REACTOR VERSION OF THE SUPER SYSTEM CODE (SSC-P)

SCOPE OF WORK

The NRC will arrange for and provide programmatic management of a program to improve and update the SSC-P code to incorporate the improvements that have been made in the loop-version of the code SSC-L since 1980 and make this improved version of SSC-P available to PNC.

The following tasks will be completed by December 20, 1985:

TASK 1 -

Develop the computer code modifications necessary to allow the inclusion of all improvements made to SSC-L version since 1980 to be utilized by the SSC-P version, where applicable. These additions include such enhancements as; 1) improved fuel heat conduction, 2) sodium boiling capability, 3) advanced numerical models for long term loss-of-heat sink simulations, 4) modeling for direct reactor auxiliary cooling systems (DRACs), 5) inter-assembly heat transfer effects, 6) improved upper plenum modeling, and 7) improved steam generator system modeling.

TASK 2 -

Develop the program library so that a minimum amount of changes are required by PNC to install the improved version of SSC-P on its computer operating system. This effort will utilize all the valuable feedback and suggestions which have been provided to us by PNC staff during our previous involvements with them.

The end result will be a computer code package which can be readily used by PNC on its computer operating system.

TASK 3 -

Provide PNC with an input deck for a pool-type plant so that the PNC staff will have a working representation of a typical plant system. Thus, the PNC staff will have an operational input deck, which can be modified to a specific pool-type design.

TASK 4 -

Provide PNC with an updated version of the earlier BNL report for SSC-P (BNL-NUREG-51280). This updated report will describe the improvements contained in the new version of SSC-P, as well as a description of the computer code input changes, wherever they are different from that needed for the present version of SSC-L, which PNC is now using.

PNC will be provided with monthly progress reports and with formal documentation upon completion of the improvement and updating program.

ATTACHMENT B

IMPROVEMENTS OF THE POOL REACTOR VERSION OF THE SUPER SYSTEM CODE (SSC-P)

Financial Support

PNC shall provide financial support for the work performed under this agreement as follows:

October 1, 1984 to
December 20, 1985

Direct Salaries	
Engineers	\$ 28,000
Programmers	10,000
Secretary	3,000
Total Direct Salaries	<u>41,000</u>
Retirement, Health Ins. Etc.	10,000
Salary & Benefit	<u>51,000</u>
Direct Computer Cost	14,000
Dept. Overhead	6,000
Direct Subtotal	<u>71,000</u>
Laboratory Overhead	<u>29,000</u>
TOTAL	\$100,000