

SPECIFIC MEMORANDUM OF AGREEMENT
(SMA)

Attachment 1

Between

The Power Reactor and Nuclear Fuel Development Corporation of Japan (PNC)
and
The United States Department of Energy (DOE)

for Joint Systems Analysis Studies of Near-Real-Time Accounting for
a Mixed Oxide Fuel Fabrication Facility

1. Introduction

An Agreement between PNC and DOE for Cooperation in Research and Development concerning Nuclear Material Control and Accounting Measures for Safeguards, was signed on March 31, 1988, and hereinafter referred to as the "Agreement". Under Article II of the Agreement, DOE and PNC now undertake to carry out a cooperative effort in systems analysis studies of near-real-time accounting (NRTA) at the PNC Plutonium Fuel Production Facility (PFPF), an automated plant for remote production of MOX fuel.

2. Scope of Work

This SMA provides for development of computer programs and analysis methods for use in systems studies analyzing NRTA of plutonium receipts, inventory and shipments at the PFPF. The work under this SMA shall be performed at the Los Alamos National Laboratory (LANL) under the terms and conditions set forth in the Agreement.

3. Program Management

LANL is the organization responsible for development of the computer programs, analysis methods and systems studies to be conducted under this SMA. The work to be done is identified in Appendix 1 and is limited to systems analysis work for safeguards. LANL shall transfer the computer programs developed under this project to PNC for their use. PNC shall participate jointly with LANL in the development of computer programs, analysis methods, and the writing of systems analysis studies for NRTA. PNC is responsible for providing design information, operating data, and other information required for completion of the systems studies. In addition, PNC shall assist LANL in obtaining information about planned inspection activities at PFPF from the International Atomic Energy Agency (IAEA).

The use of LANL and their management and operating personnel in carrying out the work is authorized on a non-interference basis, i.e., the work performed under this SMA shall not interfere with work related to the prime mission of LANL. Although DOE commitment to this effort is equal to DOE mission programs, DOE programs may, for reasons related to national security or exigency, preempt efforts in support of this SMA. Accordingly, the U.S. Government, DOE, LANL, and persons acting on their behalf shall make best efforts to perform services or furnish information or data hereunder.

PNC agrees to contribute funding for the costs of the systems analysis work described in Appendix 1 and to establish priorities among tasks within the program. DOE shall undertake to complete the systems analysis work on a best efforts basis within the availability of funding.

DOE and LANL shall work directly with PNC in planning tasks and resolving programmatic and technical questions. DOE shall ensure that work will start with development and circulation of a work plan with projected milestones for each task, and for updating the work plan as the work progresses.

DOE shall provide for brief bi-monthly letter progress reports on each task and circulate them to PNC, DOE, and to other pertinent organizations as requested by PNC.

DOE and PNC shall prepare and present written and oral reports at meetings of the Permanent Coordinating Group established under Article IV of the Agreement.

No publicity releases (including news releases and advertising) relating to this SMA and the work hereunder shall be issued by either party without prior coordination with the other Party. Any technical paper, article, publication or announcement of advances generated in connection with work done during the period of performance or in the future, shall give credit to PNC as a sponsor of the work and shall contain a mutually agreed disclaimer statement.

Articles V, VI, and VII of the Agreement (Appendix 3 below) pertaining to intellectual property rights are incorporated in this SMA. As noted in Article XII of the Agreement, all information transmitted by one Party to the other Party under this SMA shall be appropriate and accurate to the best knowledge and belief of the Supplying and Transmitting Party. The U.S. Government, DOE, LANL, and persons acting on their behalf, shall make best efforts to ensure that the use of any such information or data to be furnished hereunder does not infringe privately owned rights.

4. Fiscal Management

The total cost of activities related to the completion of systems analysis studies for safeguards at the PFPF as defined in Appendix 1 of this SMA is 700,000 U.S. dollars. PNC shall make cash contributions in the following manner:

- a. A contribution of 175,000 in United States dollars shall be due and payable upon receipt of an invoice to be issued upon or shortly after the date of signature of this SMA.
- b. A contribution of 325,000 in United States dollars shall be due and payable upon receipt of an invoice to be issued after April 1, 1989. This payment is, however, subject to the approval and the appropriation of necessary funding by the Japanese Government for Japanese Fiscal Year 1989.

- c. A contribution of 200,000 in United States dollars shall be due and payable upon receipt of an invoice to be issued after April 1, 1990. This payment is however, subject to the approval and the appropriation of necessary funding by the Japanese Government for Japanese Fiscal Year 1990.

All contributions by PNC shall be due and payable within 30 days of an invoice from DOE, subject to the availability of appropriated funds to PNC.

DOE shall be responsible for the budget planning and financial management and shall make best efforts to complete the PNC-funded activities in Appendix 1 satisfactorily and within the cash contributions by PNC. DOE costs are determined in accordance with DOE's policy for costing work it performs for others as set forth in 10 CFR Part 1009. The total cost to PNC for DOE's performance of work under this SMA shall not, without PNC's prior consent, exceed the contributions set forth above.

DOE shall not begin or carry out work prior to entry into force of the SMA and receipt of the required payment in advance; and work shall not be continued after funds from PNC have been depleted. Throughout the duration of work under this SMA, PNC shall provide sufficient funds in advance to reimburse DOE for causing LANL to perform the work described in this SMA, and DOE shall have no obligation to perform in the absence of adequate advance funds. Payment in advance from PNC shall be sufficient to cover the expected obligation and cash requirements of the work until a subsequent request for payment in advance can be made, collected, and recorded. In this regard, sufficient advance funds shall be provided to maintain, at a minimum, a continuous 90 day advance of funds for expected DOE fund requirements during the life of this SMA. Advances shall be sufficient to cover expected termination costs that DOE would incur on behalf of PNC.

5. Indemnification

PNC agrees to indemnify and hold harmless the U.S. Government including DOE, LANL, and persons acting in their behalf in connection with work under this SMA from all liability, including costs and expenses incurred, resulting from use or disclosure by PNC of any information in whatever form, furnished hereunder.

6. Duration and Termination

This SMA shall enter into force upon the later date of signature, and shall continue in force for a 4 year period, or until mutually agreed by the Parties that all activities under this SMA are completed, or at the discretion of either party upon 6 months notice.

Executed on this 30th day of November, 1988.

For the United States Department
of Energy

Name:

F. Charles Gilbert

F. Charles Gilbert
Deputy Assistant Secretary
for Security Affairs

For the Power Reactor and Nuclear Fuel
Development Corporation of Japan

Name:

Shinichi Tsukada

Shinichi Tsukada
Director, Technical Management
Division

SPECIFIC MEMORANDUM OF AGREEMENT (continued)

APPENDIX I

1. Study Outline

This program involves the development of computer programs and analysis methods for use in systems analysis studies of NRTA at the PFPF. Phase I of this study will include use of design information for an analysis of the NRTA system to determine its performance capability in detecting material loss, and its performance capability for determination of the attributes and variables sample sizes for achieving IAEA safeguards goals for verifying the operators data during a single balance period. Phase II will include use of operating data to determine the operational performance of the NRTA system in detecting material loss, and development of an analysis method for determining inspection sample sizes for verification of an NRTA system. Phase III will include study and evaluation of MOX holdup in PFPF process equipment.

a. Evaluation of NRTA Performance

DOE and LANL will develop a simulation of the NRTA system based on either design information or operating data for the purpose of determining the performance of the NRTA system in detecting material loss. The simulation will establish the timeliness and probability of detection for a range of diversion scenarios.

b. Inspection Sampling Plans

DOE and LANL will develop methods for determining attributes and variables sampling plans for achieving IAEA safeguards goals at PFPF. Initially the sample plans will be developed for a single balance period based on a minimization of the variance of the D statistic subject to a constraint on available inspection effort. In subsequent work a similar analysis method will be developed that takes into account the multiple-balance aspects of verifying an NRTA system.

2. Site

All phases of this work, except for visits to obtain information or present and discuss results, will be conducted at LANL, Los Alamos, New Mexico, United States of America.

3. Programmatic Responsibilities

- a. DOE and LANL will be responsible for providing their best efforts within the funding and schedule for the systems analysis work. Personnel assistance office and laboratory space and use of facilities will be available for a PNC representative at LANL. Any tests or technical assistance shall be provided on a non-interference basis with existing DOE and LANL programs.

- b. PNC will be responsible for providing information about PFPF design and operation.

As more detailed program plans are developed, specific responsibilities will be better defined and delineated.

4. Schedule

	1988				1989				1990				1991				1992			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Tasks																				
a. NRTA Evaluation																				
- Phase I				X	X															
- Phase II						X	X	X	X	X	X									
- Phase III										X	X	X	X	X	X	X	X	X	X	
b. Inspection Sampling Plan																				
- Phase I				X	X															
- Phase II						X	X	X	X	X	X									
- Phase III										X	X	X	X	X	X	X	X	X	X	

SPECIFIC MEMORANDUM OF AGREEMENT (continued)

APPENDIX II

Key Personnel

A. PNC

1. Technical

Mitsuaka Kajiyoshi, Director
Safeguards Office
Tokyo

2. Administrative

Tadatomo Yamaguchi, General Manager
International Cooperation Office, Tokyo

B. Department of Energy

1. DOE Headquarters

William C. Bartels, Supervisory Physical Scientist, Division of
Safeguards, and David Crawford, International Safeguards Branch
Office of Safeguards and Security
Washington, D.C. 20545

2. DOE-Albuquerque Operations Office

Robert Y. Lowery, Director and Samuel Mares
Reimbursable and Defense Technologies Division
DOE/Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87115

C. Los Alamos National Laboratory

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