SPECIFIC MEMORANDUM OF AGREEMENT (SMA)
between
The United States Department of Energy (DOE)
and
The Power Reactor and Nuclear Fuel Development Corporation of Japan (PNC),
the Parties,
for Joint Development of Remote-Controlled
Nondestructive Assay Safeguards Techniques for Feed Plutonium Storage
in Automated Production of Mixed Uranium-Plutonium Oxide (MOX) Fuel

1. Introduction

Under Article II of the Agreement between PNC and DOE for Cooperation in Research and Development concerning Nuclear Material Control and Accounting Measures for Safeguards (the Agreement), DOE and PNC undertake to carry out a cooperative effort on application of integrated technique of remote-controlled nondestructive assay (NDA) for PuO_2 canisters to the PNC Plutonium Fuel Production Facility (PFPF), an automated plant for remote production of MOX fuel. Articles V, VI and VII of the above Agreement are specifically incorporated by reference herein.

2. Scope of Work

This SMA provides for development and application of a remote-controlled NDA system for PuO_2 canisters to the temporary plutonium storage in PFPF. The work performed under this SMA shall be performed at the Los Alamos National Laboratory (LANL), and the PFPF in accordance with the terms and conditions of the Agreement.

3. Program Management

LANL is the organization responsible for development of the NDA techniques and equipment. The work to be done is identified in Appendix I and is limited to development of methods, equipment and techniques for safeguards. PNC is responsible for development of a remote control for the nondestructive assay equipment and other activities related to the work of LANL as described in Appendix I.

It is understood by the Parties that LANL is the performer of the development activities to be carried out by DOE. LANL is obligated to comply with the terms and conditions of its management and operating contract with DOE when performing these and all other services for PNC. The use of LANL and its 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 Laboratory.

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 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 development described in Appendix I and to establish priorities among tasks within the program. PNC funding shall be provided to LANL by DOE. DOE shall undertake to develop the safeguards equipment and technology 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. LANL shall start by developing and circulating a work plan with projected milestones for each task, and update the work plan as the work progresses. In addition, functional specifications shall be originated and circulated at the beginning of work on implementation of each work plan.

LANL shall prepare brief bimonthly letter progress reports on each task and circulate them to PNC, DOE, and to other pertinent organizations as requested by PNC.

LANL and PNC shall prepare and present written and oral reports at meetings of the PCG established under Article IV of the Agreement.

LANL shall implement an independent quality assurance and quality control activity for each task.

Unless otherwise mutually agreed, all equipment and test apparatus procured with funds provided by PNC shall be disposed of as directed by PNC.

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.

As noted in Article XII of the Agreement, all equipment supplied and 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 Government, DOE, LANL, and persons acting on their behalf, shall make best efforts to be sure that the use of any such information or data to be furnished hereunder does not infringe privately owned rights.

4. Fiscal Management

PNC shall make cash contributions to DOE with the sum of $380,000 in United States dollars to conduct the activities related to the application of safeguards techniques to the PFPF as defined in Appendices I and II of this SMA in the following manner:

A contribution of $380,000 in United States dollars shall be paid to DOE in accordance with the following schedule:

First payment	March 1990	$140,000
Second payment	March 1991	$120,000
Third payment	March 1992	$120,000
	Total	$380,000

All contributions by PNC shall be due and payable within 30 days of receipt by PNC of an invoice from DOE.

DOE shall be responsible for the budget planning and financial management and shall make best efforts to complete the PNC-funded activities in Appendices I and II 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 this 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 the Laboratories 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.

DOE shall provide PNC with appropriately detailed semiannual reports on the costs incurred by DOE for the work performed under this Agreement.

5. Indemnification

PNC agrees to indemnify and hold harmless the U.S. Government including DOE, and LANL, and persons acting in their behalf in connection with work under this SMA from all liability, including costs and expenses incurred, resulting from activities pursuant to implementation of this SMA and 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 signature of both parties, and shall continue in force for a 4 year period. This SMA may be terminated prior

to the expiration of the 4 year period if the Parties mutually agree in writing that all activities under this SMA are completed. This SMA may be extended or amended by written agreement of the Parties.

Executed at P.N.C on this 30th day of March, 1990.

For the United States Department of Energy

Name: W. L. Barker

William L. Barker
Acting Deputy Assistant Secretary for Security Affairs

For the Power Reactor and Nuclear Fuel Development Corporation of Japan

Name:

1. Study Outline

This program involves the development, study, and test of NDA systems by LANL for use in the PFPF for safeguarding special nuclear materials (SNM). Phase I of this study will include feasibility analysis, conceptual designs, calculational modeling, scale model tests, and prototype tests. Phase II will include engineering design, fabrication, and installation. Phase III will involve calibration, performance testing, data evaluation, documentation and reporting. Studies and tests will reflect the results of remote operation of the NDA equipment, with authenticated item identification system to include surveillance television and recording measures for unattended operation (see SMA between DOE and PNC for Joint Development of Item Identification Safeguards Techniques for Automated Production of MOX Fuel).

A. Remote-controlled NDA system for PuO_2 canisters.

At the input of the plutonium temporary storage, the PuO_2 powder is contained in special PuO_2 canisters. The PuO_2 canister counter will be evaluated for the NDA measurement of the plutonium loading in the PuO_2 canisters.

2. Site

A. Phase I and Phase II (except installation)

LANL, Los Alamos, New Mexico, USA

B. Phase III (except pre-calibration)

PNC, Tokai-mura, Japan

3. Programmatic Responsibilities

A. LANL will be responsible for providing its best efforts within the funding and schedule for the design, fabrication, and testing of the NDA systems. Personnel assistance, office and laboratory space and use of facilities will be available for a PNC representative, if necessary. Any tests or technical assistance shall be provided on a non-interference basis with existing LANL programs.

B. PNC will be responsible for facility specific program direction, equipment installation, and facility robotics interface.

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

Key Personnel

A. PNC

1. Technical

Mitsuaki Kajiyoshi, Senior Staff
Nuclear Material Control Division

2. Administrative

Tadatomo Yamaguchi, General Manager
International Cooperation Office, Tokyo

B. Department of Energy

1. DOE Headquarters

David W. 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, NM 87115

C. Los Alamos National Laboratory

Howard O. Menlove and Ronald H. Augustson
MS E540
Los Alamos National Laboratory
Los Alamos, NM 87545

4. Schedule*

Tasks**	CALENDAR YEAR 1990				1991				1992			
	1	2	3	4	1	2	3	4	1	2	3	4
A. PuO_2 Canister Counter												
a. Phase I	x	x	x	x								
b. Phase II				x	x	x	x	x	x			
c. Phase III									x	x	x	x

* The schedule will be followed on a best-effort basis depending on receipt of funding and availability of parts.

** Phase I - R&D Studies, Conceptual Design, Scale and Prototype Tests
Phase II - Engineering Design, Fabrication, Installation
Phase III - Calibration, Performance Testing, Data Evaluation, Reporting