

ACTION SHEET 20

between

**The Power Reactor and Nuclear Fuel Development Corporation of Japan (PNC)
and
The United States Department of Energy (DOE)
for
Development of a Remote Monitoring System for Nuclear Nonproliferation**

1. Introduction

Under Article II (Area of Cooperation) of the Agreement between PNC and DOE for Cooperation in Research and Development Concerning Nuclear Material Control and Accounting Measures for Safeguards and Nonproliferation (herein called the "Agreement"), dated September 15, 1993, DOE and PNC undertake to carry out a cooperative effort in nonproliferation with the development of a Remote Monitoring System (RMS) for nuclear nonproliferation.

2. Scope of Work

This Action Sheet provides for a study of the concept of remote monitoring contributions to nuclear non-proliferation, and the design, implementation, and installation of a Remote Monitoring System to be located at the PNC Joyo Facility. An unattended computerized system will be located at the Spent Fuel Storage Pond No. 3, and will be remotely monitored at another Japanese Facility and at Sandia National Laboratories. The work performed under this Action Sheet shall be performed at the Sandia National Laboratories (SNL) and at the Joyo Facility in accordance with the terms and conditions of the Agreement.

3. Program Management

SNL is responsible for development of a system that will permit remote monitoring of spent fuel stored at the Joyo Facility. Work to be done is identified in Appendix I. PNC is responsible for providing design information, operating data, and other information required for completion of this work. Appendix II identifies key personnel working on this project.

DOE and SNL shall work directly with PNC in planning tasks and resolving programmatic and technical questions. SNL shall start by developing and circulating work plans with projected milestones for each task and update the work plans with PNC concurrence as work progresses.

SNL and PNC shall prepare progress reports at appropriate milestones in the work, and present written and oral reports at meetings of the Permanent Coordinating Group (PCG).

This Action Sheet may include the assignment of a DOE expert to PNC under the PNC International Fellowship Program. This assignment would be supported by PNC and DOE

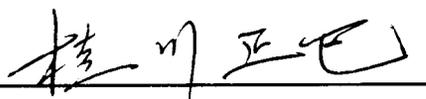
4. Fiscal Management

The activities carried out by DOE and PNC will be funded and managed by each respective organization. No exchange of funds between DOE and PNC is anticipated at this time.

5. Duration and Termination

This Action Sheet shall enter into force upon the later date of signature and shall continue in force for an 18 month period or until mutually agreed by the parties that all activities under this Action Sheet are completed.

For the Power Reactor and Nuclear Fuel
Development Corporation

Signature: 

Printed
Name: Masami Katsuragawa

Title: Director,
International Division

Date: November 2, 1995

For the United States Department of Energy

Signature: 

Printed
Name: Kenneth E. Sanders

Title: Director,
International Safeguards Division

Date: November 2, 1995

ACTION SHEET 20

APPENDIX I

Remote Monitoring System

1. Project Outline

This project involves a study and the design and implementation of a Remote Monitoring System (RMS) for the Spent Fuel Pond No. 3 of the Joyo Facility. In this project, SNL and PNC will:

- Task A. Study the unique aspects of remote monitoring's contribution to nuclear non-proliferation.**
- Task B. Establish the fundamental design of a Remote Monitoring System, install the System at the Joyo Facility, and conduct a field test of the Remote Monitoring System between the Joyo Facility and SNL.**

2. Sites

This work will be conducted at the Sandia National Laboratories facilities in Albuquerque, New Mexico, USA, and at the PNC Joyo Facility near Oarai, Japan.

3. Programmatic Responsibilities

SNL will be responsible for providing best efforts within the funding and schedule for the RMS work. Any tests or technical assistance shall be provided on a non-interference basis with existing SNL programs.

SNL will provide an integrated monitoring system with remote transmission capability. This system will monitor spent fuel handling operations in Spent Fuel Storage Pond No. 3. The system will consist of:

- Motion sensors, video cameras, and radiation sensors**
- System control computer and data collection and recording system**
- Secure communication interface to allow data to be accessed remotely**
- Software to PNC for use on their RMS computer.**

PNC will be responsible for providing information about the Joyo Facility Spent Fuel Storage area design and operation.

PNC will provide the computer equipment required for the RMS Data and Image Review Station (DIRS). The Data Review Station will be used for remotely monitoring the Spent Fuel Storage area at a PNC facility office. The DIRS will consist of a computer, printer, and a 525/625 monochrome monitor. PNC will provide a tone dial out telephone line for use with the DIRS. Specifications for the computer equipment are:

Processor: 486/Pentium, 33-60 megahertz
 Memory: 8 megabytes of RAM
 Floppy Drive: 3.5 inch 1.44 megabytes
 Hard Drive: 200 megabytes or more
 Comm. Port: RS-232
 Parallel Port: For printer supplied
 Monitor: VGA

4. Schedule*

	<u>CY 1996</u>				<u>CY 1997</u>			
	1	2	3	4	1	2	3	4
Task A: Nonproliferation Study		x	x	x	x	x		
Task B: Preparation and Installation	x	x						
Test and Evaluation		x	x	x	x	x		

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

ACTION SHEET 20

APPENDIX II Key Personnel

Power Reactor and Nuclear Fuel Development Corporation

1. PNC Headquarters

**Katsuya Ikeda, Deputy Director
Nuclear Material Control Division
Power Reactor and Nuclear Fuel Development Corporation
9-13, 1-Chome, Akasaka
Minato-Ku, Tokyo, 107, Japan**

**Masao Senzaki, General Manager
Office of Nuclear Non-proliferation
Nuclear Material Control Division
Power Reactor and Nuclear Fuel Development Corporation
9-13, 1-Chome, Akasaka
Minato-Ku, Tokyo, 107, Japan**

**Toshinori Shigeto,
Office of Nuclear Non-proliferation
Nuclear Material Control Division
Power Reactor and Nuclear Fuel Development Corporation
9-13, 1-Chome, Akasaka
Minato-Ku, Tokyo, 107, Japan**

2. PNC O-arai Engineering Center

**Yu Hasimoto, Program Coordinator
Senior Staff, Reactor Technology Section
Experimental Reactor Division
Power Reactor and Nuclear Fuel Development Corporation
4002, Narita-cho, O-araimachi,
Ibaraki-ken, Japan 311-13**

Department of Energy

1. DOE Headquarters

**Kenneth E. Sanders, Director
International Safeguards Division
Office of Arms Control and Nonproliferation
NN-44, GA-017
Department of Energy
1000 Independence Ave., SW
Washington, DC 20585**

**John M. Puckett, Technical Staff
International Safeguards Division
Office of Arms Control and Nonproliferation
NN-44, GA-017
Department of Energy
1000 Independence Ave., SW
Washington, DC 20585**

2. DOE Albuquerque Operations Office

**James R. Anderson, Director
Science and Technology Transfer Division
DOE/Albuquerque Operations Office
P.O. Box 5400
Albuquerque, NM 87115**

3. Sandia National Laboratories

**Stephen A. Dupree, International Remote Monitoring Project Manager
and
Kenneth Ystesund, Japan Safeguards Project Manager
On Site Monitoring Applications
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0567**

**Charles Johnson
Cooperative Monitoring Systems
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0656**

**Michael P. Ross
Optics and Exploratory Technologies
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0980**

4. Los Alamos National Laboratory

**Chad T. Olinger, Coordinator
Transparency Project
Group NIS-7, MS-E541
Los Alamos, NM 87545**