

## ACTION SHEET 16

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

for

Joint Studies of the Fundamental Design of C/S System for  
the PFPF Advanced Thermal Reactor (ATR) Fuel Fabrication  
Line Fuel Pin Storage

### 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 on the fundamental design of Containment and Surveillance (C/S) based safeguards options for the fuel pin storage, which forms a part of the Advanced Thermal Reactor (ATR) MOX fuel fabrication line at the PNC Plutonium Fuel Production facility (PFPF).

### 2. Scope of Work

This Action Sheet provides for a fundamental design study of a C/S system for the fuel pin storage in the ATR line at the PFPF. The work performed under this Action Sheet shall be performed at the Sandia National Laboratories (SNL) in accordance with the terms and conditions of the Agreement.

### 3. Program Management

SNL is responsible for development of a fuel pin storage C/S based safeguards subsystem, which is complimentary and will operate in conjunction with the LANL Fuel Pin Assay System (FPAS). Work to be done is identified in Appendix I and is limited to techniques for nuclear safeguards applications. PNC is responsible for providing design information, operating data, and other information required for completion of the joint studies. 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 separate work plans with projected milestones for each task and update the work plans with PNC concurrence as work progresses.

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

SNL and PNC shall prepare and present written and oral reports at meetings of the Permanent Coordinating Group (PCG).

#### 4. Fiscal Management

PNC shall make a cash contribution with the sum of \$75,000 in United States dollars to conduct the activities related to the completion of joint studies into safeguards techniques at the PFPF ATR line as defined in Appendix I of this Action Sheet in the following manner:

a.) A contribution of \$75,000 in United States dollars shall be due and payable after the date of signature of this Action Sheet.

All contributions by PNC shall be due and payable within thirty days of receipt by PNC of an invoice from DOE, subject to 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 the Appendix I satisfactorily and within the cash contribution 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 Action Sheet shall not, without PNC's prior consent, exceed the contributions set forth above.

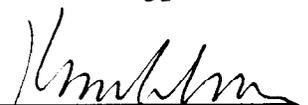
DOE shall not begin or carry out work prior to entry into force of the Agreement and Action Sheet and receipt of the required payment in advance. Work shall not be continued after funds from PNC have been depleted.

Throughout the duration of work under this Action Sheet, PNC shall provide sufficient funds in advance to reimburse DOE for causing SNL to perform the work described in this Action Sheet, 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-days advance of funds for expected DOE fund requirements during the life of this Action Sheet. Advances shall be sufficient to cover expected termination costs that DOE would incur on behalf of PNC.

5. Duration and Termination

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

For the United States  
Department of Energy

Signature:   


Printed  
Name: Ken Sanders  
Title: Div. Dir. NN-44  
Date: 2/22/95

For the Power Reactor and  
Nuclear Fuel Development  
Corporation

Signature: 

Printed  
Name: TADATOMO YAMAGUCHI  
Title: Director, International Division  
Date: MAR 10, 1995

## APPENDIX I

### C/S System for the Fuel Pin Storage

#### 1. Study Outline

This program involves the fundamental design study of a C/S system for the PFPF ATR line fuel pin storage. In this study, SNL will:

- A. Select the optimum C/S technology.
- B. Establish the fundamental design of the C/S system.
- C. Integrate into the conceptual design of the ATR line integrated safeguards system.

SNL activities will include a review of the design of the ATR line and selection of the fundamental design for the fuel pin storage. Following review and approval by PNC, SNL will integrate the fundamental design of the C/S system into the integrated safeguards system design for the ATR line.

#### 2. Site

All phases of this work will be conducted at the Sandia National Laboratories facilities in Albuquerque, New Mexico, USA.

#### 3. Programmatic Responsibilities

- A. SNL will be responsible for providing best efforts within the funding and schedule for the fundamental design work. Any tests or technical assistance shall be provided on a non-interference basis with existing SNL programs.
- B. PNC will be responsible for providing information about the PFPF ATR line fuel pin storage design and operation.

#### 4. Support

The \$75,000 which PNC will provide for this Action Sheet will be used to support this work.

5. Schedule\*

|        |   |   |   | CALENDAR YEAR |   |   |   |      |   |   |   |  |  |  |  |
|--------|---|---|---|---------------|---|---|---|------|---|---|---|--|--|--|--|
| 1994   |   |   |   | 1995          |   |   |   | 1996 |   |   |   |  |  |  |  |
| 1      | 2 | 3 | 4 | 1             | 2 | 3 | 4 | 1    | 2 | 3 | 4 |  |  |  |  |
| Task** |   |   |   | x             | x | x |   |      |   |   |   |  |  |  |  |

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

\*\* Phase I - Review of design of the ATR line and the fundamental design of a C/S system, integration and documentation of this portion of the ATR line safeguards system design.

## APPENDIX II

### Key Personnel

#### Power Reactor and Nuclear Fuel Development Corporation

##### 1. PNC Headquarters

T. Ohtani, General Manager  
Safeguards Office, Nuclear Material Control Division  
Power Reactor and Nuclear Fuel Development Corporation  
Sankaidoh Building,  
9-13, 1-Chome, Akasaka  
Minato-Ku, Tokyo, 107, Japan

S. Konomi, General Manager  
International Cooperation Office  
International Division  
Power Reactor and Nuclear Fuel Development Corporation  
9-13, 1-Chome, Akasaka  
Minato-Ku, Tokyo, 107, Japan

#### Department of Energy

##### 1. DOE Headquarters

Kenneth Sanders, Director  
International Safeguards Division  
Office of Arms Control and Nonproliferation (NN-44, GA017)  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585

John Puckett  
International Safeguards Division  
Office of Arms Control and Nonproliferation (NN-44, GA017)  
U.S. Department of Energy  
1000 Independence Ave., SW  
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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

Cecil S. Sonnier  
On Site Monitoring Applications  
Sandia National Laboratories  
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