

## **ACTION SHEET PNC 30**

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

**Joint Study of Improved Safeguards Methodology Using No-Notice  
Randomized Inspection**

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 joint study of improved safeguards methodology using no-notice randomized inspections.

2. Scope of Work

This Action Sheet provides for study of no-notice randomized inspection schemes in model plutonium handling facilities. The expected outcome of this study is improved cost effectiveness for safeguarding nuclear materials as advocated by the IAEA Programme 93+2. The study will be based on models published by Brookhaven National Laboratory (BNL) as well as taking into account the experience with randomized inspection in international safeguards.

The work performed under this Action Sheet will be conducted at BNL and PNC facilities according to the terms and conditions of the Agreement.

3. Program Management

BNL is responsible for the development of improved safeguards methodology for nuclear materials in model plutonium-handling facilities to be selected jointly. Work to be conducted is identified in Appendix I and is limited to techniques for nuclear safeguards applications. PNC is responsible for providing information required for completion of the joint studies. Appendix II identifies key personnel working on this project.

DOE and BNL will work directly with PNC in planning tasks and resolving programmatic and technical questions. BNL will 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.

BNL will prepare brief progress reports on each task and circulate them to PNC, DOE, and to other pertinent organizations as requested by PNC.

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

#### 4. Fiscal Management

PNC will make a total cash contribution in the sum of \$250,000 in United States dollars to conduct the activities defined in Appendix I. These funds for joint studies into safeguards techniques at selected plutonium handling facilities will be disbursed in the following manner:

- a.) A contribution of \$40,000 in United States dollars will be due and payable upon receipt of an invoice to be issued in JFY 1996 (Japanese Fiscal Year) after the date of signing of the Action Sheet by both DOE and PNC.
- b.) A contribution of \$70,000 in United States dollars will be due and payable upon receipt of an invoice to be issued in April 1997, 1998 and 1999 each. This payment is subject to approval and the appropriation of necessary funding by the Japanese Government for JFYs 1997, 1998 and 1999.

All contributions by PNC will be due and payable within thirty days after PNC receives an invoice from DOE, subject to availability of appropriated funds to PNC.

DOE will be responsible for the budget planning and financial management and will attempt to complete the PNC-funded activities in the Appendix I satisfactorily and within the cash contribution by PNC. DOE costs are determined according to 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 will not, without PNC's prior consent, exceed the contributions set forth above.

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

Throughout the duration of work under this Action Sheet, PNC will provide sufficient funds in advance to reimburse DOE to allow BNL to perform the work described in this Action Sheet. DOE will have no obligation to perform without adequate advance funds. Payment in advance from PNC will 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 will 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 will be sufficient to cover expected termination costs that DOE would incur on behalf of PNC.

#### 5. Duration and Termination

This Action Sheet will enter into force upon the later date of signature and will continue in force for a three and a quarter year 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 of Japan

Signature: 

Printed  
Name: Masami Katsuragawa

Title: Director  
International Division

Date: Feb. 19, 1997

For the United States  
Department of Energy

Signature: 

Printed  
Name: Kenneth E. Sanders

Title: Division Director

Date: 14 February 1997

**ACTION SHEET PNC 30**  
**APPENDIX I**

**Joint Study of Improved Safeguards Methodology Using No-Notice Randomized Inspection**

1. Study Outline

This program involves the joint development of improved safeguards methodology for model plutonium-handling facilities. In cooperation with PNC, BNL will:

1. Review existing models of no-notice randomized inspections including experience with randomized inspections in international safeguards and their potential application to model facilities.
2. Assemble and analyze information on current safeguards practice relevant to randomization of inspections at selected facilities.
3. Select facilities suitable for no-notice randomized inspections jointly.
4. Develop strategies for no-notice randomized inspections including selection of parameters - timing, item, area,... etc. - for randomization.
5. Present report analyzing the cost-effectiveness of no-notice randomized inspection scheme for the selected Pu handling facilities. Revise as necessary.
6. As appropriate, design and evaluate possible field tests of no-notice randomized inspections and prepare final report.

2. Site

This work will be conducted at:

Brookhaven National Laboratory  
Brookhaven, New York, USA

and

Power Reactor and Nuclear Fuel Development Corporation  
PNC Plutonium facilities at various locations in Japan

3. Programmatic Responsibilities

A. BNL will be responsible for providing best efforts within the funding and schedule for the fundamental design work. Any technical assistance shall be provided on a non-interference basis with existing BNL programs.

B. PNC will be responsible for provision of information, review of reports, and interactions with PNC facilities.

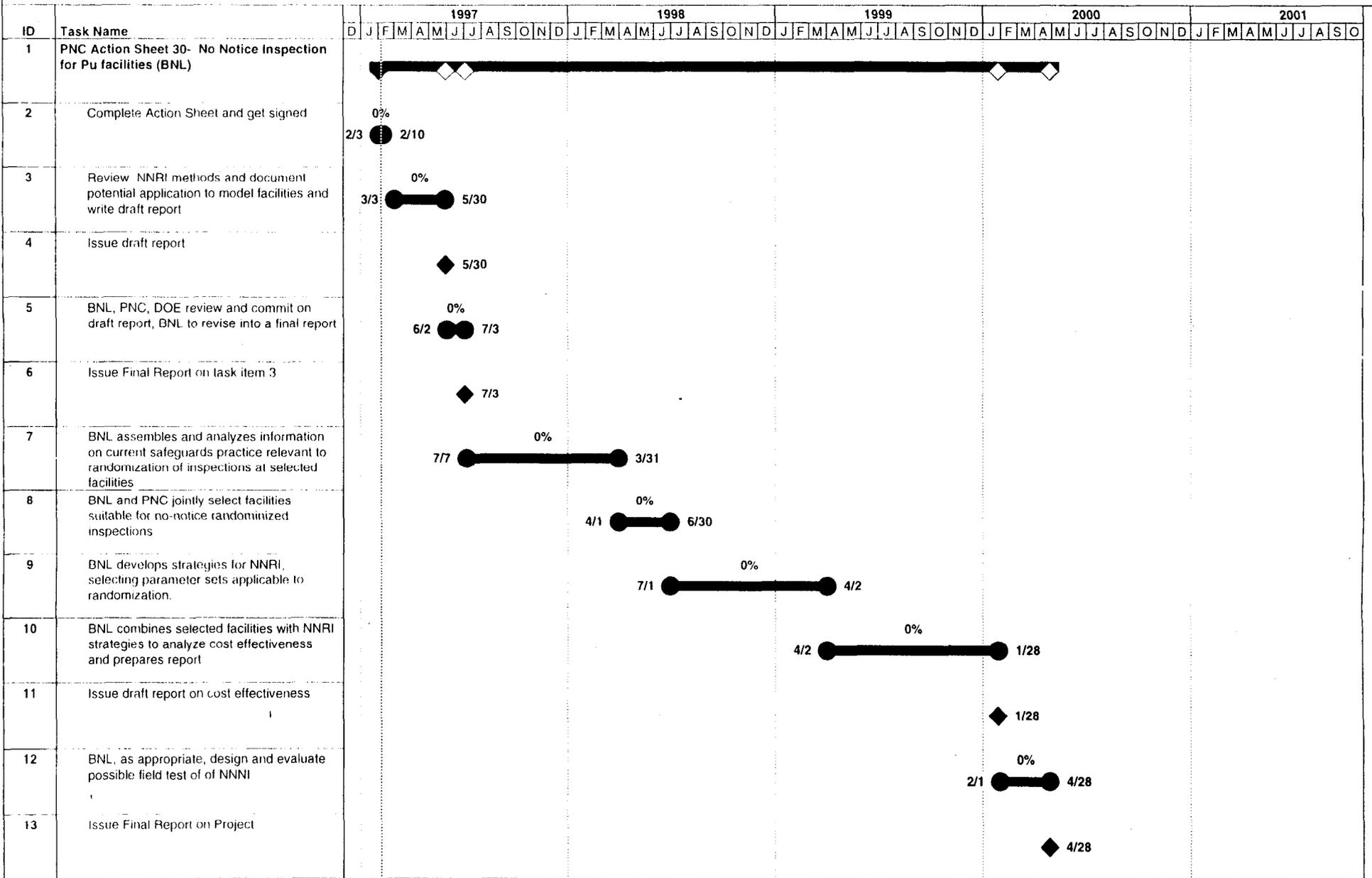
As more detailed program plans are developed, specific responsibilities will be better defined and delineated.

4. Schedule

The proposed schedule is shown in the chart on the following page.

The schedule will be followed on a best-effort basis commencing on receipt of funding.

## SG070 Pacific Rim



Project: SG070 Asia and Pacific  
Date: Thu 2/6/97



## **ACTION SHEET PNC 30**

### **APPENDIX II**

#### **Joint Study of Improved Safeguards Methodology Using No-Notice Randomized Inspection**

##### **Power Reactor and Nuclear Fuel Development Corporation**

###### 1. PNC Headquarters

Tetsuo Ohtani, General Manager  
Mitsunori Akiba, Senior Staff  
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

Takeshi Kawamura, General Manager  
International Cooperation Office  
International Division  
Power Reactor and Nuclear Fuel Development Corporation  
Sankaidoh Building  
9-13, 1-Chome, Akasaka  
Minato-Ku, Tokyo, 107, JAPAN

###### 2. Tokai Works

Keiichiro Hori, General Manager  
Safeguards Office  
Power Reactor and Nuclear Fuel Development Corporation  
4-13, Muramatsu  
Tokai-mura, Ibaraki-Ken  
319-11, Japan

##### **Department of Energy**

###### 1. DOE Headquarters

Kenneth Sanders, Director  
International Safeguards Division  
Office of Arms Control and Nonproliferation (NN-44, GA045)  
Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585  
USA

John Capps  
International Safeguards Division  
Office of Arms Control and Nonproliferation (NN-44, GA045)  
Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585  
USA

2. DOE-Chicago Operations Office

Joseph A. DaSilva, Reimbursable Technology Specialist  
Administrative & Financial Management Division  
Department of Energy  
Brookhaven Group  
P.O. Box 5000  
USA

3. Brookhaven National Laboratory

Joseph P. Indusi, Division Head  
Ming-Shih Lu, Scientist  
Safeguards, Safety & Nonproliferation Division  
BNL-197C  
Brookhaven National Laboratory  
Upton, NY 11973  
USA