

## ANNEX

In further definition of the "Project Agreement between the United States Department of Energy (DOE) and the Federal Ministry for Research and Technology (BMFT) of Germany in the Area of Nondestructive Assay Techniques and Instrumentation for the Siemens Mixed Uranium-Plutonium Oxide Fuel Fabrication Facility (MOX II)" (February, 1991), hereafter called the "Project Agreement" and the underlying general DOE/BMFT Agreement of September, 1977 for Cooperation in the Field of Nuclear Materials Safeguards and Physical Security Research and Development, this Annex (to be attached to the Project Agreement) describes specific responsibilities of Los Alamos and Siemens. The scope and schedule of work, payment schedule, and general terms defined in this Annex are updated from those cited in Appendix A of the Project Agreement.

### **Section I. Responsibilities of Los Alamos and Siemens in Support of IAEA and Euratom Safeguards Implementation at the Siemens MOX Fuel Fabrication Facility**

#### **Article 1 (General)**

Los Alamos is to provide Siemens with complete and functioning systems as described in Section II of this Annex. Siemens is to furnish Los Alamos with facility engineering support and advance funding to cover costs of services rendered and equipment provided.

The governing body for this Annex is the Permanent Coordinating Group established by the basic Safeguards Agreement between the DOE and the BMFT.

#### **Article 2 (Los Alamos Responsibilities)**

Los Alamos will have the following responsibilities for each system defined in Section II:

- Feasibility Study
- Technical Liaison and Procurement
- Neutronics Design
- Mechanical Design and Fabrication
- Electronics Design and Fabrication
- Computer Systems
- System Integration and Testing
- Packing and Shipping
- Installation, Calibration, and Training
- Documentation
- $^{252}\text{Cf}$  Test Sources
- Spare Parts

Los Alamos will in particular:

- a) provide hardware systems described in Section II, compatible with the relevant specifications and other documents cited there
- b) provide software for the I-Point systems compatible with the draft specifications of Section II. 6. e. [developed under the United States Program of Technical Assistance to the IAEA (POTAS)].
- c) provide testing and acceptance procedures for the systems described in Section II for approval by Siemens
- d) provide manuals and other documentation necessary for installation, operation and maintenance of the systems
- e) provide shipment to Frankfurt, including necessary export licenses
- f) install electronics and computers in Siemens-supplied secure cabinets
- g) provide checkout, preliminary calibration with available nuclear materials, training and acceptance testing at Los Alamos
- h) provide installation, calibration, training and acceptance testing at the MOX-II plant using available manpower and nuclear materials, supplied by Siemens
- i) issue periodic progress reports to Siemens, the DOE and the BMFT during the course of the Project
- j) document, with appropriate participation of Siemens, acceptance testing of hardware and software in accordance with g) and h)
- k) review the Siemens master action plan and provide the updated schedule for Los Alamos milestones

### Article 3 (Siemens Responsibilities)

Siemens will supply Los Alamos with technical information necessary for performing its responsibilities under this Annex.

Siemens will, in the fulfillment of its obligations under this Annex, cooperate with Los Alamos, particularly with regard to software interfaces.

Siemens will review the testing and acceptance procedures provided by Los Alamos under item c) of Article 2.

Siemens will in particular:

- a) review functional and technical details pertaining to the design, manufacture or installation of the equipment listed in Section II and proposed by Los Alamos to the extent that such review is required by Los Alamos to fulfill its obligations under Article 2
- b) provide secure cabinets to Los Alamos compatible with installation of electronics and computer hardware
- c) provide engineered support structures for fitting to neutron-detector heads
- d) host installation, calibration, training and acceptance testing at MOX-II site, including supplying available manpower and nuclear materials
- e) provide software for collecting and storing electromechanical-sensor data as described in Section II of this Annex

### Article 4 (System Takeover)

Siemens will take over each system upon completion of the acceptance testing at the MOX-II site referred to in 2 h) and 3 d).

Should a system takeover not be completed through default of Siemens, a system will be regarded as handed over to Siemens three months after written notification of readiness for the acceptance test.

Article 5 (Payment)

With respect to the hardware and services to be furnished by Los Alamos, Siemens will pay a total sum of

1,413,000 (including 93,000 for spare parts) in \$US

to the United States DOE.

Should the project start be delayed beyond **September 1992**, the total cost of the project will be reevaluated to reflect inflation.

Installment payments in % of the total sum will be made according to the following schedule:

Installment No.	Installment in % of total	Due	Event	Payable By
1	30	<b>July 1992</b>	PCG Acceptance of Annex	<b>September 1992</b>
2	30	<b>August 1992</b>	Start of Phase III (PTAS) after clearance by Siemens	<b>October 1992</b>
3	20	<b>July 1993</b>	Start of Phase III (PBAS)	<b>September 1993</b>
4	15	<b>October 1993</b>	Takeover of PTAS systems by Siemens	<b>December 1993</b>
5	5	<b>April 1994</b>	Takeover of PBAS system by Siemens	<b>June 1994</b>

All installments are payable within 60 days after the due date and receipt of invoice for the respective installment.

The payment schedule and/or scope of supply may be amended with the written approval of the PCG.

Article 6 (Force Majeure)

If, by reason of Force majeure, either Siemens or Los Alamos is unable to meet its responsibilities defined in this Annex, the PCG will be notified promptly and will endeavor to resolve all issues.

Force majeure as used here means acts of God, war (whether declared or not), invasion, revolution, insurrection or other acts of a similar nature or force.

Article 7 (Guarantees)

For materials, equipment, and software provided, Los Alamos will, at no cost, affect repairs necessary because of defects in design or fabrication for a period of one year following takeover (Article 4).

Los Alamos does not accept responsibility for problems arising from failure to provide routine maintenance.

Article 8 (Termination)

Siemens has the right to terminate its obligations under the Project Agreement and this Annex in case:

- the contract between the IAEA, EURATOM and Siemens will not be concluded during the **third** quarter of 1992, or
- the concluded contract between the IAEA, EURATOM and Siemens is terminated.

In the event of a termination, the following conditions will apply:

1. Los Alamos (through the DOE) will be reimbursed for the actual costs incurred under the Annex until the date of termination (including 60 days following this date) against invoice with supporting documentation.
2. Los Alamos will return (through the DOE) unspent and/or uncommitted funds to Siemens effective at the date of termination.
3. Siemens has the right to obtain all hardware completed by Los Alamos at the date of termination.

## Section II. Hardware and Services to be supplied by LANL

### 1. Pellet-Tray Assay Stations (PTASs or "I-Points")

including:

- 4 NCCs each with two signal outputs
- 4 coincidence electronics packages (CEPs)
- 4 MS-DOS rackmount PCs

excluding:

- 4 security cabinets for PCs and electronics

**NOTE:** PC software for collection and storage of I-Point neutron coincidence counting (NCC) data, merging the NCC and E/M sensor data, reviewing merged data, and generation of data files appropriate for subsequent evaluation software is to be provided under the United States Program of Technical Assistance to the IAEA (POTAS). Software for collection and storage of E/M sensor data is to be provided by Siemens. The Siemens software will be provided to Los Alamos in advance of the acceptance tests.

### 2. Pin-Bundle Assay Station (PBAS, or "Quiver")

including:

- 1 NCC with two signal outputs
- 1 CEP
- 1 MS-DOS rackmount PC

excluding:

- 1 security cabinet for PC and electronics

### 3. HLNC-II shield design

### 4. REVIEW computer

### 5. Spare parts and components

#### a) Pellet-Tray Assay Stations (PTASs or "I-Points")

including:

- 2 junction boxes with  $^3\text{He}$  counters
- 1 CEP
- 1 MS-DOS rack mount PC
- 4 Amptek boards

#### b) Pin-Bundle Assay Station (PBAS or "Quiver")

including:

- 1 junction box with  $^3\text{He}$  counters
- 1 CEP
- 1 MS-DOS rackmount PC
- 2 Amptek boards

6. Relevant specifications and other documents

Following is a list of specifications and related documents that are relevant to the equipment and services to be provided under this Annex. These specifications include some items that are outside the scope of Los Alamos support described in Section I, Article 2 and Section II, paragraphs 1-5 of this Annex. Los Alamos will be responsible for meeting only the specifications that pertain to the Los Alamos support described in Section I, Article 2 and Section II, paragraphs 1-5. Siemens and Los Alamos have not jointly reviewed the specifications and come to a complete understanding on the specifications that apply to the Los Alamos support. However those items requiring further clarification will be treated according to Article 3 of this Annex and Article 5 of the Project Agreement.

- a) Specification 01.356: Neutron Measuring Station for quivers  
(A16.27.03), Rev.7 (21.01.92)
- b) Specification 01.340: Inventory Control System for Pellet Stores  
(EURATOM/IAEA) A19.23 (I-Point System),  
Rev. 9 (16.01.92)
- c) Specification 01.361: I-Point Baseline Plan Neutron Coincidence  
Measurement Sub-System, Rev. 10 (16.01.92)
- d) Pflichtenheft                      Safeguards-Communication  
(PSG-IC 053/3E)                      I-Punkt - SW für BW Hanau  
(21.01.92)                              (I-Point Mechanical Data Processing)
- e) "System Requirements, I-Point Software", issued by the IAEA,  
91.09.19 (Draft)
- f) Schematic Diagrams
  - I-Point, Area: Mechanical Rev. 6, Date 07.06.91
  - I-Point, Area: Ceramic    Rev. 6, Date 07.06.91
  - "Köcher" Verification    Rev. 5, Date 07.06.91
- g) PSG-IC-051/4E Requirements for Electronic Cabinets (to be provided by  
Siemens)
- h) PSG-IC-057/2 PC Specification Siemens BW-MOX II
- i) PSG-IC-073/1 Shielding Requirements for HLNCC-Room 18

### Section III. Project Schedule

The Phases of the Project are:

- Phase I: Feasibility studies, conceptual design, prototype tests, ordering <sup>3</sup>He-tubes and other long-lead items
- Phase II: Engineering design
- Phase III: Ordering computers, electronics and other hardware components; fabrication, assembly, performance testing, pre-calibration and Los Alamos acceptance test
- Phase IV: Delivery and installation, performance testing, calibration, Siemens acceptance test and documentation

The Schedule for completion of the Project Phases is as follows:

Task with Phases	Calendar Year											
	1992				1993				1994			
	1	2	3	4	1	2	3	4	1	2	3	4
1. Pellet Tray 1,2,3,4 (PTAS 1,2,3,4)												
Phase I			x	x								
Phase II			x	x								
Phase III*				x	x	x						
Phase IV						x	x	x				
2. Pin Bundle (PBAS)												
Phase I				x	x							
Phase II					x	x	x					
Phase III							x	x			x	
Phase IV								x			x	x

\*Start of Phase III (PTAS) and subsequent work after clearance by Siemens.

3. HLNCC Shield Design: Delivery - September 1992

This schedule requires that advance funding be received at DOE Headquarters, Washington according to the payment schedule provisions of Section I, Article 5.

**Section IV. Duration**

This Annex will come into force upon the latest date of signature, and will continue in force (unless terminated under the conditions of Section I, Article 8) for a 2 year period, or until mutually agreed by the Parties that all activities under this Annex are completed.

Washington,

Bonn, 29.07.1992

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United States Department of Energy

and

Klaus Hoyer 29.07.1992  
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and

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