The United States Department of Energy (DOE)
and
The European Atomic Energy Community
represented by
The Commission of European Communities (EURATOM)
for
Isotopic Analysis Evaluation using the PC/FRAM Physics Software

1. INTRODUCTION

Pursuant to Article 3.1 of the Agreement, signed on January 6, 1995, between DOE and EURATOM in the field of nuclear materials safeguards research and development, DOE and EURATOM (the Parties) undertake to carry out a cooperative effort on isotopic analysis evaluation using the PC/FRAM physics software.

2. SCOPE OF WORK

This Action Sheet provides for collaboration on the application and evaluation of gamma ray isotopic analysis using the PC/FRAM physics software. The work performed under this Action Sheet shall be performed at the Los Alamos National Laboratory (LANL) and by EURATOM personnel at European facilities in accordance with the terms and conditions of the Agreement. This activity involves Los Alamos providing EURATOM personnel the PC/FRAM program for evaluation with documentation and training on use of the program. EURATOM is responsible for evaluating the isotopics analysis capabilities of the PC/ FRAM program. EURATOM is also responsible for providing a data acquisition system, and appropriate coaxial detector which is compatible for use with the PC/FRAM analysis. Following the evaluation, joint meetings will be held to discuss changes and additions that would enhance and improve the capability and utility of PC/FRAM for EURATOM safeguards.

3. PROGRAMME MANAGEMENT

LANL is responsible for providing the current version of the PC/FRAM program to EURATOM personnel along with documentation and initial training on use of the program for isotopic measurements and analysis. EURATOM is responsible for measurement system, testing, field measurements, and reporting of measurement data. Evaluation of measurement will be done jointly between LANL and EURATOM. Work to be done is identified in Appendix I and is limited to nuclear safeguards applications and training. Appendix II identifies key personnel associated with this action sheet.

DOE and LANL shall work directly with EURATOM on the discussions of the results

4. FINANCIAL MANAGEMENT

DOE and EURATOM shall bear their own expenses for this action sheet.

5. DURATION AND TERMINATION

The Action Sheet shall enter into force upon the later date of signature, and shall continue in force for a 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	For the European Atomic Energy Community represented by the Commission of European Communities
Signature:	Signature:
Printed Name: Kenneth E. SANDERS	Printed Name: Winfried KLOECKNER
Title: Director International Safeguards Division	Title: Head of Division Commission of the European Communities EURATOM Safeguards
Date: April 16, 1998	Date:

Appendix I
Description of Tasks

1. OBJECTIVE

The Safeguards Science and Technology group (NIS-5) at Los Alamos has extensive experience in development of gamma-ray spectrometer measurements for isotopic analysis. The PC/FRAM code has been developed to provide a versatile and flexible measurement capability with applicability to a wide range of nuclear materials. Evaluation and enhancement of the of the physics capabilities in PC/FRAM is an important aspect in the development of isotopic measurements. LANL personnel will participate by providing the PC/FRAM program with documentation and training to EURATOM personnel for measurement tests and evaluation. LANL and EURATOM will collaborate on evaluation of isotopics data measured by EURATOM.

2. SCOPE

This project entails an evaluation by EURATOM of the Los Alamos PC/FRAM program using an appropriate data acquisition system and coaxial detector provided by EURATOM. Discussions between LANL and EURATOM to evaluate measurement data and to determine potential enhancements and improvements to the PC/FRAM program will be completed as part of the evaluation.

3. TASKS

3.1 Measurement & Evaluation Objectives
EURATOM and LANL will discuss the isotopic measurements, data acquisition system and appropriate coaxial detector required for this task.

3.2 PC/FRAM Program
LANL will provide the PC/FRAM program with documentation and initial training to EURATOM. EURATOM will provide the data acquisition system and appropriate coaxial detector.

3.3 Isotopics Measurements
EURATOM will complete a series of isotopics measurements, with LANL participation as appropriate, and share the information with LANL

3.4 Joint Evaluation & Results
LANL and EURATOM will jointly evaluate and discuss potential enhancements and additions to PC/FRAM for EURATOM safeguards.

4. Project Schedule

Date		Action	Responsible
Month	3	Measurement & Evaluation Objectives	LANL/EURATOM
Month	3	PC/FRAM Program	LANL/EURATOM
Month	9	Isotopics Measurements	EURATOM/LANL
Month	12	Joint Evaluation & Results	EURATOM/LANL

Appendix II

Key Personnel

EURATOM

1. Winfried Kloeckner
   EURATOM Safeguards Directorate
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3. Peter Schwalbach
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Department of Energy

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   Gordon Washburn, Task Officer
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2. DOE-Albuquerque Operation Office
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3. Los Alamos National Laboratory
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