

**ISOTOPIC ENRICHMENT PLANTS**

DATE:

**CONFIDENTIAL  
WHEN COMPLETED**

**APPROVED BY OMB: NO. 3150-0056**

**EXPIRES: (MM/DD/YYYY)**

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**INTERNATIONAL ATOMIC ENERGY AGENCY  
DEPARTMENT OF SAFEGUARDS AND INSPECTION**

**DESIGN INFORMATION  
QUESTIONNAIRE \***

**(CONTINUED)**

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\* Questions which are not applicable may be left unanswered.

**ISOTOPIC ENRICHMENT PLANTS**

**OVERALL PROCESS PARAMETERS**

13. FACILITY DESCRIPTION (indicating all process stages, storage areas and feed, product, tail, and waste points)	GENERAL FLOW DIAGRAM(S) ATTACHED UNDER REFERENCE NUMBERS:
14. PROCESS DESCRIPTION (identifying sampling and key measurement points; MBAs; inventory locations)	FLOW SHEET(S) FOR NORMAL OPERATION ATTACHED UNDER REFERENCE NUMBERS:
15. DESIGN CAPACITY (throughput and energy consumption)	MTUSW/annum  MW
16. ANTICIPATED ANNUAL THROUGHPUT (in the form of a forward programme, indicating the proportion of various feeds and products)	

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NUCLEAR MATERIAL DESCRIPTION AND FLOW			
17. MAIN MATERIAL DESCRIPTION	FEED	PRODUCT	TAILS
i) Chemical and Physical Form			
ii) Throughput and Enrichment Ranges (for normal flow sheet operation indicating if blending and/or recycling takes place)			
iii) Batch Size/Flow Rate and Campaign Period			
iv) Maximum Capability as Concentration of Top Product (Nat. U feed)			
v) Storage Inventory (indicating any change with throughput)			
vi) Frequency of Receipt or Shipment			
18. WASTE MATERIAL			
i) Source and Form (Indicating major contributors; liquid or solid; range of constituents; enrichment range; include contaminated equipment)			
ii) Storage Inventory Range, Method and Frequency of Recovery/Disposal			

NUCLEAR MATERIAL DESCRIPTION AND FLOW	
<p>19. CONTAINER AND STORAGE AREA DESCRIPTION</p>	<p>SEPARATE NOTE TO BE ATTACHED. Describe for feeds, products, tails, and wastes: the type and size of storage and shipping containers and packaging used, (including nominal capacity and capacity for normal operation, and type of material); method of storage or packing, filling and emptying procedures (include time cycle); shielding; and any special identification features.</p>
<p>20. MEASURED DISCARDS AND RETAINED WASTE</p> <p>i) As % of Input</p>	
<p>21. INVENTORY</p> <p>i) In-Process (within plant and equipment during normal operation; indicate quantity form and main locations and any significant change with time or throughput)</p> <p>ii) Other Locations (quantity, form and location of inventory not already specified)</p>	

PLANT MAINTENANCE	
22. MAINTENANCE, DECONTAMINATION, CLEAN-OUT	SEPARATE NOTE TO BE ATTACHED Describing plans and procedures and defining all sampling and key measurement points associated with:  i) Normal Plant Maintenance;  ii) Plant and Equipment Decontamination and Subsequent Nuclear Material Recovery;  iii) Plant and Equipment Clean-out Including Means of Ensuring Vessels Are Empty.
PROTECTION AND SAFETY MEASURES	
23.I BASIC MEASURES FOR PHYSICAL PROTECTION OF NUCLEAR MATERIAL	
24. SPECIFIC HEALTH AND SAFETY RULES FOR INSPECTOR COMPLIANCE (if extensive, attach separately)	

NUCLEAR MATERIAL ACCOUNTANCY

25. SYSTEM DESCRIPTION

Give a description of the nuclear material accounting system, the method of recording and reporting accountancy data and establishing material balances, procedures for account adjustment after plant inventory, mistakes, etc., under the following headings:

- i) General

SPECIMEN FORMS USED IN ALL PROCEDURES ATTACHED UNDER REFERENCE NUMBERS:

NUCLEAR MATERIAL ACCOUNTANCY

25. SYSTEM DESCRIPTION (Continued)

ii) Receipts  
(including method of dealing with shipper/  
receiver differences and subsequent  
account corrections)

iii) Shipments  
(product and waste)

NUCLEAR MATERIAL ACCOUNTANCY

25. SYSTEM DESCRIPTION (Continued)

iv) Physical Inventory  
(frequency, procedures,  
estimated distribution)

LIST OF MAJOR ITEMS OF EQUIPMENT REGARDED AS NUCLEAR  
MATERIAL CONTAINERS ATTACHED UNDER REFERENCE NUMBERS:

v) Measured Discards and Retained Waste

vi) Operation Records and Accounts  
(Including method of adjustment or  
correction and place of preservation  
and language)

NUCLEAR MATERIAL ACCOUNTANCY

26. FOR EACH KEY MEASUREMENT POINT IDENTIFIED UNDER QS. 14 and 22, GIVE THE FOLLOWING\*

i) Identification

ii) Chemical and Physical Form of Material

iii) Sampling Procedure and Equipment Used

iv) Measurement/Analytical Method and Equipment Used

v) Source and Level of Random and Systematic Errors (weighing, volume, sampling, analytical)

vi) Method of Converting Source Data to Batch Data (standard calculative procedures, constants and empirical relationships)

\* COMPLETE PAGE 9 AND PAGE 10 FOR EACH KMP



## NUCLEAR MATERIAL ACCOUNTANCY AND CONTROL

26. FOR EACH KEY MEASUREMENT POINT IDENTIFIED UNDER QS. 14 and 22, GIVE THE FOLLOWING\*

vii) Calculative and Error Propagation Technique

viii) Technique and Frequency of Calibration of Equipment Used

ix) Programme for the Continuing Appraisal of the Accuracy of Weight, Volume, Sampling Techniques and Measurement Methods

x) Programme for Statistical Evaluation of Data from (viii) and (ix)

\* COMPLETE PAGE 9 AND PAGE 10 FOR EACH KMP

**NUCLEAR MATERIAL ACCOUNTANCY AND CONTROL**

27. OVERALL LIMIT OF ERROR  
Describe procedures to combine individual measurement error measurements to obtain the overall limit of error for:

i) S/R Difference

ii) Book Inventory

iii) Physical Inventory

iv) MUF

**OPTIONAL INFORMATION**

28. OPTIONAL INFORMATION  
(that the operator considers relevant to safeguarding the facility)

Signature of Responsible Officer:

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Date:

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