

ISOTOPIC ENRICHMENT PLANTS



IAEA
International Atomic Energy Agency

APPROVED BY OMB: NO. 3150-0056

EXPIRES: (MM/DD/YYYY)

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INTERNATIONAL ATOMIC ENERGY AGENCY DEPARTMENT OF SAFEGUARDS

DESIGN INFORMATION QUESTIONNAIRE *

IAEA USE ONLY

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The purpose of this document is to obtain the facility design information required by the Agency in order to discharge its safeguards responsibilities. It will also serve as a checklist for examination of design information by Agency inspector(s). If, in any area, insufficient space is available add further sheets to the extent necessary.

IAEA USE ONLY	
COUNTRY	
COUNTRY OFFICER	
TYPE	Isotopic enrichment plants
DATE OF INITIAL DATA	
VERIFICATION	
LAST REVIEW AND UPDATING	

ALL FACILITIES

GENERAL INFORMATION

1. Name of the facility (include usual abbreviation)			
2. Location and postal address			
3. Owner (Legally responsible)			
4. Operator (Legally responsible)			
5. Description (Main features only)			
6. Purpose			
7. Status (e.g., planned; under construction, in operation; shut down; closed down; decommissioned)			
8. Construction schedule dates (if not in operation)	Start of Construction (MM/DD/YYYY) <div style="border: 1px solid black; height: 30px; width: 100%;"></div>	Commissioning (MM/DD/YYYY) <div style="border: 1px solid black; height: 30px; width: 100%;"></div>	Operation (MM/DD/YYYY) <div style="border: 1px solid black; height: 30px; width: 100%;"></div>
9. Normal operating mode (days only, two shift, three shift; number of days/annum, etc.)			
10. Facility layout (structural containment, fences, access, nuclear material storage areas, laboratories, waste disposal areas, routes followed by nuclear material, experimental and test areas, etc.)	DRAWING(S) ATTACHED UNDER REF. NOs. <div style="border: 1px solid black; height: 80px; width: 100%;"></div>		
11. Sitting of facility (Maps showing in sufficient detail: location, premises and perimeter of facility, other buildings, roads, railways, rivers, etc.)	DRAWING(S) AND/OR MAPS ATTACHED UNDER REF. NOs. <div style="border: 1px solid black; height: 60px; width: 100%;"></div>		
12. Names and/or titles and address of responsible officers (for nuclear material accountancy and control and contact with the Agency. If possible attach organization charts showing position of officers)			



OVERALL PROCESS PARAMETERS

13. Facility description ((indicating important items of equipment which use, produce or process nuclear material, all process stages and storage areas and feed, product, tail and waste points)	GENERAL FLOW DIAGRAM(S) ATTACHED UNDER REF. NOS.) <div style="border: 1px solid black; height: 60px; margin-top: 5px;"></div>
14. Process description (identifying sampling and key measurement points; MBAs; inventory locations)	FLOWSHEET(S) FOR NORMAL OPERATION ATTACHED UNDER REF. NOS.) <div style="border: 1px solid black; height: 60px; margin-top: 5px;"></div>
15. Design capacity (Throughput and energy consumption)	MTUSW/annum and MW <div style="border: 1px solid black; height: 60px; margin-top: 5px;"></div>
16. Anticipated throughput (in the form of a forward program indicating proportion of various feeds and products)	<div style="border: 1px solid black; height: 60px; margin-top: 5px;"></div>

NUCLEAR MATERIAL DESCRIPTION AND FLOW

17. Main material description	Feed	Product	Tails
i) Chemical and physical form			
ii) Throughput and enrichment ranges (for normal flowsheet 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			
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

19. Container and storage area descriptions

SEPARATE NOTE TO BE ATTACHED.
Describing for feeds, products and wastes: the type and size of containers used (include operational capacity); method of storage: filling and emptying procedures (include time cycle); and any special identification features.

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20. Measured discards and retained waste As % of input

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21. Inventory

i) In-process
(within plant and equipment during normal operation; indicate quantity, form and main and any significant change with time or throughput)

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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

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ii) Plant and equipment decontamination and subsequent nuclear material recovery

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iii) Plant and equipment clean-out including means of ensuring vessels are empty

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PROTECTION AND SAFETY MEASURES

23. Basic measures for physical protection of nuclear material

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24. Specific health and safety rules for inspector compliance
(if extensive, attach separately)

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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:

SPECIMEN FORMS USED IN ALL PROCEDURES ATTACHED UNDER REF. NOs.

i) General

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

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NUCLEAR MATERIAL ACCOUNTANCY

iii) Shipments
(product and waste)

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iv) Physical inventory
(Frequency, procedures, estimated
distribution)

LIST OF MAJOR ITEMS OF EQUIPMENT REGARDED AS NUCLEAR MATERIAL CONTAINERS
ATTACHED UNDER REF. NOS.

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v) Measured discards

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vi) Operational records and accounts
(including method of adjustment or
correction and place of preservation,
and language)

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**26. For each key measurement
point identified under Qs. 14 and 22
Give the following:**
For each measurement point fill in
separate sheet.
Number of measurement points: 1

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i) Identification

ii) Chemical and physical form of
material

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iii) Sampling procedure and
equipment used

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iv) Measurement/analytical method
and equipment used

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v) Source and level of random and
systematic errors
(weighing, volume, sampling,
analytical)

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vi) Method of converting source data
to batch data
(standard calculative procedures,
constants and empirical relationships)

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vii) Calculative and error propagation
technique

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viii) Technique and frequency of
calibration of equipment used

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ix) Program for the continuing
appraisal of the accuracy of weight,
volume, sampling techniques and
measurement methods

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x) Program for statistical evaluation
of data from (viii) and (ix)

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NUCLEAR MATERIAL ACCOUNTANCY

27. Features related to containment and surveillance measures

(general description of applied or possible measures in reference to floor plan or plant layout)

i) S/R differences

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ii) Book inventory

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iii) Physical inventory

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iv) MUF

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POST-OPERATION INFORMATION

28. Decommissioning schedule dates

End of operations (MM/DD/YYYY)

Decommissioned (MM/DD/YYYY)

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29. Facility decommissioning plan

PLAN(s) ATTACHED UNDER REF. NOS

i) Key events of the decommissioning plan

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ii) Removal and recovery of nuclear material

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iii) Removing or rendering inoperable essential equipment

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OPTIONAL INFORMATION

30. Optional information

(that the operator considers relevant to safeguarding the facility)

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Signature of Responsible Officer

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