

# RESEARCH AND DEVELOPMENT FACILITIES



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International Atomic Energy Agency

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## INTERNATIONAL ATOMIC ENERGY AGENCY DEPARTMENT OF SAFEGUARDS

# DESIGN INFORMATION QUESTIONNAIRE \*

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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	Research and development facilities
DATE OF INITIAL DATA	
VERIFICATION	
LAST REVIEW AND UPDATING	

## ALL FACILITIES

### GENERAL INFORMATION

<b>1. Name of the facility</b> (include usual abbreviation)			
<b>2. Location and postal address</b>			
<b>3. Owner</b> (Legally responsible)			
<b>4. Operator</b> (Legally responsible)			
<b>5. Description</b> (Main features only)			
<b>6. Purpose</b>			
<b>7. Status</b> (e.g., planned; under construction, in operation; shut down; closed down; decommissioned)			
<b>8. Construction schedule dates</b> (if not in operation)	<b>Start of Construction (MM/DD/YYYY)</b>	<b>Commissioning (MM/DD/YYYY)</b>	<b>Operation (MM/DD/YYYY)</b>
<b>9. Normal operating mode</b> (days only, two shift, three shift; number of days/annum, etc.)			
<b>10. Facility layout</b> (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.		
<b>11. Sitting of facility</b> (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.		
<b>12. Names and/or titles and address of responsible officers</b> (for nuclear material accountancy and control and contact with the Agency. If possible attach organization charts showing position of officers)			



### GENERAL FACILITY DATA

<b>13. Facility description</b> (with indication of accountability areas)	GENERAL DIAGRAM(S) ATTACHED UNDER REF. NOs.)
<b>14. Normal Inventory</b>	
<b>15. Anticipated annual throughput and/or inventory for the facility working at nominal capacity</b>	
<b>16. Description of the use of nuclear material</b>	
<b>17. Important items of equipment which use, produce or process nuclear material</b>	

### NUCLEAR MATERIAL DESCRIPTION

<b>18. Main types of account units to be handled in the facility</b>	
<b>19. Nuclear material description for each accountability area (General)</b> i) Chemical and physical form (with cladding materials description)	
ii) Enrichment ranges and Pu contents	
iii) Estimated nominal weight of nuclear material at the facility	
<b>20. Waste material</b> i) Source and form (indicating major contributors; liquid or solid; range of constituents, enrichment range and Pu content including contaminated equipment)	
ii) Quantities in storage and at other locations	
iii) Method and frequency of recovery/ disposal	
<b>21. Other nuclear material in the facility and its location</b> (Each separately located)	
<b>22. Means of nuclear material identification in the facility</b>	
<b>23. Radiation level at nuclear material locations</b> (At the surface of the nuclear material and at distance of 1 meter in $\mu\text{Sv/h}$ , $\text{mSv/h}$ or $\text{Sv/h}$ )	

## NUCLEAR MATERIAL FLOW

**24. Schematic flowsheet for nuclear material**

(identifying measurement points, accountability areas, inventory location, etc. for operator purposes)

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**25. Types, form and range of quantities of nuclear material in**

-- Operation areas  
-- storage areas  
-- other locations  
(average data for each location)

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## NUCLEAR MATERIAL HANDLING (FOR EACH ACCOUNTABILITY AREA)

**26. Description of nuclear material storage**

(Indicating capacity, anticipated inventory and throughput, etc.)

DRAWING(S) ATTACHED UNDER REF. NOs.

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**27. Maximum quantity of nuclear material be be handled in accountability areas**

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**28. Modification of the physical/ chemical form during operation**

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**29. Nuclear material transfer**

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**30. Frequency of receipt and shipment**

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**31. Nuclear material transfer equipment (If applicable)**

DRAWING(S) ATTACHED UNDER REF. NOs.

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**32. Description of containers used for storage and handling**

DRAWING(S) ATTACHED UNDER REF. NOs.

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**33. Routes followed by nuclear material**

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**34. SHIELDING (for storage and transfer)**

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## PROTECTION AND SAFETY MEASURES

**35. Basic measures for physical protection of nuclear material**

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

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**NUCLEAR MATERIAL ACCOUNTANCY AND CONTROL**

**37. System description**

Give a description of the nuclear material accountancy 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. No.

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i) General

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ii) Receipts

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

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iii) Shipments

(Including waste)

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iv) Measured discards

(Estimated quantities per year (month), method of management)

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v) Retained waster

(Estimated quantities per year, period of storing)

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vi) Physical inventory

Description of procedures, scheduled frequency, estimated distribution of nuclear material, methods of operator's inventory taking (both for item and/or mass accountancy, including relevant assay method), accessibility and possible verification method for irradiated nuclear material, expected accuracy, and access to nuclear material

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

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vii) Operational records and

accounting records

(including method of adjustment or correction and place of preservation and language)

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**38. Features related to containment and surveillance measures**

(general description of applied or possible measures)

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**39. For each measurement point of accountability areas identified under Qs. 24, Give the following:**

For each measurement point fill in separate sheet.  
Number of measurement points: 1

SEPARATE SHEET(S) CAN BE ATTACHED FOR EACH MEASUREMENT POINT. IF NECESSARY, ATTACH DRAWING(S)

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i) Description of location, type identification



## NUCLEAR MATERIAL ACCOUNTANCY AND CONTROL

ii) Anticipated types of inventory change and/or possibilities to use this measurement point for physical inventory taking	
iii) Physical and chemical form of nuclear material (with cladding materials description)	
iv) Nuclear material containers, packaging	
v) Sampling procedure and equipment used	
vi) Measurement method(s) and equipment used	
vii) Source and level of random and systematic errors (weight, volume, sampling, analytical, NDA)	
viii) Technique and frequency of calibration of equipment used	
ix) Method of converting source data to batch data	
x) Means of batch identification	
xi) Anticipated batch flow rate per year	
xii) Anticipated number of inventory batches	
xiii) Anticipated number of items per flow and inventory batches	
xiv) Type, composition and quantity of nuclear material per batch (with indication of batch data, total weight of nuclear material in item, the isotopic composition (for uranium), and Pu content, when appropriate; form of nuclear material)	
xv) Features related to containment-surveillance measures	

## POST-OPERATION INFORMATION

<b>40. Decommissioning schedule dates</b>	End of operations (MM/DD/YYYY)	Decommissioned (MM/DD/YYYY)



### POST-OPERATION INFORMATION

**41. Facility decommissioning plan**

PLAN(s) ATTACHED UNDER REF. NOs

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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 of essential equipment

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### OPTIONAL INFORMATION

**42. Optional information**  
(that the operator considers relevant to safeguarding the facility)

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**Signature of Responsible Officer**

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**Date (MM/DD/YYYY)**

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