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Contents: Transportation of Radioactive Materials Offsite

Effective: **June 2001**

Point of Contact: [Transportation Safety Officer](#)

Section	Overview of Content (see section for full process)
Introduction 1. Packaging and Shipping Radioactive Materials from BNL to Offsite	<ul style="list-style-type: none"> • Determine if material's specific activity is >70 Bq/g (2 nCi/g). • Determine who will provide DOT Certification. • Follow requirements of one of four scenarios on DOT Certification.
2. Packaging and Shipping Radioactive Materials from Offsite to BNL	<ul style="list-style-type: none"> • Contact I&SM to arrange for packaging and shipping. • Obtain authorization number. • Ship materials.
Definitions	
Exhibits Transportation of Radioactive Materials Off-site Flowchart	
Forms I&SM PTP 002 Form	

Training Requirements and Reporting Obligations

This subject area does not contain training requirements.

This subject area does not contain reporting obligations.

References

49 CFR 173.403, Class 7 (Radioactive) Material

[ES&H Standard 1.3.5, Planning and Control of Experiments](#)

[ES&H Standard 1.3.6, Work Planning and Control for Operations](#)

FS-SOP-1050, Radiological Survey for Radioactive Material Shipments

[Hazardous Material Transportation Manual](#) Program Description

[Hazardous Material Transportation Safety](#) Management System Description

[Radiological Control Manual](#) Program Description

Standards of Performance

Managers shall manage work to control risks and hazards, ensure customer satisfaction, and provide a benefit to BNL.

Managers shall analyze work for hazards, authorize work to proceed, and ensure that work is performed within established controls.

All staff and users shall identify, evaluate, and control hazards in order to ensure that work is conducted safely and in a manner that protects the environment and the public.

Managers shall ensure that work is planned to prevent pollution, minimize waste, and conserve resources, and that work is conducted in a cost-effective manner that eliminates or minimizes environmental impact.

All staff and users shall ensure that they are trained and qualified to carry out their assigned responsibilities, and inform their supervisor if they are assigned to perform work for which they are not properly trained or qualified.

All staff and guests shall promptly report accidents, injuries, ES&H deficiencies, emergencies, and off-normal events in accordance with procedures.

Managers shall establish, implement, and track appropriate actions to correct weaknesses in performance and areas for improvement.

Management System

This subject area belongs to the **Hazardous Material Transportation Safety** management system.

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Introduction: Transportation of Radioactive Materials Offsite

Effective: **June 2001**

Point of Contact: [Transportation Safety Officer](#)

This subject area covers the step-by-step process that BNL staff and non-BNL staff must follow to ship radioactive materials to off-site locations and from off-site locations to BNL. All shipments of radioactive material >70 Bq/g (2 nCi/g) shipped to off-site locations must adhere to commercial requirements, such as the International Air Transport Association (IATA) and Department of Transportation (DOT) requirements and must be shipped through the Isotopes & Special Material Group. Shipment of material ≤70 Bq/g (2 nCi/g) is not governed by this subject area. Staff conducting these shipments must follow the [Radiological Control Manual](#) Program Description. Regulatory violations can and will result in civil and/or criminal penalties against the Laboratory and/or the individuals who ship the material.

Refer to the [Transportation of Radioactive Materials Off-site Flowchart](#) for an overview of the procedures in this subject area. See the [Hazardous Material Transportation Safety](#) Management System Description for an overview of the Transportation Safety Program.

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Subject Area: **Transportation of Radioactive Materials Offsite**

1. Packaging and Shipping Radioactive Materials from BNL to Offsite

Effective: **June 2001**

Point of Contact: [Transportation Safety Officer](#)

Applicability

This information applies to BNL staff and non-BNL staff who package and ship radioactive materials from BNL to an off-site location. It does not apply to materials shipped by staff in the Isotopes & Special Material Group, Procurement and Property Management Division (Traffic Office), and Waste Management Division.

Required Procedure

Packaging and Shipping Radioactive Materials from BNL to Offsite contains four subsections:

- [1.1 Scenario 1. Isotopes and Special Material Group \(I&SM\) Provides DOT Certification](#)
- [1.2 Scenario 2. On-site/Off-site Contractor Provides DOT Certification](#)
- [1.3 Scenario 3. On-site/Off-site Contractor Provides Packaging Services with I&SM Providing DOT Certification](#)
- [1.4 Scenario 4. Department/Division Provides Packaging Services and DOT Certification](#)

Shipment of hazardous materials must adhere to commercial requirements, such as the International Air Transport Association (IATA) and Department of Transportation (DOT) requirements. For the purposes of Transportation Safety, radiological material is considered hazardous material.

Use of Radiological Control Division Facility Support procedure FS-SOP-1050, Radiological Survey for Radioactive Material Shipments is required for surveys of all offsite shipments of radioactive material regardless of who is providing the Department of Transportation shipping certification.

BNL staff and non-BNL staff packaging and shipping radioactive materials from BNL to offsite follow the steps below.

Step 1	<p>Determine if the material's specific activity is >70 Bq/g (2 nCi/g). Contact a Facility Support Representative or technician for assistance in making this determination. If the material's activity is greater, follow this subject area. If not, no further action is required by this subject area.</p> <p>Note: Items that are verified to contain <=70 Bq/g (2 nCi/g) of radioactive material do not meet the DOT definition of radioactive material. These items, not considered "radioactive" by DOT, are prepared for shipment in accordance with the Radiological Control Manual Program Description. Contact a Facility Support Representative or technician for assistance.</p>
Step 2	<p>Determine who will provide the "DOT Certification" for the radioactive material shipped offsite. (See the note for information on DOT Certification). Then follow the requirements for that scenario. There are four scenarios.</p>

	<p>Scenario 1. The Isotopes and Special Material Group (I&SM) provides the certification.</p> <p>Scenario 2. The on-site/off-site contractor provides the DOT Certification with oversight from I&SM.</p> <p>Scenario 3. An on-site/off-site contractor provides packaging services with I&SM providing the DOT Certification.</p> <p>Scenario 4. The Department/Division provides packaging services and their own DOT Certification.</p> <p>Note: All off-site shipments of radioactive materials that require a shipping paper must include a signed Shipper's Certification on the shipping paper. This certification is signed by the person who offers the radioactive material for transportation. The certification is a legal statement that (when signed) certifies that the radioactive materials being offered for transportation are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to applicable domestic and/or international regulations. Only those staff who have been trained to the appropriate level, as described in Chapter 10 of the Hazardous Material Transportation Manual Program Description, which is in conformance with federal regulation 49CFR172 Subpart H - Training, (refer to Section 3.2.5 of the Hazardous Material Transportation Safety Management System Description), may sign the Shipper's Certification. Failure to provide a signed certification by an authorized and trained individual is a violation of federal law and will result in civil and/or criminal penalties against individuals and/or the Laboratory.</p>
<p>Step 3</p>	<p>Contact your Facility Support Representative to arrange a radiological survey for all radioactive material shipments going offsite. Standard Operating Procedure FS-SOP-1050, Radiological Survey for Radioactive Material Shipments must be followed for this survey.</p>

Scenario 1. Isotopes and Special Material Group (I&SM) Provides DOT Certification

<p>Step 1</p>	<p>Contact the Isotopes and Special Materials Group (I&SM) and send a completed I&SM PTP 002 Form, which provides the following information, to determine packaging and shipping requirements:</p> <ul style="list-style-type: none"> • Shipping address, including street number, receiver's name, and telephone number; • For each container, identify isotopes and their quantities along with a container description; • Exact chemical composition for reagent, solution, or mixture; • Chemical form, e.g., gas, solid, or liquid; • Preferred transportation mode, e.g., air or ground; • Client, e.g., DOE or private; • BNL account number and/or Federal Express account number. <p>Note: Items that are verified to contain ≤ 70 Bq/g (2 nCi/g) of radioactive material do not meet the DOT definition of radioactive material. These items, not considered "radioactive" by DOT, are prepared for shipment in accordance with the Radiological Control Manual Program Description. Contact a Facility Support Representative or technician for assistance.</p>
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Scenario 2. On-site/Off-site Contractor Provides DOT

Certification

Step 1	Contact the Isotopes and Special Materials Group (I&SM) and request their oversight at the beginning of the project or program.
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Scenario 3. On-site/Off-site Contractor Provides Packaging Services with I&SM Providing DOT Certification

Step 1	Contact the Isotopes and Special Materials Group (I&SM) to arrange a meeting of your staff and contractor staff with I&SM before shipment at the beginning of the project or program.
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Scenario 4. Department/Division Provides Packaging Services and DOT Certification

Step 1	Your Department/Division must develop a radiological hazardous material shipping program in compliance with the Hazardous Material Transportation Manual Program Description and DOT 49 CFR. This program must be approved in writing by the Transportation Safety Officer and the Deputy Director for Operations before any shipments.
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References

FS-SOP-1050, Radiological Survey for Radioactive Material Shipments

[Hazardous Material Transportation Manual](#) Program Description

[Hazardous Material Transportation Safety](#) Management System Description

[Radiological Control Manual](#) Program Description

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Subject Area: **Transportation of Radioactive Materials Offsite**

2. Packaging and Shipping Radioactive Materials from Offsite to BNL

Effective: **June 2001**

Point of Contact: [Transportation Safety Officer](#)

Applicability

This information applies to BNL staff and non-BNL staff who package and ship radioactive materials from an off-site location to BNL. It does not apply to materials shipped by staff in the Isotopes & Special Material Group, Procurement and Property Management Division (Traffic Office), and Waste Management Division.

Required Procedure

Shipment of radioactive materials must adhere to commercial requirements, such as the International Air Transport Association (IATA) and Department of Transportation (DOT) requirements. For the purposes of Transportation Safety, radiological material is considered hazardous material.

BNL staff and non-BNL staff packaging and shipping radioactive materials from offsite to BNL follow the steps below.

Step 1	<p>Staff must not package and ship radioactive material from offsite to BNL themselves. Contact the Isotopes & Special Material Group (I&SM) for assistance to either</p> <ul style="list-style-type: none"> • Arrange to have the radioactive materials packaged and shipped through the off-site facility's shipping department; or • Obtain the services of a qualified broker, which will package and ship the radioactive hazardous materials to BNL in compliance with all DOT and other applicable regulations. <p>I&SM conducts shipments only under unusual conditions.</p> <p>Note: The need to ship radioactive materials from an off-site location to BNL should be anticipated during the completion of the documentation covered under ES&H Standard 1.3.5, Planning and Control of Experiments and ES&H Standard 1.3.6, Work Planning and Control for Operations, or an existing radiation work permit. The preparation of the documentation is used to plan for the proper shipment of hazardous materials from an off-site location to BNL.</p>
Step 2	Contact I&SM (631-344-5241) to obtain an authorization number before shipment.
Step 3	<p>Ship radioactive materials to</p> <p>U.S. Department of Energy c/o Brookhaven National Laboratory Bldg. 100, Receiving Upton. NY 11973</p>

ATTN: Isotopes & Special Materials Group
For: "Name of Recipient" and "Authorization Number"

Note: These materials include radioactive material that is shipped by overnight shipper, i.e., Federal Express, DHL. Radioactive material is not to be shipped directly to the location of the Department/Division using it.

Note: The Radiological Control Division must survey the package before its contents are handled.

References

[ES&H Standard 1.3.5, Planning and Control of Experiments](#)

[ES&H Standard 1.3.6, Work Planning and Control for Operations](#)

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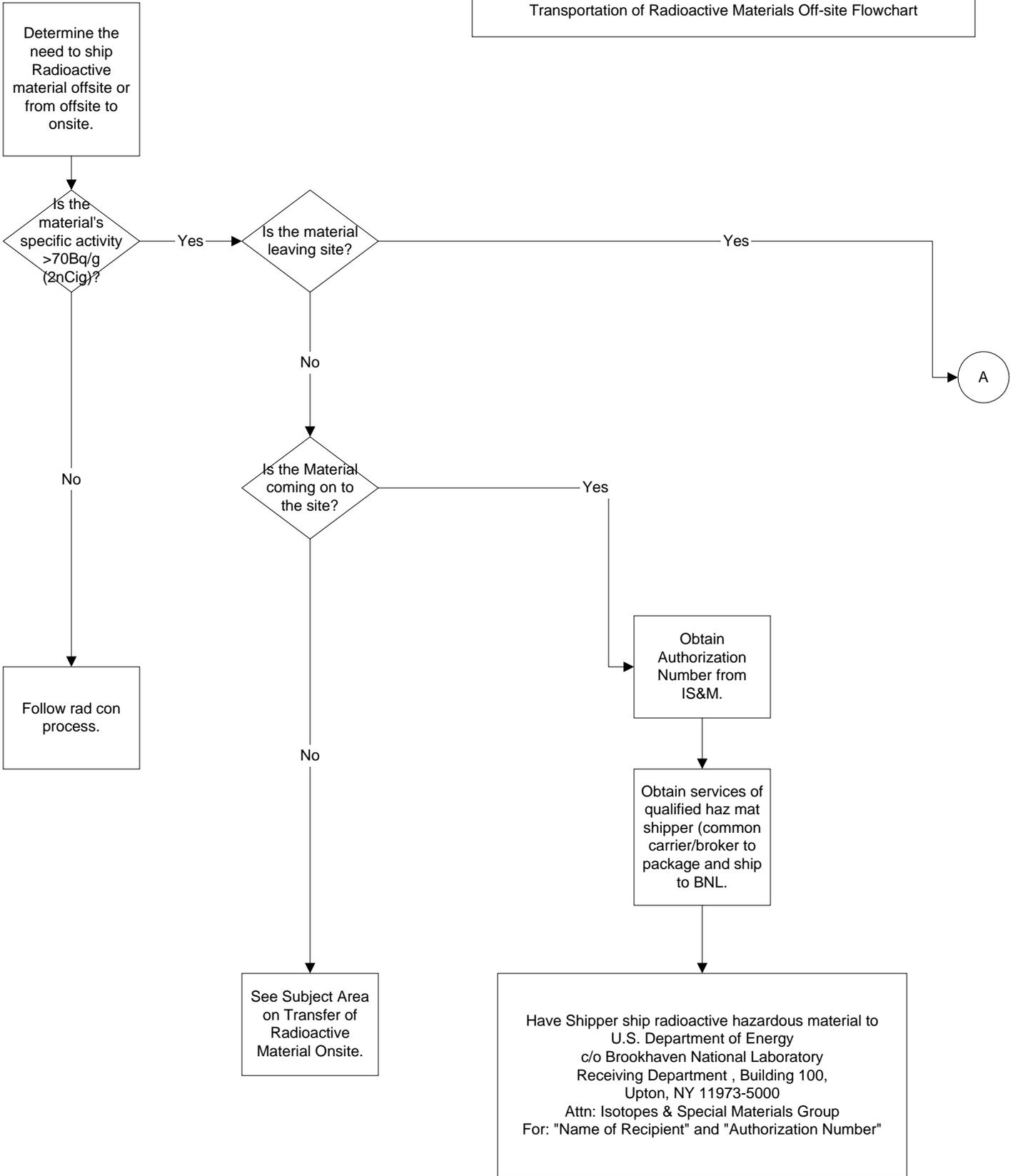
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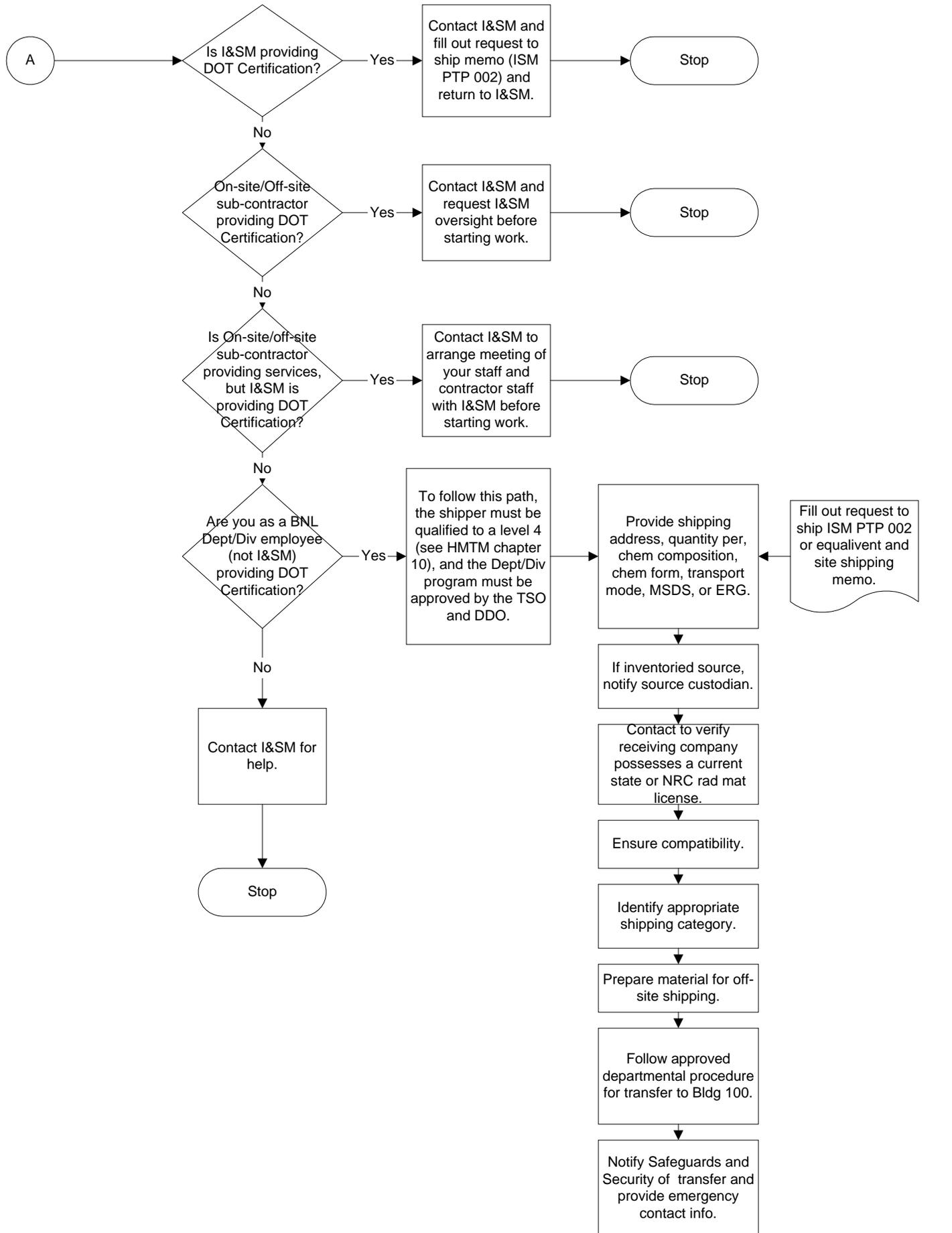
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Transportation of Radioactive Materials Off-site Flowchart



Transportation of Radioactive Materials Off-site Flowchart



Brookhaven National Laboratory

MEMORANDUM

Date: _____

To: Isotopes & Special Materials Group (Bldg. 801, Fax: ext. 8121)

From (Name & Dept.): _____

Subject: Request Shipment of Radioactive Material

Reason for Shipment: _____

Please arrange for the proper packaging and shipment of the following RADIOACTIVE MATERIAL:

A. Description of Material

1. Item	Quantity					
2. Radioisotope(s)						
3. Activity						
4. Physical Form	<input type="checkbox"/> Solid	<input type="checkbox"/> Liquid	<input type="checkbox"/> Gas	(Check One)		
5. Chemical Form	_____					
6. Net Weight	_____ gms		or	_____ Volume		_____ ml
7. Does this material have any other hazardous characteristics? (i.e., Explosives, Flammable Liquid, Corrosive) If Yes, give details:			<input type="checkbox"/> Yes			<input type="checkbox"/> No

8. Brief description of packaging (i.e., box, bagged, canned, Pb shield):	_____					

9. Location of Material	Bldg. No.	_____	Room No.	_____		
10. Person to contact	_____				Extension	_____

B. RADIOLOGICAL SURVEY INFORMATION

11. Radiation at contact with item unshielded	_____	mRem / hr
12. Radiation at contact with item shielded	_____	mRem / hr
13. Contamination level on primary container	_____	dpm / cm ²
14. FACILITY SUPPORT GROUP - COGNIZANCE		

Name _____ Signature _____ Ext. _____ Date _____

C. _____
Print
NOTE: Shipping Address can not be a Post Office Box. Item shipped should be addressed to Radiation Safety Office.

Ship To _____

Attention Radiation Safety c/o _____ Telephone No. _____

NRC or State License No. _____ BNL Account No. (Required) _____

Please call I&SM at ext. 5645, 3271, or Request Ship Date _____ Federal Express Account Number _____



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Definitions: Transportation of Radioactive Materials Offsite

Effective: **June 2001**

Point of Contact: [Transportation Safety Officer](#)

Term	Definition
DOT Certification	All off-site shipments of radioactive materials that require a shipping paper must include a signed Shipper's Certification on the shipping paper. This certification is signed by the person who offers the radioactive material for transportation. The certification is a legal statement that (when signed) certifies that the radioactive materials being offered for transportation are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to applicable domestic and/or international regulations. Only those staff who have been trained to the appropriate level, as described in Chapter 10 of the Hazardous Material Transportation Manual Program Description, which is in conformance with federal regulation 49CFR172 Subpart H - Training, (refer to Section 3.2.5 of the Hazardous Material Transportation Safety Management System Description), may sign the Shipper's Certification. Failure to provide a signed certification by an authorized and trained individual is a violation of federal law and will result in civil and/or criminal penalties against individuals and/or the Laboratory.
radioactive material	As defined in 49 CFR 173.403, any material having a specific activity >70 Bq/g (2 nCi/g).
specific activity	The activity of the radionuclide per unit mass of that radionuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the activity per unit mass of the material.

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Revision History: Transportation of Radioactive Materials Offsite

Point of Contact: [Transportation Safety Officer](#)

Revision History of this Subject Area

Date	Description	Management System
June 2001	<p>This subject area covers the step-by-step process that BNL staff and non-BNL staff must follow to ship radioactive materials to off-site locations and from off-site locations to BNL. All shipments of radioactive material >70 Bq/g (2 nCi/g) shipped to off-site locations must adhere to commercial requirements, such as the International Air Transport Association (IATA) and Department of Transportation (DOT) requirements, and must be shipped through the Isotopes & Special Material Group.</p> <p>Shipment of material <=70 Bq/g (2 nCi/g) is not governed by this subject area.</p>	Hazardous Material Transportation Safety

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