



# RADIATION PROCEDURES MANUAL

## Procedure Cover Sheet

Procedure Title: **SHIPMENT OF EXCEPTED QUANTITIES OF RADIOISOTOPES**

Procedure Number: **TSO-10-14-REV 4**

Effective Date: **April 5, 2011**

Approved by: Richard R. Brey  
Technical Safety Office Director

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# RPR 14 SHIPMENT OF EXCEPTED QUANTITIES OF RADIOISOTOPES

## **PURPOSE**

This procedure contains instructions and checklists to assure compliance with federal regulations for shipment of excepted quantities of radioisotopes to other licensees or for transporting radioactive materials between buildings within the University.

## **PROCEDURES**

Radioactive materials may be transported on public roads or shipped to another licensee only after verification that all licensing, transfer, packaging, labeling and transportation requirements have been met. To assure that all requirements are met, and that appropriate records are maintained, a checklist must be prepared by the Technical Safety Office (TSO) before the shipment is made.

## **PROCEDURES**

1. The person planning to transport radioactive material between University buildings or to ship to another institution must first contact the TSO.
2. For transportation of any quantities of radioactive materials the individual desiring authorization to transport the material shall complete the "REQUEST FOR SHIPMENT OF RADIOACTIVE MATERIAL" (RPR 14 ISU-1) and submit it to the TSO before the material is transported.
3. Signatures on the RPR 14 ISU-1 form must be of the Responsible Users between which the Radioactive Material will be transferred.
4. TSO will verify appropriate material and package limits, and record findings on "CLASSIFICATION OF SHIPMENT OF LIMITED QUANTITY OF RADIOACTIVE MATERIAL" (RPR 14 ISU-2).
5. For intramural shipment, when the TSO determines that the person requesting the shipment is qualified to transport the material, permission will be given using "AUTHORIZATION TO TRANSPORT LIMITED QUANTITY OF RADIOACTIVE MATERIAL" (RPR 14 ISU-3).
6. Prior to off-campus shipment, the TSO must verify the license status and shipping address of the consignee, and approve the packaging and contamination survey, then contact the shipping coordinator to prepare shipping papers, and arrange transport.

## **DEFINITIONS – USDOT [References to 49 CFR]**

**Radioactive Material:** Any material having a specific activity greater than 70 Bq/g (0.002 mCi/g), in accordance with 49 CFR 173.403. Also, any material with surface contamination (both fixed and non-fixed/removable) that, when averaged over each 300 cm<sup>2</sup> (46.5 in<sup>2</sup>) of all surfaces, is equal to or greater than .4 Bq/cm<sup>2</sup> (10<sup>-5</sup> mCi/cm<sup>2</sup>) for Beta and Gamma emitters and low-toxicity Alpha emitters; and equal to or greater than .04 Bq/cm<sup>2</sup> (10<sup>-6</sup> mCi/cm<sup>2</sup>) for all other Alpha emitters.

**Limited Quantities:** Packages that are exempt from specific packaging and labeling requirements because they contain no more than the following:

<b>Solids:</b>	0.001 $A_1$ of special form or 0.001 $A_2$ of other solids
<b>Liquids</b>	0.0001 $A_2$

Additional limits are provided in 46 CFR 173.423.

**Contamination Limits:** Removable contamination on the surfaces of any package or vehicle shall be determined by wiping an area of 300 cm<sup>2</sup>; the measured activity on the wipe shall not exceed 3 nCi (6600 dpm) of beta emitters, natural uranium or thorium, or 0.3 nCi (660 dpm) for other alpha emitters [173.443].

**Shipping Paper:** A shipping order, bill of lading, manifest or other shipping document serving a similar purpose and containing the information required by 49 CFR 172.202, 49 CFR 172.203 and 49 CFR 172.204.

## **REFERENCES**

- U.S. Department of Transportation (DOT) regulations, 49 CFR, Parts 171 through 178.
- U.S. Nuclear Regulatory Commission (NRC) regulations, 10 CFR, Parts 61 and 71.
- U.S. Postal Service Publication #6, Radioactive materials, December 1975.
- U.S. Environmental Protection Agency (EPA) regulations, 40 CFR, Parts 260-262.

**RPR 14 ISU-1 REQUEST FOR SHIPMENT OF RADIOACTIVE MATERIAL**

This form is to be completed for **transportation of any quantities of radioactive materials**. The individual desiring transportation of the material shall complete the form and submit it to the TSO for approval **before the material is transported**. For repetitive intramural transfers of the same material, a generic form may be used repetitively. **THIS REQUEST IS VALID ONLY FOR MATERIALS POSSESSED BY IDAHO STATE UNIVERSITY** [References are to Department of Transportation regulations, Title 49, Code of Federal Regulations.]

**For Transportation Between (Consignor/Consignee):**

**From:**

**To:**

Name (RU): \_\_\_\_\_

Name (RU): \_\_\_\_\_

Address: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Phone: \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

**Package Contents and Hazardous Material Classification:**

Description of Material (Solid/Liquid, Serial Number, Type of Packaging, etc.):

\_\_\_\_\_

\_\_\_\_\_

Nuclide	Item Activity (Bq/Ci)	Package Activity (Bq/Ci)	Nuclide	Item Activity (Bq/Ci)	Package Activity (Bq/Ci)	Nuclide	Item Activity (Bq/Ci)	Package Activity (Bq/Ci)

**Type of Request**

\_\_\_\_\_ One Time, One Way

\_\_\_\_\_ One Time, Round Trip (Same Day)

\_\_\_\_\_ Routine Shipment from \_\_\_\_\_ (date) to \_\_\_\_\_ (date)

**RPR 14 ISU-2 CLASSIFICATION OF SHIPMENT OF LIMITED QUANTITY OF  
RADIOACTIVE MATERIAL**

**Package Category for Packaging and Labeling**

Initials

\_\_\_\_\_ Initial here and use check list below if the package qualifies as a Limited Quantity (less than  $10^{-3} A_1$  for special form material. i.e. sealed source; less than  $10^{-3} A_2$  for solid material; or less than  $10^{-4} A_2$  for liquid material.) [49 CFR 173.423].

\_\_\_\_\_ Initial here and proceed to RPR 55 if package exceeds Limited Quantity.

**For a Limited Quantity**

\_\_\_\_\_ DOT requires a strong, tight package that will not leak during conditions normally incident to transportation [49 CFR 173.24 and 49 CFR 173.421]. A metal or plastic file box or toolbox with latching lid is suggested for repeated use.

\_\_\_\_\_ Names of consignee and consignor on outside of package.

\_\_\_\_\_ This statement must be on the package, on the shipping paper, or otherwise accompany the shipment: **“Idaho State University. This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s., UN2910.”** [49 CFR 173.421-1(a)]

\_\_\_\_\_ The inner package or, if there is no inner packaging, the outside of the packaging itself bears the marking “Radioactive”. [49 CFR 173.421(b)]

**Radiation Survey**

*Dose rates* measured with \_\_\_\_\_ (Model)

Ser. No.: \_\_\_\_\_ Calibration date: \_\_\_\_\_

\_\_\_\_\_ Maximum at surface = \_\_\_\_\_ mrem/hr (For Limited Quantity, maximum at surface must be less than or equal to 0.5 mrem/hr [173.421]).

*Contamination* measured with \_\_\_\_\_ (Model)

Ser. No.: \_\_\_\_\_ Efficiency: \_\_\_\_\_ Calibration date: \_\_\_\_\_

Count rates: Gross: \_\_\_\_\_ cpm Background: \_\_\_\_\_ cpm Net: \_\_\_\_\_ cpm

\_\_\_\_\_ Less than 0.3 nCi (660 dpm) alpha and less than 3 nCi (6600 dpm) beta-gamma removable contamination **per wipe of 300 cm<sup>2</sup>**. [49 CFR 173.421, 49 CFR 173.443(a)]

Surveyed by (signature): \_\_\_\_\_ Date: \_\_\_\_\_

RSO approval (signature): \_\_\_\_\_ Date: \_\_\_\_\_

**RPR 14 ISU-3 AUTHORIZATION TO TRANSPORT LIMITED QUANTITY OF  
RADIOACTIVE MATERIAL**

\_\_\_\_\_ Is authorized to transport the following material  
between \_\_\_\_\_ and \_\_\_\_\_. This authorization is valid for:

\_\_\_\_\_ One Time, One Way

\_\_\_\_\_ One Time, Round Trip (Same Day)

\_\_\_\_\_ Routine Shipment from \_\_\_\_\_ (date) to \_\_\_\_\_ (date)

Description of material: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
(Signature) TSO

\_\_\_\_\_  
(Date)



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## REVISION TRACKER

Revision 3

DATE 8/2000

Original Procedure