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: Technical Safety Office Director

Date: April 5, 2011
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 cm² (46.5 in²) of all surfaces, is equal to or greater than .4 Bq/cm² \( \left( 10^{-5} \text{ mCi/cm}^2 \right) \) for Beta and Gamma emitters and low-toxicity Alpha emitters; and equal to or greater than .04 Bq/cm² \( \left( 10^{-6} \text{ mCi/cm}^2 \right) \) 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:

- **Solids:** 0.001 \( A_1 \) of special form or 0.001 \( A_2 \) of other solids
- **Liquids:** 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 cm²; 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: 
Name (RU): __________________
Address: __________________
Phone: _______________

To: 
Name (RU): __________________
Address: __________________
Phone: _______________

Signature________________ Date________________

Package Contents and Hazardous Material Classification:

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

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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 $10^{-3} \text{ Ci}$ for special form material, i.e. sealed source; less than $10^{-3} \text{ Ci}$ per special form material, i.e. sealed source; less than $10^{-4} \text{ Ci}$ for solid material; or less than $10^{-4} \text{ Ci}$ 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.: __________ Caliberation 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$^2$. [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)
Procedure #: TSO-10-14-REV 3

Procedure Title: RPR 14 SHIPMENT OF EXCEP TED QUANT ITIES OF RADIOISOTOPES

Approval Date: March 2, 2010

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REVISION TRACKER

Revision 3 DATE 8/2000 Original Procedure