

UNIVERSITY OF MISSOURI-ROLLA - NUCLEAR REACTOR		
STANDARD OPERATING PROCEDURES		
S.O.P.: SOP 604	REVISED: 5-9-84	PAGE 1 OF 3
TITLE: RELEASE OF BY-PRODUCT MATERIALS ON CAMPUS		
<p>A. <u>Purpose</u></p> <p>To ensure that proper transport, handling, and shielding requirements and regulations are observed in the shipping or releasing of radioactive materials to licensees on campus.</p> <p>B. <u>Precautions, Prerequisites, or Limitations</u></p> <ol style="list-style-type: none"> <li>1. All shipments or releases of by-product material from the Reactor Building shall be handled as "limited quantity" if possible. Any amounts greater than "limited quantity" require special attention as deemed by Health Physics.</li> <li>2. The person receiving radioactive material must show that he/she is licensed to possess it. Radioactive materials can not be released to someone who is not licensed.</li> <li>3. If there are any questions pertaining to the release of a material, or whether a substance is considered to be "limited quantity", the campus Health Physicist should be notified.</li> </ol> <p>C. <u>Procedures</u></p> <ol style="list-style-type: none"> <li>1. Check D.O.T. 173.391(a) to ensure that the radioactive material meets the requirements of "limited quantity".</li> <li>2. Package the radioactive material in double containers. Check the package to ensure that the materials are packaged in strong, tight containers such that there will be no leakage of radioactive materials under conditions normally incident to transportation.</li> <li>3. Check the outside of the inner container to be sure that it bears the marking "Radioactive Material."</li> <li>4. Check the radiation levels to ensure that the dose rate at any point on the external surface of the outer package does not exceed 0.5 mr/hr.</li> </ol>		
WRITTEN BY: <i>Dan Carter</i> Dan Carter		APPROVED BY: <i>Albert E. Bolon</i> Albert E. Bolon

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5. Swipe the outside of the outer package for contamination and count the swipes. The swipes must not be >220 cpm for beta/gamma or >22 cpm alpha (if applicable.)
6. Fill out a Material Transfer Form (see the attached) Make two additional copies. One goes with the carrier, one goes to the Health Physicist and one goes into the Reactor files.
7. Check the cosignees license before releasing the radioactive material to be sure they are authorized to receive it.

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## MATERIAL TRANSFER FORM

Ship To \_\_\_\_\_  
\_\_\_\_\_

Consignee ByProduct License

Number \_\_\_\_\_ Exp Date \_\_\_\_\_

TARGET MATERIAL	WEIGHT	PHYSICAL FORM	RADIONUCLIDE	ACTIVITY (IN CURIES)	TRANSPORT GROUP
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GAMMA DOSE RATE \_\_\_\_\_

DATE IRRADIATION \_\_\_\_\_

TYPE SHIPMENT \_\_\_\_\_

SHIPPING CONTAINER \_\_\_\_\_

LABELS \_\_\_\_\_

TRANSPORT ROUTING \_\_\_\_\_

DOSE RATE  
AT SURFACE \_\_\_\_\_ mR/hr

AT 3 FEET \_\_\_\_\_ mR/hr

INSTRUMENT USED \_\_\_\_\_

HEALTH PHYSICS APPROVAL \_\_\_\_\_

SURFACE CONTAMINATION

BETA/GAMMA \_\_\_\_\_ cpm

ALPHA \_\_\_\_\_ cpm  
(If applicable)

INSTRUMENT USED \_\_\_\_\_

DATE \_\_\_\_\_

"This is to certify that the above named articles are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation."

CERTIFIED BY \_\_\_\_\_ DATE \_\_\_\_\_

ACCEPTED BY CARRIER \_\_\_\_\_ DATE \_\_\_\_\_

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