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4-E4

71-9028



FAX TO: Nancy Osgood

FAX REC # _____

FAX (301) 492-0254

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LOCATION: NRC - Transportation Branch

DATE: 12/31/90

FROM: Lori Podolak

COPIES TO:

Nancy,

This is a copy of the 8/23/90 letter which I resent to you on 12/5/90.

We are currently experiencing problems with our international shipments since they depend on the DOT version of this certificate. IF your review and issuance of this NRC certifi te will take longer than January 7th, please let me know immediately so that we can obtain a DOT extension to allow international shipments of this device. Your prompt attention to this matter would be greatly appreciated.

Thanks Lori Podolak

Amersham N101

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PDR ADDCK 07109028
C PDR

40 North Avenue
Burlington, Massachusetts 01803
Telephone (617) 272-2000

23 August 1990

Mr. Charles MacDonald, Chief
Transportation Branch
Division of Safeguards and
Transportation, NMSS
U.S. Nuclear Regulatory Commission
OWFN, 4E4
Washington, D.C. 20555

Dear Mr. MacDonald:

I have enclosed the additional information you requested concerning docket number 71-9028.

Item 6c has been corrected to USA.

Item 9 has been revised to reflect Iridium-192 as a radioisotope shipped in the model 684 package. Item 11 refers to the DOT labels, i.e. Yellow II or Yellow III that are placed on shipment, and are described in table 1 in the instructions. Item 6 refers to the permanent metal nameplates that are attached to the package and are designed to withstand the fire test of Part 71.

The instructions have been revised to clarify the shipping of a package within a crate.

In Section 7.3, the instructions for shipping an empty package have been revised to require a physical verification that the container is empty prior to shipment.

The instructions have been clarified to indicate the shipping of a package or a package within an overpack.

A note has been added to clarify that the shipment is not exempt from all requirements of part 40 CFR 171-177.

Amersham

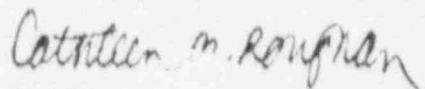
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Mr. MacDonald, Chief
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These changes have been submitted as revised pages. I trust this provides the necessary information to complete the review of our renewal request.

Please contact me if you require additional information.

Sincerely,



Cathleen M. Roughan
Radiation Safety Officer

CMR/bt

7.1 Procedure For Loading the Package

1. Assure that the package is not damaged except for superficial marks or dents.
2. Assure the source is authorized for use in this container and is secured in the locked position.
3. To properly secure the source, the selector ring should be in the lock position, the dust cover must be installed and the key lock must be depressed with the key removed.
4. Place the shipping plate over the lock assembly and secure with four bolts.
5. Install the shipping plug securely and apply a security seal with an identification mark through the shipping plug and front nut of the camera.
6. Assure all nameplates are clear and legible and contain the following information.
 - a. The words "Danger Radioactive Material" and the trefoil symbol.
 - b. The proper shipping name
Radioactive Material Special Form, N.O.S., UN2974
 - c. Package identification
USA/9028/B(U), Type B(U)
 - d. The radioactive contents.
7. If the 684 is to be packaged inside a crate or other outer packaging, the outer packaging must be strong enough to withstand the normal conditions of transport and must not reduce the safety of the package. The 684 must be placed within the outer package with sufficient blocking to prevent shifting during transportation.

NOTE: When using a crate or other outer packaging to ship the 741, steps 8-14 refer to the crate or outer packaging.

8. Survey the exterior surfaces of the package and assure that the maximum radiation level does not exceed 200 mrem/hr. Survey one meter from the exterior surfaces of the package and assure that the maximum radiation level does not exceed 10 mrem/hr. Determine the proper shipping labels to be applied to the package using the criteria of table 1.
9. Properly complete two shipping labels indicating the contents (cobalt-60 or iridium-192), the activity of the source in curies or millicuries and the transport index. The transport index is the dimensionless number (rounded up to the first decimal place) expressing the maximum radiation

- level (in mrem/hr) measured at one meter from the package surface.
10. Assure that any old shipping labels have been removed from the package. Apply two properly completed labels to two opposite sides of the package.
 11. Mark the outside of the package with the proper shipping name and identification number (Radioactive Material, Special Form, n.o.s., UN 2974) if not already marked. Place the letters RQ next to the proper shipping name.
 12. If the 684 is inside a crate or other outer packaging, mark the outside package "INSIDE PACKAGE COMPLIES WITH PRESCRIBED SPECIFICATIONS" and list the appropriate DOT specification number or USNRC Type B number and the words "TYPE B".
 13. Assure that the levels of removable radioactive contamination on the outside surface of the outer package do not exceed 0.001 microcurie per 100 square centimeters.
 14. Properly complete the shipping papers, indicating:
 - a. Proper shipping name and identification number (i.e. Radioactive Material, Special Form, n.o.s., UN 2974).
 - b. The letters RQ must appear next to the proper shipping name when shipping more than 10 curies of Ir-192 or Co-60.
 - c. Name of the radionuclide (i.e. iridium-192 or Co-60).
 - d. Activity of source in curies or millicuries.
 - e. Category of label applied (i.e. Radioactive Yellow II).
 - f. Transport Index.
 - g. USNRC identification number or DOT specification number (i.e. USA/9028/B(U)).
 - h. For export shipments, the IAEA identification number (i.e. USA/9028/B(U)).
 - i. Shipper's Certification:

"This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transport according to the applicable regulations of the Department of Transportation."
 - j. The shipping papers must indicate an emergency phone number. This phone number must have 24 hour coverage in case of an emergency concerning your shipment. The

phone number must be clearly visible on the shipping paper.

- k. For packages containing depleted uranium as shielding material, a notice must be enclosed in or on the package, included with the packing list or otherwise forwarded with the package. This notice must include the name of the consignor or consignee and the statement:

"This package conforms to the conditions and limitations specified in 49 CFR173.424 for excepted radioactive material, articles manufactured from depleted uranium UN 2909.

15. Place the package onto the vehicle using slings or hooks through the side plates of the camera, or slings secured around the crate.
16. Properly brace and secure the package against movement in the vehicle.
17. Assure that back of the vehicle is closed and secured so that it will not open during transport.

NOTE:1. For air shipments, the following Shipper's Certification may be used:

"I hereby certify that the contents of the consignment are fully and accurately described above by proper shipping name and are classified packaged, marked and labeled and are in proper condition for carriage by air according to applicable national governmental regulations."

2. For air shipments, the package must be labeled with a "CARGO AIRCRAFT ONLY" label and the shipping papers must state: THIS SHIPMENT IS WITHIN THE LIMITATIONS PRESCRIBED FOR CARGO AIRCRAFT ONLY".
3. For international shipments the activity must be given in Gigabecquerels on the DOT label and the shipping papers (curies X 37 = Gigabecquerels).

1 Ci x 37 = 37 MBq x 10⁹ d/s

7.3 Procedure for Preparation of an Empty Package for Transport

1. For shipment of an empty Model 684, you must first assure there are no unauthorized source assemblies or cropped sources within the container, by performing the following procedure.
 - a) Remove the authorized source assembly from the Model 684 in accordance with the applicable operations manual for the storage device.
 - b) After removing the source and disconnecting the source assembly, attach the jumper (dummy connector without a serial number) to the male connector of the drive cable.
 - c) Return the drive cable and connector to the Model 684 and disconnect the controls.
 - d) Insert dust cover cap, place selector ring in lock position, depress lock and remove the key. Insert the shipping plug and seal wire. Place an EMPTY tag on the device.

2. If the shipping package is to be placed inside a crate or other outer packaging, the outer packaging must be strong enough to withstand the normal conditions of transport and must not reduce the safety of the package. The shipping package must be placed within the outer package with sufficient blocking to prevent shifting during transportation.

NOTE: When using a crate or other outer packaging to ship the 684, steps 3-4 refer to the crate or outer packaging.

3. Assure that the levels of removable radioactive contamination on the outside surface of the outer package do not exceed 0.001 microcurie per 100 square centimeters.
4. Survey the package at the surface and at one meter from the surface to determine the proper shipping labels to be applied to package.
 - a. If the surface radiation level does not exceed 0.5 mrem/hr and there is no measurable radiation level at one meter from the surface, no label is required. Mark the outside of the package with the proper shipping name and identification number (Radioactive Material, Articles Manufactured from depleted Uranium, UN 2909) and the statement "EXEMPT FROM SPECIFICATION PACKAGING SHIPPING PAPER AND CERTIFICATION, MARKING AND LABELING AND EXEMPT FROM THE REQUIREMENTS OF 49CFR parts 171-178 PER CFR173.421-1 AND 49 CFR173.424".

NOTE: This does not exempt the shipment from the reporting requirements listed in 49 CFR. Parts 171-177

pertaining to the reporting of the contamination or other radiation incidents.

Additionally, a notice must be enclosed in or on the package, included with the packing list or otherwise forwarded with the package. The notice must include the name of the consignor or consignee and the statement:

"This package conforms to the conditions and limitations specified in 49CFR173.424 for Exempted Radioactive Material, Articles Manufactured from Depleted Uranium, UN 2909".

- b. If the surface radiation level exceeds 0.5 mrem/hr, or if there is a measurable radiation level at one meter from the surface, use the criteria of table 1 in section 7.1 to determine the proper shipping labels to be applied to the package. Mark the outside of the package with the proper shipping name and identification number (Radioactive Material, LSA, n.o.s., UN 2912). If the container is packaged inside a crate or other outer packaging, mark the package with the statement "INSIDE PACKAGE COMPLIES WITH PRESCRIBED SPECIFICATIONS".

Properly complete the shipping papers, as listed in section 7.1. The isotope is U-238 and approximately 20 millicuries.