

71-9102

NEUTRON PRODUCTS inc

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September 29, 2003.

Ms. Nancy Osgood
Senior Project Manager
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Two White Flint North
11545 Rockville Pike
Rockville, MD 20852-2738

Re: Renewal of Certificate of Compliance USA/9102/B()

Via Fax: 301/415-8555

*** Originals will be sent via UPS ***

Dear Ms. Osgood:

Please thank Mr. Monninger for his reminder of August 21, 2003 that the referenced Certificate expires October 21, 2003.

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This is to request that Neutron's Certificate of Compliance USA/9102/B() be renewed for the maximum period, with the following administrative changes:

1. replace drawings 240160 Sheet 1 of 2, Rev. none and Sheet 2 of 2, Rev. A of the overpack with drawing 240116, Rev. G;
2. update the maintenance procedure to "Teletherapy Shipping Package Maintenance Procedure, R-2019-G, Revision 0;" and, - returned to applicant - upon applicant's request
3. update the shipment preparation procedure to "Teletherapy Shipping/Transfer Cask Unloading and Loading Procedure, R-2014-G, Revision 0." - returned to applicant - upon applicant's request.

The differences between drawings 2400116, Rev G and 240160 Sheet 1 of 2, Rev. none and Sheet 2 of 2, Rev. A are:

- the nominal inside length of the wooden crash shield has been corrected from 30 inches to 29.5 inches;

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- the nominal diameter of the recess in the lid of the wooden crash shields have been changed from 15 inches to 12 inches;
- tie-downs were added to Section F-F;
- the designation of serial number OP-3 and OP-4 have been removed.

Three copies of the referenced drawings and procedures are attached.

Neutron has shipped the 9102 package to and from forty-seven (47) states for 26 years without any adverse incidents. We know of no technical reason why our request should not be granted.

To facilitate your review, we have attached a review of the background of Neutron's shipment of cobalt-60 teletherapy sources.

Thank you in advance for your attention to this request and we look forward to your response. If you have any questions or require additional information, please call me.

Sincerely
NEUTRON PRODUCTS inc.



Edmond J. DeRosa
RSO, MD-31-025-03 license

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Background of Neutron's Teletherapy Shipping Packages

Prior Licensing Activities

CoC USA/9215/B(U) is the second generation of shipping packages used by Neutron to ship teletherapy sources and to exchange, install and remove teletherapy sources involving teletherapy units manufactured by Atomic Energy of Canada, Ltd./Theratronics/MDS Nordion, Picker/AMS/ATC, Keleket-Barnes, Westinghouse, TEM Instruments, Ltd., Philips, Siemens, Toshiba and CIS-bio.

1. Initially, Neutron shipped its teletherapy sources in packages which conformed to the USDOT 20WC-6 specification and subsequently shipped them internationally in packages authorized by Certificate of Competent Authority USA/5800/B. Although these authorizations limited the activity per package to 100 thermal watts (approximately 6300 curies), they did not limit Neutron's use since many of the teletherapy units of the era had maximum capacities of less than 6300 curies, as did most of the teletherapy sources purchased.
2. In 1977, Neutron applied for and was granted authorization for our CoC 9102 shipping package with an activity limit of 9,500 curies of cobalt-60, or a maximum decay heat of 150 watts, in response to the growing number of teletherapy units having a maximum capacity of 9000 curies.
3. In 1986, Neutron applied for and was granted authorization for our CoC and CoCA 9215 package with an authorized limit of 15,000 curies of cobalt-60 or a maximum decay heat of 240 watts for the round drawer drum, in response to many teletherapy units having a maximum capacity of 15,000 curies that would utilize this drum.

Source Holder/Drawers

Teletherapy sources are shipped in the through-holes of the drum assemblies. An outgoing shipment utilizing a drum with three holes (round drum drawer) normally contains one or two sources, whereas an incoming shipment may contain sources in all three holes. Each source is loaded into a holder or drawer that is positioned in the cask so that the source is near the axial midpoint of the drum assembly during shipment.

At a hospital or clinic, the cask is mated with the teletherapy machine to effect the source transfer.

The source holders are specific to and are an inherent part of the teletherapy unit, and, as such, are evaluated and approved as part of the authorization for the sale of the unit. They are fabricated from one or more of the following materials: steel, depleted uranium, tungsten, brass and/or lead which are encapsulated by welding in steel. After loading the source holder(s) and

drawer(s), the remaining lateral space in the through-holes, including holes that do not contain sources, is filled with full diameter spacers and/or plugs fabricated from steel, tungsten, or lead in welded steel capsules to restrict the lateral movement to less than 0.25 inches.

Containment of the Sources During Transport

The primary containment of the cobalt-60 source is the source capsule, which meets the requirements for Special Form radioactive material, and consists of two concentric stainless steel capsules with welded closures. For containment, the source capsule design has been tested under conditions specified by ANSI N542-1996 "Sealed Radiation Sources, Classification 96E53524 which are more stringent than those required by Special Form requirements. The specific requirements of this classification are:

Temperature: - 40°C (20 min), + 600°C (1hr) and thermal shock 600°C to 20°C.

External Pressure: 25 kn/m² to 2 MN/m²

Impact: 5 kg (11 lbs) from 1 m.

Vibration: 30 min. 25 to 500 HZ at 5g peak amp.

Puncture: 50 g (1.76 oz.) from 1 meter

Secondary containment of the source(s) is provided by the following components of the shipping/transfer cask: the cylindrical shell of the through-cavity, the spherical shell of the cask, the flanges at the ends of the cask cavity, and the two bolted-on cover plate assemblies. As long as the secondary containment remains intact, the source(s) in the cask are surrounded by solid metal and cannot move any significant distance.

**THIS PAGE IS AN
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DRAWING OR
FIGURE,**

**THAT CAN BE VIEWED AT
THE RECORD TITLED:**

**DWG. NO. 240116, REV. G
"OVERPAK NPI SPEC. 20WC6**

**WITHIN THIS PACKAGE..
OR BY SEARCHING USING
THE DOCUMENT/ REPORT
NO.**

240116, REV. G

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PROPRIETARY

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**DWG. NO. 240010 REV.C
"SHIPPING CASK MODEL
240010"**

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240010, REV.C

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