

NEUTRON PRODUCTS inc

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August 28, 1990

Mr. Roland G. Fletcher, Administrator
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, Maryland 21224

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RADIATION
HEALTH PROGRAM

Ref: SOURCE AND DEVICE REGISTRY NO. MD-474-S-108-S

Dear Mr. Fletcher:

Neutron Products plans to utilize some of the cobalt-60 imported from the Comision Nacional de Energia Atomica (CNEA) of Argentina to manufacture, for its own use and for sale to other licensees, doubly-encapsulated cobalt-60 sources similar to Canadian C-188 type sources, which are widely used in process irradiators in the USA, Canada, and other countries. We plan that each such source will contain (b)(4) as received from CNEA, and (b)(4)

(b)(4)

C-188 sources with one inner encapsulation of zircaloy and one of stainless steel have been authorized by the US Nuclear Regulatory Commission in Source & Device Registry No. NR-169-S-142-S, a copy of which is enclosed. The referenced Source and Device Registry, which governs the manufacture of radiation processing sources by Neutron Products, authorizes us to make sources of a wide range of geometries, including C-188 geometry, provided stainless steel is used for both the inner and outer encapsulations. The purpose of this letter is to request that MDE modify the referenced Source & Device Registry to authorize Neutron Products to make and sell sources with inner encapsulations of (b)(4)

The NRC's authorization of C-188 sources indicates that there are no unreviewed safety questions associated with use of (b)(4). Furthermore, C-188 type sources, with Model AC-345 inner encapsulations of (b)(4) made by Atomic Energy of Canada (AECL), have been used in process irradiators for many years with no documented problems. The (b)(4) that we are purchasing from CNEA have been fabricated by either AECL, Morgion International (AECL's successor), or CNEA (under a Quality Assurance Program similar to that of AECL) and are identical to

(b)(4)

Information in this record was reviewed in accordance with the Freedom of Information Act. Exemptions: 2008-0191

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Each (b)(4) is thoroughly inspected by Neutron Products upon receipt from CNEA. The inspection program is consistent with NPI Procedure R5006, Rev. 0, and consists of: (1) visual inspection in the hot cell; (2) wipe testing for removable contamination (which if present in excess may be indicative of a cladding defect); (3) leak-testing by the helium pressurization bubble test method; and (4) confirmation of the overall activity and distribution of cobalt-60 in the capsule. EX 4

Prior to being (b)(4) will be cleaned and wipe-tested to ensure that smearable, removable contamination is less than 0.05 uCi of cobalt-60, in accordance with NPI Specification P-1, Rev. 2.

The attachment to this letter presents, for your consideration, proposed wording changes in the referenced Source & Device Registry to authorize use of (b)(4) inner capsules. The suggested change in upper limit of conversion from 20% to 30% acknowledges that some of the cobalt we receive may have been converted to such levels. Cobalt-60 decays to nickel-60, with which it is completely miscible, and no substantive difference in metallurgy results.

We have reviewed Procedure R5006, Rev. 0, and related NPI specifications and have concluded that no changes in the procedure or specifications are necessary.

Your prompt action on this request will be appreciated.

Very truly yours,
NEUTRON PRODUCTS, INC.

Jackson A. Ransohoff, President

JAR:FS:mvc
Attachment/Enclosure

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ATTACHMENT

The proposed changes to MD-474-S-108-S are presented below. Word changes and/or additions are underlined.

Change the MAXIMUM ACTIVITY, page 1 of 7, to read:

(b)(4)

(b)(4)

(b)(4)

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(Amended Copy)

APR 30 1953
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(b)(4)

(b)(4)

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(Amended Copy)

NO. NR-169-S-142-S

DATE:

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REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(Amended Copy)

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(b)(4)

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(Amended Copy)

(b)(4)

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(Amended Copy)

(b)(4)

(b)(4)

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(Amended Copy)

(b)(4)

NO. NR-169-S-142-S

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(b)(4)