

NEUTRON PRODUCTS Inc

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September 27, 1990

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

[Faint stamp]

SEP 29 1990

[Faint stamp]

Subj: License No. 31-025-01: Cobalt-60 from Argentina

Dear Mr. Fletcher:

Pursuant to Mr. Ransohoff's letter of September 21, this letter provides detailed responses to the questions raised in your letter of August 29, 1990 about the cobalt-60 we have received and are receiving from Argentina and are processing into sources for our own use and for sale to authorized recipients.

1. The cobalt-60 purchased from Argentina is in the form of short cobalt metal rods. (b)(4)

The capsules are of the type produced by AECL and their successor, Nordion International, Inc. Consistent with Neutron's long-standing nomenclature, we also refer to these capsules as irradiated targets.

The capsules are authorized by Canadian and Argentine authorities for use as control elements in nuclear reactors of the CANDU type, and they are authorized for use as radiation processing source components by the Canadian regulatory authorities and by the US NRC. *[Handwritten mark]*

The capsules differ from the irradiated targets we receive from the US DOE's Advanced Test Reactor (ATR) in that the (b)(4) instead of stainless steel and the length is 11 inches instead of 7 or 8

(b)(4) The capsules differ from the inner encapsulations of AECL sources we have on occasion purchased or taken in trade in

(b)(4)

The capsules we have purchased to date, and plan to purchase during the next year or two, were manufactured by AECL and exposed to neutrons in a CANDU reactor owned and operated by the Comision Nacional de Energia Atomica of Argentina (CNEA) and located in Cordoba Province, Argentina. Eventually, we expect CNEA to manufacture the capsules in Argentina. *[Handwritten signature]*

A drawing (in English) of the capsule is enclosed. The drawing was made by Neutron Products by extracting information from drawings, with legends in Spanish and dimensions in millimeters, supplied by CNEA.

Information in this record was deleted in accordance with the Freedom of Information Act. Exemptions: FOIA/PA *[Handwritten numbers]*

E129

Mr. Roland G. Fletcher
September 27, 1990
Page No. 2

To date we have received (b)(4)
(b)(4) Each capsule conforms to the enclosed drawing. Upon receipt at Neutron Products the capsules were smeared, leak-tested, visually inspected and calibrated. These tests and inspections confirmed CNEA's calibrations and certifications of capsule integrity.

2. The activity and number of irradiated capsules to be received in the course of the contract are not precisely defined. However, we expect to purchase, receive, store and process an additional (b)(4)

(b)(4)

and for the relationship to continue at that level for many years thereafter.

a. The total activity of Argentine cobalt to be onsite, under the subject license, at any one time is expected to average about (b)(4) (b)(4) about equally divided in form among unprocessed targets, targets in process, cancer therapy source inventory, and finished radiation processing sources awaiting shipment or transfer. Except in unusual circumstances, we expect our inventory of Argentine cobalt (b)(4) (b)(4) We will not require an increase in licensed inventory.

b. We do not plan to sell any of the targets in their as received condition. They are purchased as raw material to be processed into sources using our established procedures and either sold to others or used in our own irradiation facilities.

c. The actual utilization of the Argentine cobalt will depend on market conditions, but the general nature of processing will be as follows:

(b)(4)

NEUTRON PRODUCTS inc

Mr. Roland G. Fletcher
September 27, 1990
Page No. 3

(b)(4)

In view of the fact that sources with the (b)(4) are approved by NRC and widely licensed for use in Maryland and other jurisdictions, we hope that RHP can agree that there are no unresolved safety questions, and without further delay authorize the use of (b)(4) under Source and Device Registry MD-474-S-108-S, as requested by our letter of August 28, 1990. A copy of the US NRC "source and device catalog" for C-188 sources was enclosed with that letter.

(b)(4)

NEUTRON PRODUCTS inc

Mr. Roland G. Fletcher
September 27, 1990
Page No. 4

4. The estimated activities and volumes of radioactive waste, arising out of the purchase and processing of the Argentine cobalt, and the proposed disposition of these wastes, are as follows:

a. From manufacture of teletherapy sources (includes melting):

Less than 2,000 curies and 1.5 ft³ per year, to be once-encapsulated in stainless steel waste tubes and stored in the main pool.

Less than 60 curies and 30 ft³ per year of dry-active waste (DAW) in 55-gal drums to be disposed of at the Barnwell site through mid-1992 and thereafter stored onsite until the Pennsylvania waste site is opened.

Less than 30 curies and 16 ft³ per year of resin and filters, to be sealed in 60-gal high integrity containers (HICs) and disposed of at Barnwell through mid-1992 and thereafter stored onsite until the PA site is opened.

b. From manufacture of other sources (no melting):

Less than 20 curies and 30 ft³ of DAW per year, to be disposed of at Barnwell through mid-1992 and thereafter stored onsite until the PA site is opened.

Less than 8 curies and 20 ft³ of resin and filters, to be disposed of at Barnwell prior through mid-1992 and thereafter stored onsite until the PA site is opened.

The availability of Argentine cobalt will enable Neutron to organize larger capacity melting and source fabrication campaigns, which should result in reduced quantities of radwaste per curie processed. Other significant factors that will also reduce the quantities of waste per curie processed are that (1) about 50 percent of the capsules received from Argentina will be used in the "as received" form and, (b)(4)

(b)(4) less contamination will result from reencapsulating cobalt. We have included these effects in our estimates of radwaste quantities, given above.

The higher volume of cobalt-60 processing will result in an increase in net revenues to Neutron Products that will be more than proportional to the increased volume of business, because a large fraction of our cobalt processing costs are fixed. This will put Neutron in a stronger position to fund radwaste disposal and our other radiological health projects.

Very truly yours,

NEUTRON PRODUCTS, INC.

Frank Schwoerer
Frank Schwoerer, Vice President

NEUTRON PRODUCTS INC

FS:JAR:mvc
Enclosure

(b)(4)

TOLERANCES			DICKERSON, Maryland		
ANGULAR	DECIMAL	FRACTIONAL	TITLE	APPROVED	ISSUED DATE
			COBALT ADJUSTER UNIT	<i>FS</i>	9-21-90
DRAWN	ED 9-21-90		AS RECEIVED FROM CNEA,	SIZE	DWG. NO.
DESIGN			CENTRAL NUCLEAR EN EMBALSE	A	200354
CHECKED	<i>FS</i> 9-21-90			SCALE	3x
					SHEET