



ORC

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

MATERIALS LICENSE

ISOTOPE PRODUCTS LABORATORIES  
1800 North Keystone Street  
Burbank, CA 91504

License No. 04-16778-01E  
Docket No. 030-19192  
Amendment No. 05

In accordance with letter dated May 9, 1996, License No. 04-16778-01E is amended in its entirety to read as follows:

Pursuant to the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended (Public Law 93-438); 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; Sections 32.14 and 32.18, 10 CFR Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material"; application dated April 10, 1991, superseded by letter and application dated August 12, 1992; letters dated January 12, 1994; February 1, 1994; May 18, 1994; May 20, 1994; August 23, 1994; September 27, 1994; December 20, 1994; January 11, 1995; May 9, 1996; and June 11, 1996; and fascimile dated September 5, 1996; a license is hereby issued to Isotope Products Laboratories to distribute ionizing radiation measuring instruments containing radioactive material for internal calibration or standardization as identified in licensee's letter dated May 18, 1994; and calibration solutions and standards, and sealed sources containing byproduct material as identified in licensee's letters dated February 1, 1994; May 20, 1994; and June 11, 1996; and fascimile dated September 5, 1996; to persons exempt from licensing pursuant to Sections 30.15 and 30.18, 10 CFR Part 30, or equivalent provisions of the regulations of any Agreement State.

This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and other applicable rules, regulations, and orders of the U.S. Nuclear Regulatory Commission, now or hereafter in effect, and to the following conditions:

1. This license does not authorize possession or use of licensed material.
2. The licensee is authorized to distribute only from its facility located at 1800 North Keystone Street, Burbank, CA.

9611060221 960919  
PDR ADOCK 03019192  
C PDR

License No. 04-16778-01E  
Docket No. 030-19192  
Amendment No. 05

3. The licensee shall submit periodic material transfer reports as specified in Sections 32.16 and 32.20, 10 CFR Part 32.

This license shall expire on May 31, 2004.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

DATE: September 19, 1996

BY: ORIGINAL SIGNED BY

*8/18/96*  
Susan L. Greene  
Medical, Academic, and Commercial  
Use Safety Branch  
Division of Industrial and  
Medical Nuclear Safety  
Office of Nuclear Material Safety  
and Safeguards  
Washington, DC 20555  
*9/18/96 CB*  
*9/18/96*

M. Devine

-2-

5. Submit a complete renewal application (with proper fee) or termination request (no fee required) at least 30 days before the expiration date on your license. You should receive a reminder notice approximately 90 days before the expiration date. Continued distribution of products containing radioactive material after your license expires is a violation of NRC regulations.
6. In accordance with 10 CFR 30.36, request termination of your license if you plan to permanently discontinue activities involving distribution of products containing radioactive material.

You will be periodically inspected by NRC. Failure to conduct your program in compliance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC may result in enforcement action(s) against you. This could include issuance of a notice of violation; proposed imposition of a civil penalty; or an order suspending, modifying, or revoking your license as specified in the "General Statement of Policy and Procedures for NRC Enforcement Actions," (NUREG-1600).

If you have any questions, please feel free to contact me at (301) 415-5799.

Sincerely,

**ORIGINAL SIGNED BY**

Stephen W. Holmes  
Medical, Academic, and Commercial  
Use Safety Branch  
Division of Industrial and  
Medical Nuclear Safety  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 030-19192

Enclosure: Amendment No. 05

cc: Edgar D. Bailey, Chief  
Radiologic Health Branch  
Food, Drugs & Radiation Safety Division  
State Department of Health Services  
714/744 P Street  
P.O. Box 942732  
Sacramento, CA 94234-7320

DISTRIBUTION:  
License File 04-16778-01E  
NMSS r/f  
IMNS c/f  
IMAB r/f  
TWRich  
LWCamper  
Region IV/WCFO

DOCUMENT NAME: G:\ISOTOPE.CJB

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	IMAB:NMSS	IMAB:NMSS							
NAME	SWHolmes	SLGreene							
DATE	08/18/96	08/18/96							

OFFICIAL RECORD COPY

September 19, 1996

Isotope Products Laboratories  
ATTN: Michael Devine  
1800 North Keystone Street  
Burbank, California 91504

Dear Mr. Devine:

Enclosed is Amendment No. 05 amending NRC License No. 04-16778-01E in its entirety.

Please review the enclosed document carefully and be sure that you understand all the conditions. If there are any errors or questions, please contact me so that appropriate corrections and answers can be provided.

Please be advised that you must conduct your program involving radioactive materials in accordance with the conditions specified in your NRC license, representations made in your license application, and other rules, regulations, and orders of the U.S. Nuclear Regulatory Commission, now or hereafter in effect, to include the following:

1. Comply with applicable NRC regulations in 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; 10 CFR Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material"; and other applicable regulations.

NOTE: Licensees authorized to distribute or initially transfer products containing byproduct material must also possess a valid possession license issued either by NRC or an Agreement State(s) which authorizes possession and use of byproduct material.

2. Distribute only those products containing radioactive material which are specifically authorized in your license.
3. Notify NRC in writing within 30 days of any change in mailing address (no fee is required if the location of radioactive material remains the same).
4. Request and obtain appropriate amendments if you plan to change control or ownership of your organization, change locations of distribution of products containing radioactive material, or make any other changes in your program which are contrary to the license conditions or representations made in your license application and any supplemental correspondence with NRC. A license fee may be charged for the amendments if you are not in a fee-exempt category.

Now you no longer need to wait for your Multiline Standard or change your schedule to meet that of your suppliers. Now you can have your Nine-Nuclide Gamma Standard when you need it. With a short delivery time of only three weeks, IPL can supply you with a fresh Multiline Standard at any time.

IPL guarantees you a fresh Multiline mixture with a maximum calibration of all nuclides regardless of when you receive your order. Our nine nuclide standard provides you with a wide spectrum - 88 keV to 1836 keV. As an option you can extend the range down to 60 keV by adding Am-241.

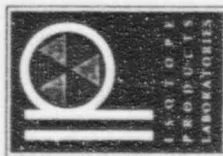
Our Multiline Standard is traceable to the National Institute of Standards and Technology (NIST) with each component certified with a typical uncertainty of  $\pm 3.5\%$  at the 99% confidence level. The Multiline Standards are prepared gravimetrically from calibrated solutions and then confirmed using a high purity germanium detector. As part of the NIST Radioactivity Measurements Assurance Program and to ensure our internal quality control, an IPL Multiline is sent to NIST at least once every quarter.

IPL provides two different nuclide solutions. Series 7600 contains nine nuclides including Ce-139 and Hg-203. For laboratories who cannot use Hg-203, Series 7500 contains Cr-51 and Te-123m which replaces the Hg-203 and Ce-139, respectively. Please see inside brochure for complete product specifications.

Multiline Standards are available in a wide variety of configurations. Custom Standards can be supplied for special applications with nuclides, activities, containers and matrices manufactured to customer's specifications.

For fast delivery with unparalleled quality, call Isotope Products now.

BULK RATE  
U.S. POSTAGE  
PAID  
BURBANK, CA  
PERMIT NO. 187



ISOTOPE  
PRODUCTS  
LABORATORIES

1017 N. San Fernando Blvd.  
Burbank, California 91504

## NINE - NUCLIDE MULTILINE GAMMA STANDARDS

QUALITY STANDARDS  
WHENEVER YOU NEED THEM



ISOTOPE PRODUCTS LABORATORIES  
BURBANK, CA

## MULTINUCLIDE SPECIFICATIONS

7600 Series			7500 Series		
NUCLIDES	GAMMA ENERGY (MeV)	PERCENT OF TOTAL ACTIVITY	NUCLIDES	GAMMA ENERGY (MeV)	PERCENT OF TOTAL ACTIVITY
Cd-109	0.088	42	Cd-109	0.088	28.7
Co-57	0.122	1.6	Co-57	0.122	1.1
	0.1365			0.1365	
Ce-139	0.166	2.0	Te-123m	0.159	1.4
Hg-203	0.279	5.8	Cr-51	0.320	35.7
Sn-113	0.392	7.6	Sn-113	0.392	5.2
	0.255			0.255	
Sr-85	0.514	9.6	Sr-85	0.514	6.6
Cs-137	0.662	7.0	Cs-137	0.662	4.8
Co-60	1.332	8.2	Co-60	1.332	5.6
	1.173			1.173	
Y-88	0.898	16	Y-88	0.898	10.9
	1.836			1.836	
Option:	60	3	Option:	60	3
Am-241			Am-241		

*Twenty-seven Years of Quality Products and Service*

*World-Wide Customer Base*

*Participant in NIST Measurement Assurance Program*

*Adheres to NRC Regulatory Guide 4.15*

*Global Network of Distributors*

*Custom Source Manufacturing*



ISOTOPE PRODUCTS LABORATORIES

3017 N. SAN FERNANDO BLVD.  
BURBANK, CALIFORNIA 91504

818-843-7000  
FAX 818-843-6168

CALL NOW FOR OUR NEW 100 PAGE CATALOG

## MULTINUCLIDE STANDARDS

Product Code	Product Description	Activity	Configuration
7500	Multiline Standard with Cr-51 and Te-123m	1-5 $\mu$ Ci	Flame Sealed Ampule
7600	Multiline Standard with Cr-159 and Hg-203	1-5 $\mu$ Ci	Flame Sealed Ampule
GF-ML	Multiline Point Source	0.1 - 1 $\mu$ Ci, 10 $\mu$ Ci, 100 $\mu$ Ci	D Disk 1" x 0.250" M Disk 1" x 0.125"
EG-LV-ML	Multiline Standard - Large Volume	1-5 $\mu$ Ci	250 mL, 500 mL, 1000 mL
EG-LVM-ML	Multiline Standard - Marinelli Beaker	1-5 $\mu$ Ci	500 mL, 1 L, 4 L
EG-CH-ML	Multiline Standard - Charcoal or Zeolite Cartridge	1-5 $\mu$ Ci	Charcoal Canister 4" diameter
SGS-ML	Simulated Gas Standard - Marinelli Beaker	1-5 $\mu$ Ci	500 mL, 1 L
EAB-PL-ML	Multiline Standard - Planar Standard, Planchet	1-5 $\mu$ Ci	Planchet 2" or 4" Dia.
EAB-LB-ML	Multiline Standard - Planar Standard, Ring and Disk	1-5 $\mu$ Ci	Stainless Steel Disk 1.85", 2" or 4" Dia.
EAB-FP-ML	Multiline Standard - Planar Standard, Filter Paper	1-5 $\mu$ Ci	Nylon ring 1.85", 2", 4.5" Dia. LB Style (Nylon disk and Alum. ring) 1.85", 2" or 4" Dia. LB Style (Disk and ring) 1.85", 2" or 4" Dia. PL Style 2", 5" or 4" Dia.

*Custom Standards available with different includes, various dimensions and configurations.*

### IPL MULTILINE SOLUTION

	MODEL # 7600	MODEL # 7500
1 - 5 $\mu$ Ci	\$ 430	\$ 430



# IPL FAX

Date September 12, 1996

Number of pages including cover sheet 1

TO: Steven Holmes  
USNRC

Phone 6139  
Fax Phone (301) 415-3969

FROM: Michael Devine  
Isotope Products Laboratories  
1800 N. Keystone St.  
Burbank, CA 91504

Phone (818) 843-7000 x 101  
Fax Phone (818) 843-6168

CC:

REMARKS:

☐ Urgent

☒ For your review

☐ Reply ASAP

☐ Please Comment

Regarding our pending ammendment to Exempt Quantity Distribution license number 04-16778-01E :

You have IPL's permission to copy and distribute as necessary the assembly sheets of drawings 3000, 3011, 3015, 3023, 3024, 3201, 3202, 3203, 3204, 3205, 3215, 3217, 3222, 3224, 3807, 3901, and 3916. The assembly sheets were provided to you as part of the original ammendment request and always have a part number designation beginning with the letter "A".

In addition, IPL confirms that all sources sold as exempt quantity distribution products will be marked in accordance with IPL procedure Q2 which governs the processing of exempt quantity distribution products.

Thanks for your assistance

# IPL FAX

Date September 5, 1996

Number of pages including cover sheet 2

TO: *From*  
*SWH*  
Susan L. Greene  
Medical, Academic, and  
Commercial Use Branch  
Division of Industrial, Medical,  
and Nuclear Safety  
U.S. Nuclear Regulatory  
Commission  
Washington, D.C. 20555-0001

Phone (301) 415-7843  
Fax Phone (301) 415-6139

FROM: Michael Devine  
Isotope Products Laboratories  
1800 N. Keystone St.  
Burbank, CA 91504  
*TO*

Phone (818) 843-7000 x 101  
Fax Phone (818) 843-6168

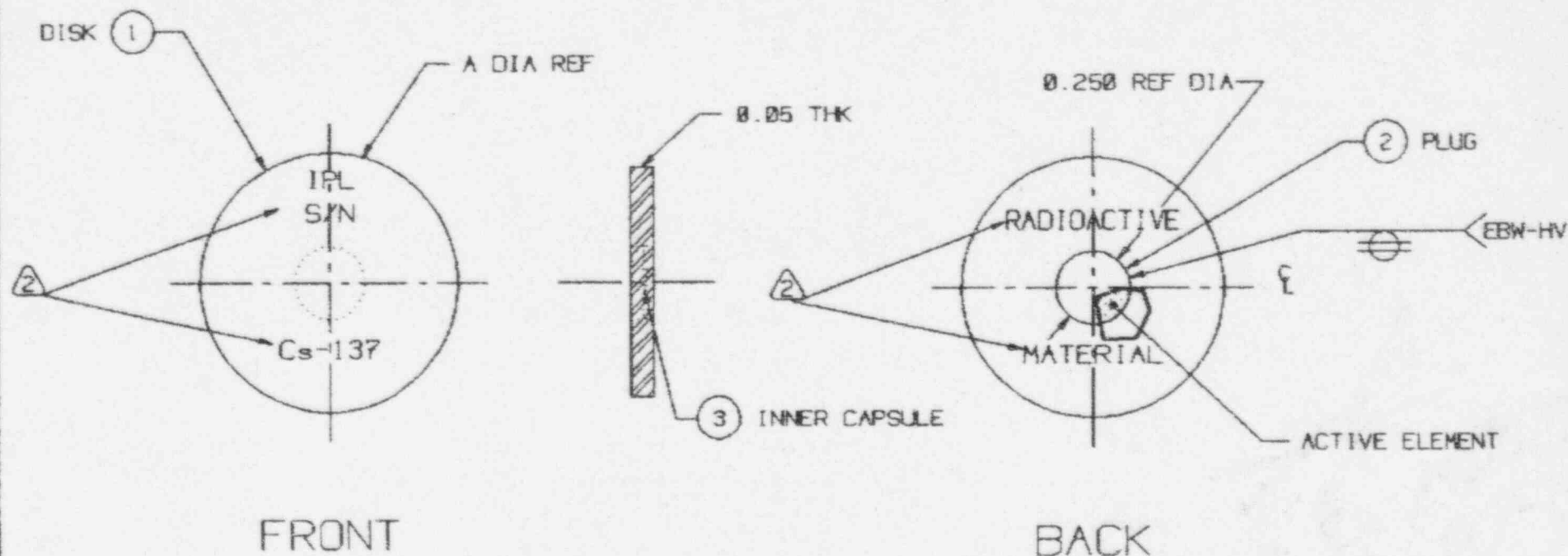
CC:

REMARKS: ☒ Urgent ☒ For your review ☐ Reply ASAP ☐ Please Comment

Please include the latest design of our model 3916 in Isotope Products Laboratories' pending amendment to Exempt Quantity Distribution License Number 04-16778-01E. This revision adds the 0.750" diameter size to the 3916 capsule per customer request. This rugged capsule is of welded construction and provides double encapsulation of the radioactive material within it. On the following sheet, please find a copy of the drawing for our model 3910 capsule to which an additional size (0.750" diameter) has been added.

If you have any questions, Please call me at (818) 843-7000 x101. Thanks for your help.





3. IDENTIFY PART NUMBER
- 2 ENGRAVE CHARACTERS 0.030 HIGH x 0.003 MAX DEPTH
1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING  
HAND PRESS FIT PLUG INTO DISK. RESISTANCE WELD TO DISK.  
AND FUSION WELD IN PLACE

NOTE: UNLESS OTHERWISE SPECIFIED

P/N: A3916-X ASSEMBLY. Cs-137 DISK SOURCE

X	A
1	0.394
2	0.895
3	0.750

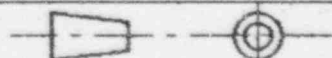


ISOTOPE PRODUCTS  
LABORATORIES  
BURBANK, CALIFORNIA 91504

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES

FRAC- TION	TOLERANCES ON			ANGLE
	DECIMAL	XX	XXX	
±1/64	±.1	.01	.002	±.5°

THIRD ANGLE PROJECTION



DESIGN  
JMD/RLT

SCALE  
NONE

SIZE  
A

DRAWING TITLE  
Cs-137 DISK SOURCE

SERIES TITLE  
CUSTOM SOURCES (290)

CAGE CODE	REVISION	DRAWING NUMBER	SHEET
32993	A	3916	3 OF 5

THIS DRAWING IS THE PROPERTY OF ISOTOPE PRODUCTS LABORATORIES  
AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS  
WITHOUT EXPRESS AUTHORIZATION BY ISOTOPE PRODUCTS LABORATORIES.



June 11, 1996

Susan L. Greene  
MS: 8F5TWFN  
Medical, Academic, and Commercial Use Branch  
Division of Industrial, medical, and Nuclear Safety  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Susan:

Regarding: License number 04-16778-01E

We recently sent in a request to append our PHI and HEG series sources to Exempt Quantity Distribution License number 04-16778-01E. The fee for this amendment is included with this letter. In reviewing the amendment request, I found several errors and omissions on our part and have included marked up copies of our previous request, parts of our Procedure Q2, and a supplementary request to add our multinuclide products.

If you require additional information, please do not hesitate to call or fax me.

Sincerely,

*Michael Devine*

Michael Devine  
Isotope Products Laboratories

Enclosures: 2

*Corporate and  
Main Laboratory*  
1800 N. Keystone Street  
Burbank, California  
91504

818-843-7000

Fax 818-843-6168

Please add IPL's multiline source models as follows to Exempt Quantity Distribution License 04-16778-01E. The multiline sources are offered in several configurations and three mixtures of upto nine nuclides. These sources are typically used for routine calibration of Gamma Spectrometry equipment and can be used to demonstrate characteristics of Gamma Spectra. The solid sources are offered with any of the three multinuclide mixtures described on the following sheet. The maximum activity for the 7500 solution and solid sources using a 7500 mixture (nine nuclide mix with Cr-51 and Te-123m) is 3 uCi total activity. The maximum activity for the 7600 solution and sources using the 7600 mixture (nine nuclide mix with Ce-139 and Hg-203) is 0.6 uCi. The maximum activity for sources and solutions of the Tri-nuclide (TN) mixture containing Eu-154, Eu-155, and Sb-125 is 3 uCi. Multiline sources and solutions sold as exempt quantity distribution products are processed according to IPL procedure Q2, which you have on file, and all other IPL procedures covering quality control and manufacturing. Please see the enclosed brochure for more details.

#### Solutions

- |      |   |
|------|---|
| 7500 | Multinuclide solution in a flame sealed ampoule with Cr-51 and Te-123m total activity less than 0.6 uCi.    |
| 7600 | Multinuclide solution in a flame sealed ampoule with Cs-139 and Hg-203 with total activity less than 3 uCi. |

#### Solid Sources

- |           |  |
|-----------|--|
| GF-ML     | Multinuclide point source offered in type D, M, T, and Rod styles with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series). |
| EG-LV-ML  | Multinuclide large volume water equivalent solid standards with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series).        |
| EG-LVM-ML | Multinuclide Marinelli beaker water equivalent solid standards with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series).    |
| EG-CH-ML  | Multinuclide charcoal standard with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series).                                    |
| EGS-ML    | Multinuclide simulated gas standard Marinelli beaker with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series).              |
| EAB-PL-ML | Multinuclide planchet standard with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series).                                    |
| EAB-LB-ML | Multinuclide planar standard with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series).                                      |
| EAB-FP-ML | Multinuclide planar standard with filter paper substrate standard with total activity less than 0.6 uCi (7500 series) and 3 uCi for (7600 or TN series). |

7500 series mixture - maximum activity for an Exempt Quantity source is 3 uCi total

Nuclides	Exempt Qty Limit	Activity in a 3 uCi source
Cd-109	10 uCi	0.086 uCi
Co-57	100 uCi	0.033 uCi
Te-123m	0.1 uCi	0.042 uCi
Cr-51	10 uCi	1.07 uCi
Sn-113	10 uCi	0.156 uCi
Sr-85	10 uCi	0.144 uCi
Cs-137	10 uCi	0.168 uCi
Co-60	1 uCi	0.327 uCi
Y-88	0.1 uCi	0.09 uCi

7600 series mixture - maximum activity for an Exempt Quantity source is 0.6 uCi total

Nuclides	Exempt Qty Limit	Activity in a 0.5 uCi source
Cd-109	10 uCi	0.252 uCi
Co-57	100 uCi	0.010 uCi
Ce-139	0.1 uCi	0.012 uCi
Hg-203	10 uCi	0.035 uCi
Sn-113	10 uCi	0.046 uCi
Sr-85	10 uCi	0.058 uCi
Cs-137	10 uCi	0.042 uCi
Co-60	1 uCi	0.049 uCi
Y-88	0.1 uCi	0.096 uCi

TN series mixture - maximum activity for an Exempt Quantity source is 3 uCi total

Nuclides	Exempt Qty Limit	Activity in a 3 uCi source
Eu-154	1 uCi	1 uCi
Eu-155	10 uCi	1 uCi
Sb-125	10 uCi	1 uCi

May 9, 1996

Please add the following PHI series sources to our list of Exempt Quantity Distribution Products.

PHI-007 Be-7 Gamma Source less than 100 uCi (CA)  
PHI-022 Na-22 Gamma Source less than 1 uCi (CA)  
PHI-051 Cr-51 Gamma Source less than 1 mCi  
PHI-054 Mn-54 Gamma Source less than 10 uCi  
PHI-055 Fe-55 Gamma Source less than 100 uCi  
PHI-056 Co-56 Gamma Source less than 0.1 uCi  
PHI-057 Co-57 Gamma Source less than 100 uCi  
PHI-058 Co-58 Gamma Source less than 10 uCi  
PHI-059 Fe-59 Gamma Source less than 10 uCi  
PHI-060 Co-60 Gamma Source less than 1 uCi  
PHI-065 Zn-65 Gamma Source less than 10 uCi  
PHI-068 Ge-68 Gamma Source less than 0.1 uCi  
PHI-075 Se-75 Gamma Source less than 10 uCi  
PHI-085 Sr-85 Gamma Source less than 10 uCi  
PHI-088 Y-88 Gamma Source less than 0.1 uCi  
PHI-095 Zr-95 Gamma Source less than 10 uCi  
PHI-106 Ru-106 Gamma Source less than 1 uCi  
PHI-109 Cd-109 Gamma Source less than 10 uCi  
PHI-110 Ag-110m Gamma Source less than 1 uCi  
PHI-113 Sn-113 Gamma Source less than 10 uCi  
PHI-125 I-125 Gamma Source less than 1 uCi  
PHI-225 Sb-125 Gamma Source less than 10 uCi  
PHI-129 I-129 Gamma Source less than 0.1 uCi  
PHI-133 Ba-133 Gamma Source less than 10 uCi  
PHI-134 Cs-134 Gamma Source less than 1 uCi  
PHI-137 Cs-137 Gamma Source less than 10 uCi  
PHI-152 Eu-152 Gamma Source less than 100 uCi for 9 hr half life and 1 uCi for 13 yr half life  
PHI-153 Gd-153 Gamma Source less than 10 uCi  
PHI-154 Eu-154 Gamma Source less than 1 uCi  
PHI-155 Eu-155 Gamma Source less than 10 uCi  
PHI-166 Ho-166m Gamma Source less than 100 uCi  
PHI-207 Bi-207 Gamma Source less than 0.1 uCi

*ADD*



May 9, 1996

Please add the following HEG series sources to our list of Exempt Quantity Distribution Products.

HEG-007 Be-7 Gamma Source less than 100 uCi (CA)  
HEG-022 Na-22 Gamma Source less than 1 uCi (CA)  
HEG-051 Cr-51 Gamma Source less than 1 mCi  
HEG-054 Mn-54 Gamma Source less than 10 uCi  
HEG-055 Fe-55 Gamma Source less than 100 uCi  
HEG-056 Co-56 Gamma Source less than 0.1 uCi  
HEG-057 Co-57 Gamma Source less than 100 uCi  
HEG-058 Co-58 Gamma Source less than 10 uCi  
HEG-059 Fe-59 Gamma Source less than 10 uCi  
HEG-060 Co-60 Gamma Source less than 1 uCi  
HEG-065 Zn-65 Gamma Source less than 10 uCi  
HEG-068 Ge-68 Gamma Source less than 0.1 uCi  
HEG-075 Se-75 Gamma Source less than 10 uCi  
HEG-085 Sr-85 Gamma Source less than 10 uCi  
HEG-088 Y-88 Gamma Source less than 0.1 uCi  
HEG-095 Zr-95 Gamma Source less than 10 uCi  
HEG-106 Ru-106 Gamma Source less than 1 uCi  
HEG-109 Cd-109 Gamma Source less than 10 uCi  
HEG-110 Ag-110m Gamma Source less than 1 uCi  
HEG-113 Sn-113 Gamma Source less than 10 uCi  
HEG-125 I-125 Gamma Source less than 1 uCi  
HEG-225 Sb-125 Gamma Source less than 10 uCi  
HEG-129 I-129 Gamma Source less than 0.1 uCi  
HEG-133 Ba-133 Gamma Source less than 10 uCi  
HEG-134 Cs-134 Gamma Source less than 1 uCi  
HEG-137 Cs-137 Gamma Source less than 10 uCi  
HEG-152 Eu-152 Gamma Source less than 100 uCi for 9 hr half life and 1 uCi for 13 yr half life  
HEG-153 Gd-153 Gamma Source less than 10 uCi  
HEG-154 Eu-154 Gamma Source less than 1 uCi  
HEG-155 Eu-155 Gamma Source less than 10 uCi  
HEG-166 Ho-166m Gamma Source less than 100 uCi  
HEG-207 Bi-207 Gamma Source less than 0.1 uCi  
HEG-0073 Cs-137 Gamma Source less than 10 uCi in A3916 capsule  
HEG-0074 Zn-65 Gamma Source less than 10 uCi in A3916 capsule

# CALIFORNIA AND NRC EXEMPT QUANTITIES

Radionuclide		CA μCi	NRC μCi	Radionuclide		CA μCi	NRC μCi
Antimony-122	Sb-122	100	100	Gadolinium-153	Gd-153	10	10
Antimony-124	Sb-124	10	10	Gadolinium-159	Gd-159	100	100
Antimony-125	Sb-125	10	10	Gallium-67	Ga-67	100	
Arsenic-73	As-73	100	100	Gallium-72	Ga-72	10	10
Arsenic-74	As-74	10	10	Germanium-71	Ge-71	100	100
Arsenic-76	As-76	10	10	Gold-198	Au-198	100	100
Arsenic-77	As-77	100	100	Gold-199	Au-199	100	100
Barium-131	Ba-131	10	10	Hafnium-181	Hf-181	10	10
Barium-133	Ba-133	10	10	Holmium-166	Ho-166	100	100
Barium-140	Ba-140	10	10	Hydrogen-3	H-3	1,000	1,000
Beryllium-7	Be-7	100		Indium-111	In-111	100	
Bismuth-210	Bi-210	1	1	Indium-113m	In-113m	100	100
Bromine-82	Br-82	10	10	Indium-114m	In-114m	10	10
Cadmium-109	Cd-109	10	10	Indium-115m	In-115m	100	100
Cadmium-115m	Cd-115m	10	10	Indium-115	In-115	100	10
Cadmium-115	Cd-115	100	100	Iodine-123	I-123	100	
Calcium-45	Ca-45	10	10	Iodine-125	I-125	1	1
Calcium-47	Ca-47	10	10	Iodine-126	I-126	1	1
Carbon-14	C-14	100	100	Iodine-129	I-129	0.1	0.1
Cerium-141	Ce-141	100	100	Iodine-131	I-131	1	1
Cerium-143	Ce-143	100	100	Iodine-132	I-132	10	10
Cerium-144	Ce-144	1	1	Iodine-133	I-133	1	1
Cesium-129	Cs-129	100		Iodine-134	I-134	10	10
Cesium-131	Cs-131	1,000	1,000	Iodine-135	I-135	10	10
Cesium-134m	Cs-134m	100	100	Iridium-192	Ir-192	10	10
Cesium-134	Cs-134	1	1	Iridium-194	Ir-194	100	100
Cesium-135	Cs-135	10	10	Iron-52	Fe-52	10	
Cesium-136	Cs-136	10	10	Iron-55	Fe-55	100	100
Cesium-137	Cs-137	10	10	Iron-59	Fe-59	10	10
Chlorine-36	Cl-36	10	10	Krypton-85	Kr-85	100	100
Chlorine-38	Cl-38	10	10	Krypton-87	Kr-87	10	10
Chromium-51	Cr-51	1,000	1,000	Lanthanum-140	La-140	10	10
Cobalt-57	Co-57	100		Lead-210	Pb-210	0.1	
Cobalt-58m	Co-58m	10	10	Lutetium-177	Lu-177	100	100
Cobalt-58	Co-58	10	10	Manganese-52	Mn-52	10	10
Cobalt-60	Co-60	1	1	Manganese-54	Mn-54	10	10
Copper-64	Cu-64	100	100	Manganese-56	Mn-56	10	10
Dysprosium-165	Dy-165	10	10	Mercury-197m	Hg-197m	100	100
Dysprosium-166	Dy-166	100	100	Mercury-197	Hg-197	100	100
Erbium-169	Er-169	100	100	Mercury-203	Hg-203	10	10
Erbium-171	Er-171	100	100	Molybdenum-99	Mo-99	100	100
Europium-152 (9.2 h)	Eu-152	100	100	Neodymium-147	Nd-147	100	100
Europium-152 (13 y)	Eu-152	1 <del>100</del>	1 <del>100</del>	Neodymium-149	Nd-149	100	100
Europium-154	Eu-154	1	1	Nickel-59	Ni-59	100	100
Europium-155	Eu-155	10	10	Nickel-63	Ni-63	10	10
Fluorine-18	F-18	1,000	1,000	Nickel-65	Ni-65	100	100

The following IPL products are exempted quantities:

6003	H-3 Nominal Solution less than 1 mCi
6007	Be-7 Nominal Solution less than 100 uCi (CA)
6014	C-14 Nominal Solution less than 100 uCi
6022	Na-22 Nominal Solution less than 1 uCi (CA)
6024	Na-24 Nominal Solution less than 10 uCi
6032	P-32 Nominal Solution less than 10 uCi
6132	Si-32 Nominal Solution less than 0.1 uCi
6036	Cl-36 Nominal Solution less than 10 uCi
6040	K-40 Nominal Solution less than 0.1 uCi
6045	Ca-45 Nominal Solution less than 10 uCi
6051	Cr-51 Nominal Solution less than 1 mCi
6054	Mn-54 Nominal Solution less than 10 uCi
6055	Fe-55 Nominal Solution less than 100 uCi
6057	Co-57 Nominal Solution less than 100 uCi
6058	Co-58 Nominal Solution less than 10 uCi
6059	Fe-59 Nominal Solution less than 10 uCi
6060	Co-60 Nominal Solution less than 1 uCi
6063	Ni-63 Nominal Solution less than 10 uCi
6065	Zn-65 Nominal Solution less than 10 uCi
6068	Ge-68 Nominal Solution less than 0.1 uCi
6075	Se-75 Nominal Solution less than 10 uCi
6085	Sr-85 Nominal Solution less than 10 uCi
6088	Y-88 Nominal Solution less than 0.1 uCi
6089	Sr-89 Nominal Solution less than 1 uCi
6090	Sr-90 Nominal Solution less than 0.1 uCi
6095	Zr-95 Nominal Solution less than 10 uCi
6099	Tc-99 Nominal Solution less than 100 uCi
6103	Ru-103 Nominal Solution less than 10 uCi
6106	Ru-106 Nominal Solution less than 1 uCi
6109	Cd-109 Nominal Solution less than 10 uCi
6110	Ag-110m Nominal Solution less than 1 uCi
6113	Sr-113 Nominal Solution less than 10 uCi
6123	Te-123m Nominal Solution less than 0.1 uCi
6125	I-125 Nominal Solution less than 1 uCi
6225	Sb-125 Nominal Solution less than 10 uCi
6129	I-129 Nominal Solution less than 0.1 uCi
6131	I-131 Nominal Solution less than 1 uCi
6133	Ba-133 Nominal Solution less than 10 uCi
6134	Cs-134 Nominal Solution less than 1 uCi
6137	Cs-137 Nominal Solution less than 10 uCi
6147	Pm-147 Nominal Solution less than 10 uCi
6152	Eu-152 Nominal Solution less than 100 uCi
6153	Gd-153 Nominal Solution less than 10 uCi
6154	Eu-154 Nominal Solution less than 1 uCi
6155	Eu-155 Nominal Solution less than 10 uCi
6166	Ho-166m Nominal Solution less than 100 uCi
6182	Ta-182 Nominal Solution less than 10 uCi
6192	Ir-192 Nominal Solution less than 10 uCi
6204	Tl-204 Nominal Solution less than 10 uCi
6207	Bi-207 Nominal Solution less than 0.1 uCi
6210	Pb-210 Nominal Solution less than 0.1 uCi

*(100 uCi for 1h half Life Eu<sup>152</sup>)*



GF-007	Be-7 Gamma Source less than 100 uCi (CA)
GF-022	Na-22 Gamma Source less than 1 uCi (CA)
GF-051	Cr-51 Gamma Source less than 1 mCi
GF-054	Mn-54 Gamma Source less than 10 uCi
GF-055	Fe-55 Gamma Source less than 100 uCi
GF-057	Co-57 Gamma Source less than 100 uCi
GF-058	Co-58 Gamma Source less than 10 uCi
GF-059	Fe-59 Gamma Source less than 10 uCi
GF-060	Co-60 Gamma Source less than 1 uCi
GF-065	Zn-65 Gamma Source less than 10 uCi
GF-075	Se-75 Gamma Source less than 10 uCi
GF-085	Sr-85 Gamma Source less than 10 uCi
GF-088	Y-88 Gamma Source less than 0.1 uCi
GF-095	Zr-95 Gamma Source less than 10 uCi
GF-106	Ru-106 Gamma Source less than 1 uCi
GF-109	Cd-109 Gamma Source less than 10 uCi
GF-110	Ag-110m Gamma Source less than 1 uCi
GF-113	Sn-113 Gamma Source less than 10 uCi
GF-125	I-125 Gamma Source less than 1 uCi
GF-225	Sb-125 Gamma Source less than 10 uCi
GF-129	I-129 Gamma Source less than 0.1 uCi
GF-133	Ba-133 Gamma Source less than 10 uCi
GF-134	Cs-134 Gamma Source less than 1 uCi
GF-137	Cs-137 Gamma Source less than 10 uCi
GF-152	Eu-152 Gamma Source less than <del>100</del> uCi (100 uCi for the half life Eu152)
GF-153	Gd-153 Gamma Source less than 10 uCi
GF-154	Eu-154 Gamma Source less than 1 uCi
GF-155	Eu-155 Gamma Source less than 10 uCi
GF-166	Ho-166m Gamma Source less than 100 uCi
GF-207	Bi-207 Gamma Source less than 0.1 uCi
GF-0040	Co-57, less than 100 uCi, Tube source per IPL dwg 1223
GF-0041	Cs-137, less than 10 uCi, Tube source per IPL dwg 1223
BF-003	H-3 Beta Source less than 1 mCi
BF-014	C-14 Beta Source less than 100 uCi
BF-022	Na-22 Beta Source less than 1 uCi
BF-032	Si-32 Beta Source (sim P-32) less than 0.1 uCi
BF-036	Cl-36 Beta Source less than 10 uCi
BF-060	Co-60 Beta Source less than 1 uCi
BF-063	Ni-63 Beta Source less than 10 uCi
BF-090	Sr-90 Beta Source less than 0.1 uCi
BF-099	Tc-99 Beta Source less than 100 uCi
BF-106	Ru-106 Beta Source less than 1 uCi
BF-137	Cs-137 Beta Source less than 10 uCi
BF-147	Pm-147 Beta Source less than 10 uCi
BF-204	Tl-204 Beta Source less than 10 uCi
BF-210	Bi-210 Beta Source less than 1 uCi
AF-210	Po-210 Alpha source less than 100 nCi
GS-3	H-3 Gas Source less than 1 mCi
GS-14	C-14 Gas Source less than 100 uCi
GS-85	Kr-85 Gas Source less than 100 uCi
GS-133	Xe-133 Gas Source less than 100 uCi

ADD: { GF-ML Multichannel Counter Source  
less than 0.5 uCi (7600 series)  
3 uCi (TN or 7500 series).



ADD: EG-LVM-ML MULTILINE LARGE VOLUME <sup>SOLID</sup> STANDARD in Marinelli Beaker Less than 0.6  $\mu$ Ci (7600 series) or 3  $\mu$ Ci (7500 or TN series).  
 EG-CH-ML MULTILINE CHARCOAL CARTRIDGE STANDARD Less than 0.6  $\mu$ Ci (7600 series) or 3  $\mu$ Ci (7500 or TN series).

EG-057 Co-57 Large Volume Standard less than 100  $\mu$ Ci (CA)  
 EG-060 Co-60 Large Volume Standard less than 1  $\mu$ Ci  
 EG-125 I-125 Large Volume Standard less than 1  $\mu$ Ci  
 EG-129 I-129 Large Volume Standard less than 0.1  $\mu$ Ci  
 EG-131 I-131 Large Volume Standard less than 1  $\mu$ Ci  
 EG-133 Ba-133 Large Volume Standard less than 10  $\mu$ Ci  
 EG-137 Cs-137 Large Volume Standard less than 10  $\mu$ Ci

ADD: EG-LV-ML MULTILINE LARGE VOLUME STANDARD, Less than 0.6  $\mu$ Ci (7600 series) or 3  $\mu$ Ci (7500 series or TN series)

EAB-014 C-14 Planar Calibration Standards less than 100  $\mu$ Ci  
 EAB-036 Cl-36 Planar Calibration Standards less than 1  $\mu$ Ci  
 EAB-060 Co-60 Planar Calibration Standards less than 1  $\mu$ Ci  
 EAB-090 Sr-90 Planar Calibration Standards less than 0.1  $\mu$ Ci  
 EAB-099 Tc-99 Planar Calibration Standards less than 10  $\mu$ Ci  
 EAB-125 I-125 Planar Calibration Standards less than 1  $\mu$ Ci  
 EAB-129 I-129 Planar Calibration Standards less than 0.1  $\mu$ Ci  
 EAB-131 I-131 Planar Calibration Standards less than 1  $\mu$ Ci  
 EAB-137 Cs-137 Planar Calibration Standards less than 10  $\mu$ Ci  
 EAB-147 Pm-147 Planar Calibration Standards less than 10  $\mu$ Ci  
 EAB-204 Tl-204 Planar Calibration Standards less than 10  $\mu$ Ci  
 EAB-210 Po-210 Planar Calibration Standards less than 0.1  $\mu$ Ci

LDS-3 H-3 Planar Calibration Standards less than 1 mCi  
 LDS-14 C-14 Planar Calibration Standards less than 100  $\mu$ Ci  
 LDS-32 Si-32 (Sim P-32) Planar Calibration Source less than 0.1  $\mu$ Ci  
 LDS-36 Cl-36 Planar Calibration Standard, less than 10  $\mu$ Ci  
 LDS-60 Co-60 Planar Calibration Standard, less than 1  $\mu$ Ci  
 LDS-90 Sr-90 Planar Calibration Standard, less than 0.1  $\mu$ Ci  
 LDS-99 Tc-99 Planar Calibration Standard, less than 100  $\mu$ Ci  
 LDS-129 I-129 Planar Calibration Standard, less than 0.1  $\mu$ Ci  
 LDS-137 Cs-137 Planar Calibration Standard, less than 10  $\mu$ Ci  
 LDS-147 Pm-147 Planar Calibration Standard, less than 10  $\mu$ Ci  
 LDS-204 Tl-204 Planar Calibration Standard, less than 10  $\mu$ Ci

LDS-HF-14 C-14 Hand & Foot Standard, less than 100  $\mu$ Ci  
 LDS-HF-32 Si-32 (Sim P-32) Hand & Foot Standard, less than 0.1  $\mu$ Ci  
 LDS-HF-36 Cl-36 Hand & Foot Standard, less than 10  $\mu$ Ci  
 LDS-HF-60 Co-60 Hand & Foot Standard, less than 1  $\mu$ Ci  
 LDS-HF-90 Sr-90 Hand & Foot Standard, less than 0.1  $\mu$ Ci  
 LDS-HF-99 Tc-99 Hand & Foot Standard, less than 100  $\mu$ Ci  
 LDS-HF-129 I-129 Hand & Foot Standard, less than 0.1  $\mu$ Ci  
 LDS-HF-137 Cs-137 Hand & Foot Standard, less than 10  $\mu$ Ci  
 LDS-HF-147 Pm-147 Hand & Foot Standard, less than 10  $\mu$ Ci  
 LDS-HF-204 Tl-204 Hand & Foot Standard, less than 10  $\mu$ Ci

ME-057 Co-57 Mono Energetic Electron Source less than 100  $\mu$ Ci  
 ME-109 Cd-109 Mono Energetic Electron Source less than 10  $\mu$ Ci  
 ME-113 Sn-113 Mono Energetic Electron Source less than 10  $\mu$ Ci  
 ME-119 Sn-119m Mono Energetic Electron Source less than 0.1  $\mu$ Ci  
 ME-133 Ba-133 Mono Energetic Electron Source less than 10  $\mu$ Ci  
 ME-137 Cs-137 Mono Energetic Electron Source less than 10  $\mu$ Ci  
 ME-207 Bi-207 Mono Energetic Electron Source less than 0.1  $\mu$ Ci

ADD: SGS-ML Multiline simulated Gas

EAB-AL-ML MULTILINE Planchet source Less than 0.6  $\mu$ Ci (7600 series) or 3  $\mu$ Ci (TN or 7500 series)  
 EAB-LB-ML Multiline Planar source Less than 0.6  $\mu$ Ci (7600 series) or 3  $\mu$ Ci (7500 or TN series)  
 EAB-FP-ML Multiline Planar source w/ Fiber matrix Less than 0.6  $\mu$ Ci (7600 series or 3  $\mu$ Ci (7500 or TN series))



PSC-0001	Optics Tray containing 4 PSC-14 C <sup>14</sup> sources with total activity less than 100 uCi.
PSC-0002	Optics tray containing 4 PSC-14 C <sup>14</sup> sources with total activity less than 100 uCi.
PSC-0004	Optics tray containing 2 PSC-14 C <sup>14</sup> sources with total activity less than 100 uCi.
PSC-14	C-14 Plastic Scintillation Source less than 100 uCi
PSC-60	Co-60 Plastic Scintillation Source less than 1 uCi

**CUSTOM or OEM PRODUCTS**

1816	Cs-137 Check Source, 9 uCi
1818	Fe-55 Check Source, 95 uCi
3893	Cs-137 less than 0.5 uCi, detector with internal calibration source.

## LICENSE FEE REQUIREMENTS

*PNR Sandra Kimberly*  
LICENSE FEE AND DEBT COLLECTION BRANCH  
DIVISION OF ACCOUNTING AND FINANCE  
OFFICE OF THE CONTROLLER  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001  
(301 415 6096)

Isotope Products Laboratories  
ATTN: Mr. Michael Devine  
1800 N. Keystone Street  
Burbank, CA 91504

## TYPE OF ACTION

☐ NEW LICENSE☐ RENEWAL OF LICENSE☒ AMENDMENT TO LICENSE

REQUESTED DATE

5-9-96

LICENSE NUMBER

04-16778-01E

CONTROL NUMBER

021836

## I. APPLICATION FEE DUE

Your request for a licensing action is subject to the fee(s) in the category(ies) noted below in accordance with Section 170.31 of the enclosed Federal Register notice. Payment of the fee is required prior to the issuance of the license, renewal, or amendment.

FEE CATEGORY	APPLICATION	RENEWAL	AMENDMENT
31	\$	\$	\$ 840.00
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$

FEE(s) DUE \$ 840.00

PAYMENT RECEIVED \$

AMOUNT DUE \$ 840.00

☒ Your request was received without the prescribed application fee.

We received your Check

No. in the amount of

\$ Payment of the additional fee noted above is required.

☐ Your request will increase the scope of your license program. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(d)(2).☐ Your license expired prior to the receipt of your application for renewal. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(a).

MAKE PAYMENT OF THE FEE(S) TO THE U.S. NUCLEAR REGULATORY COMMISSION AND MAIL THE PAYMENT TO THE ADDRESS LISTED AT THE TOP OF THIS FORM. IF WE DO NOT RECEIVE A REPLY FROM YOU WITHIN 30 CALENDAR DAYS FROM THE DATE LISTED BELOW, WE SHALL ASSUME THAT YOU DO NOT WISH TO PURSUE YOUR APPLICATION AND WILL VOID THIS ACTION.

## II. FEE NOT REQUIRED

☐ Enclosed is Check No. which accompanied your request. The fee is not required because:☒ We received your Check No. in payment of the fee.☐ The Licensing staff has informed us that your request is to be considered as a continuation of your request dated

Control No.

☐ Your request was combined, prior to review, with your request, Control No.

## III. CHECK RETURNED

☐ Enclosed is Check No. which was returned to us by the bank for:☐ INSUFFICIENT FUNDS☐ ACCOUNT CLOSED☐ OTHER

MAIL THE REPLACEMENT CHECK TO THE ADDRESS LISTED AT THE TOP OF THIS FORM AND REFERENCE THE ABOVE CONTROL NUMBER.

## IV. LICENSE ISSUED WITHOUT THE REQUIRED FEE

☐ License No. Amendment No. issued on

was issued without the required fee being collected. The fee required is noted in Section I of this form.

☐ The scope of your licensed program was increased. Therefore, your request is subject to the application fee(s) noted in Section 1 of this form. Refer to Section 170.31 and Footnote 1(d)(2).☐ Because of the urgency of your request, the license was issued without remittance of the prescribed fee noted in Section 1 of this form.

SIGNATURE -- LICENSE FEE ANALYST

LFDCB

LFDCB

Distribution: *Pending Feb.*

DATE

Sandra Kimberly

5/29/96

*LEAD (LF 3, 2, 1)  
LEAD B R/F  
HPS, S...*

5-29-96

030-19/92



May 9, 1996

Susan L. Greene  
MS: 8F5TWFN  
Medical, Academic, and Commercial Use Branch  
Division of Industrial, medical, and Nuclear Safety  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Susan:

Regarding: License number 04-16778-01E

We have recently fielded requests for welded sources with Exempt Quantity Distribution level activities. Although these capsules have been designed to contain milli Curie levels of activity, some customers prefer these very rugged designs for exempt quantity levels of activity. Therefore, we would like to add our PHI and HEG series sources to the list of Exempt Quantity Distribution products per our Procedure Q2. These sources are sold by model number and capsule type so I have included a table illustrating the capsule types available within each model number. Most of these capsules have been tested per ANSI N542 and have also been registered with the Radiological Health Branch of the State of California Department of Health Services. I have included drawings and test results of source capsules for which registrations are pending. Our Exempt Quantity Distribution Source procedure ensures that sources sold as Exempt Quantity Distribution Products meet labeling and handling requirements per 10CFR32.18. Please append the PHI and HEG series sources per the following list to our Exempt Quantity Distribution License number 04-16778-01E. If you require additional information, please do not hesitate to call or fax me.

Sincerely,

*Michael Devine*

Michael Devine  
Isotope Products Laboratories

Enclosures: 2

Corporate and  
Main Laboratory  
1800 N. Keystone Street  
Burbank, California  
91508

818-843-7000  
Fax 818-843-6168

021836

May 9, 1996

Please add the following PHI series sources to our list of Exempt Quantity Distribution Products.

PHI-007 Be-7 Gamma Source less than 100 uCi (CA)  
PHI-022 Na-22 Gamma Source less than 1 uCi (CA)  
PHI-051 Cr-51 Gamma Source less than 1 mCi  
PHI-054 Mn-54 Gamma Source less than 10 uCi  
PHI-055 Fe-55 Gamma Source less than 100 uCi  
PHI-056 Co-56 Gamma Source less than 0.1 uCi  
PHI-057 Co-57 Gamma Source less than 100 uCi  
PHI-058 Co-58 Gamma Source less than 10 uCi  
PHI-059 Fe-59 Gamma Source less than 10 uCi  
PHI-060 Co-60 Gamma Source less than 1 uCi  
PHI-065 Zn-65 Gamma Source less than 10 uCi  
PHI-068 Ge-68 Gamma Source less than 0.1 uCi  
PHI-075 Se-75 Gamma Source less than 10 uCi  
PHI-085 Sr-85 Gamma Source less than 10 uCi  
PHI-088 Y-88 Gamma Source less than 0.1 uCi  
PHI-095 Zr-95 Gamma Source less than 10 uCi  
PHI-106 Ru-106 Gamma Source less than 1 uCi  
PHI-109 Cd-109 Gamma Source less than 10 uCi  
PHI-110 Ag-110m Gamma Source less than 1 uCi  
PHI-113 Sn-113 Gamma Source less than 10 uCi  
PHI-125 I-125 Gamma Source less than 1 uCi  
PHI-225 Sb-125 Gamma Source less than 10 uCi  
PHI-129 I-129 Gamma Source less than 0.1 uCi  
PHI-133 Ba-133 Gamma Source less than 10 uCi  
PHI-134 Cs-134 Gamma Source less than 1 uCi  
PHI-137 Cs-137 Gamma Source less than 10 uCi  
PHI-152 Eu-152 Gamma Source less than 100 uCi  
PHI-153 Gd-153 Gamma Source less than 10 uCi  
PHI-154 Eu-154 Gamma Source less than 1 uCi  
PHI-155 Eu-155 Gamma Source less than 10 uCi  
PHI-166 Ho-166m Gamma Source less than 100 uCi  
PHI-207 Bi-207 Gamma Source less than 0.1 uCi

May 9, 1996

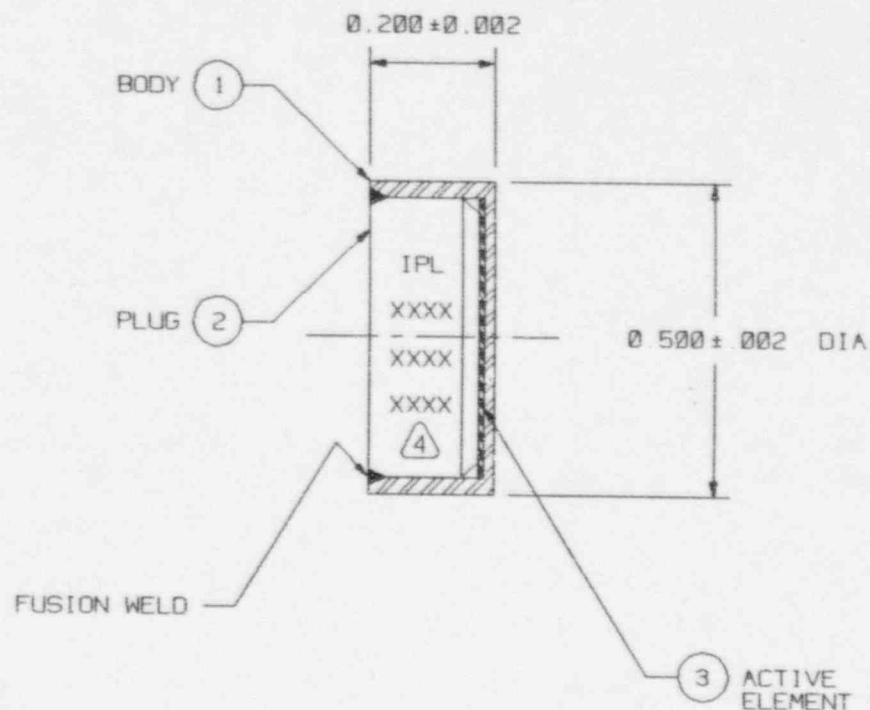
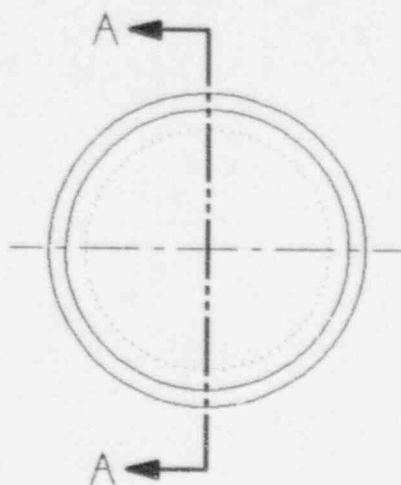
Please add the following HEG series sources to our list of Exempt Quantity Distribution Products.

HEG-007 Be-7 Gamma Source less than 100 uCi (CA)  
HEG-022 Na-22 Gamma Source less than 1 uCi (CA)  
HEG-051 Cr-51 Gamma Source less than 1 mCi  
HEG-054 Mn-54 Gamma Source less than 10 uCi  
HEG-055 Fe-55 Gamma Source less than 100 uCi  
HEG-056 Co-56 Gamma Source less than 0.1 uCi  
HEG-057 Co-57 Gamma Source less than 100 uCi  
HEG-058 Co-58 Gamma Source less than 10 uCi  
HEG-059 Fe-59 Gamma Source less than 10 uCi  
HEG-060 Co-60 Gamma Source less than 1 uCi  
HEG-065 Zn-65 Gamma Source less than 10 uCi  
HEG-068 Ge-68 Gamma Source less than 0.1 uCi  
HEG-075 Se-75 Gamma Source less than 10 uCi  
HEG-085 Sr-85 Gamma Source less than 10 uCi  
HEG-088 Y-88 Gamma Source less than 0.1 uCi  
HEG-095 Zr-95 Gamma Source less than 10 uCi  
HEG-106 Ru-106 Gamma Source less than 1 uCi  
HEG-109 Cd-109 Gamma Source less than 10 uCi  
HEG-110 Ag-110m Gamma Source less than 1 uCi  
HEG-113 Sn-113 Gamma Source less than 10 uCi  
HEG-125 I-125 Gamma Source less than 1 uCi  
HEG-225 Sb-125 Gamma Source less than 10 uCi  
HEG-129 I-129 Gamma Source less than 0.1 uCi  
HEG-133 Ba-133 Gamma Source less than 10 uCi  
HEG-134 Cs-134 Gamma Source less than 1 uCi  
HEG-137 Cs-137 Gamma Source less than 10 uCi  
HEG-152 Eu-152 Gamma Source less than 100 uCi  
HEG-153 Gd-153 Gamma Source less than 10 uCi  
HEG-154 Eu-154 Gamma Source less than 1 uCi  
HEG-155 Eu-155 Gamma Source less than 10 uCi  
HEG-166 Ho-166m Gamma Source less than 100 uCi  
HEG-207 Bi-207 Gamma Source less than 0.1 uCi  
HEG-0073 Cs-137 Gamma Source less than 10 uCi in A3916 capsule  
HEG-0074 Zn-65 Gamma Source less than 10 uCi in A3916 capsule

CATALOG SERIES	CAPSULE NUMBER	REGISTRATION NUMBER	DESCRIPTION
PHI-XXX	A3201	CA406S118S USA/0515/S	0.312" diameter x 0.2" SS capsule with 0.010" SS window.
PHI-XXX	A3202	CA406S118S USA/0515/S	0.312" diameter x 0.2" SS capsule with internal Tungsten shield and 0.010" window.
PHI-XXX	A3203	CA406S118S USA/0357/S	Single encapsulated SS body with a 0.002" SS window and internal Aluminum spacer. The window and plug are fusion welded to the capsule body. The active element is a ceramic or foil form.
PHI-XXX	A3224	CA406S118S USA/0516/S	Single encapsulated SS or Titanium capsule of plug and shell construction sealed by fusion welding. The active element is in a ceramic form.
PHI-XXX	A3217	PENDING	Single encapsulated SS capsule of plug and shell construction 0.5" dia x 0.2" sealed by fusion welding. The active element is in a ceramic form. ANSI N542 Classification 77C43333.
PHI-XXX	A3222	USA/0350/S	Single encapsulated externally threaded SS body with a 0.002" SS window. The window and plug are fusion welded to the capsule body. The active element is a ceramic or foil form.
PHI-XXX	A3807	CA406S118S USA/0516/S	Single encapsulated SS capsule of plug and shell construction sealed by fusion welding. The active element is a ceramic bead form.
PHI-XXX	A3201	CA406S118S USA/0515/S	Single encapsulated SS capsule (0.312" od x 0.2") of plug and shell construction sealed by fusion welding. The active element is a ceramic or foil form.
PHI-XXX	A3204	CA406S112S USA/0336/S	Single encapsulated SS body with a Beryllium window. The window is brazed in place and the capsule's plug is sealed by fusion welding. The active element is a ceramic or foil form.
PHI-XXX	A3205	CA406S112S USA/0336/S	Single encapsulated SS body with a Beryllium window and internal Tungsten shield. The window is brazed in place and the capsule's plug is sealed by fusion welding. The active element is a ceramic or foil form.



CATALOG SERIES	CAPSULE NUMBER	REGISTRATION NUMBER	DESCRIPTION
PHI-XXX	A3224	CA406S118S USA/0516/S	Single encapsulated SS or Titanium capsule of plug and shell construction sealed by fusion welding. The active element is in a ceramic form.
PHI-XXX	A3901	CA406S174S USA/0517/S	Single encapsulated SS or Titanium capsule of plug and shell construction sealed by fusion welding. The active element is in a ceramic form.
PHI-XXX	A3215	CA406S112S	Single encapsulated SS body with a Beryllium window measuring 0.5" diameter x 0.2" thick. The window is brazed in place and the capsule's plug is sealed by fusion welding. The active element is a ceramic or foil form.
PHI-xxxx	A3916	PENDING	Double encapsulated welded SS capsule with inner capsule of flattened and cold welded Copper or Aluminum tubing. Ansi Classification 77C66545.
HEG-xxx	A3000	CA406S122S USA/0356/S	Double encapsulated SS capsule, 0.236" OD x 0.625", of welded plug and shell construction. The active element is a ceramic or foil form.
HEG-xxx	A3011	CA406S126S USA/0353/S	Double encapsulated SS capsule, 0.375" hex tapering to 0.250" diameter with a total length of 1.437", of welded plug and shell construction. The active element is a ceramic or foil form.
HEG-xxx	A3015	CA406S122S USA/0356/S	Double encapsulated SS capsule, 0.236" OD x 0.315", of welded plug and shell construction. The active element is a ceramic or foil form.
HEG-xxx	A3023	CA406S122S USA/0356/S	Double encapsulated SS capsule, 0.236" OD x 0.473", of welded plug and shell construction with an internal thread at one end. The active element is a ceramic or foil form.
HEG-xxx	A3024	CA406S122S USA/0356/S	Double encapsulated SS capsule, 0.236" OD x 0.394", of welded plug and shell construction. The active element is a ceramic or foil form.



P/N: A3217-X

ASSEMBLY, GFS-5 CAPSULE

SECTION A-A

5. PACKAGE AND IDENTIFY PART NUMBER THEREON

4 ENGRAVE CHARACTERS SIZE 6 x 4 DEEP MAX ON CIRCUMFERENCE: (DO NOT FILL)

IPL  
NUCLIDE  
ACTIVITY  
SERIAL NUMBER

3. TOLERANCES: 0.XXX ± 0.002, 0.XX ± 0.01, 0.X ± 0.1, ANGLE ± 0.5°

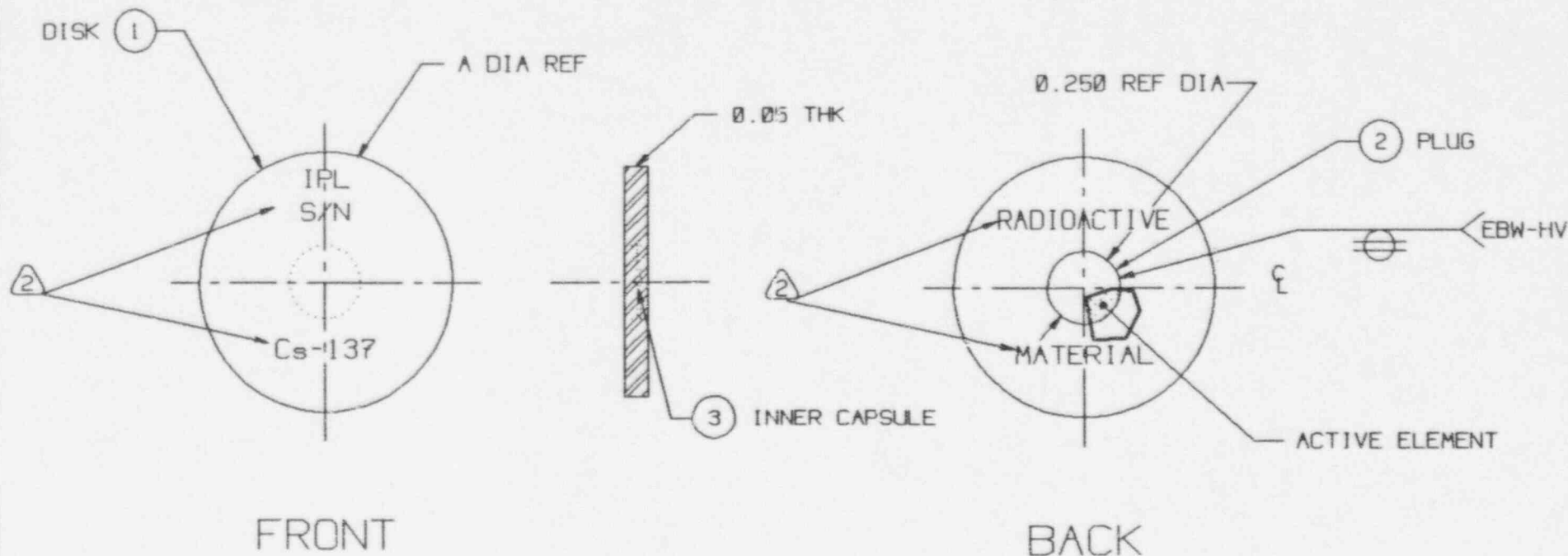
2. DIMENSIONS ARE IN INCHES

1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED

NOTE: UNLESS OTHERWISE SPECIFIED

X	ACTIVE ELEMENT	SIZE
1	Ag FOIL	0.005" x 0.438" DIA
2	Ni FOIL	0.005" x 0.438" DIA
3	Al FOIL	0.005" x 0.438" DIA
4	STAINLESS STEEL FOIL	0.005" x 0.438" DIA
5	CERAMIC	0.060" x 0.438" DIA
6	ALUMINUM PELLETT	0.100" x 0.438" DIA

<b>ISOTOPE PRODUCTS LABORATORIES</b> BURBANK, CALIFORNIA 91504		DATE: 09/18/87		APPROVED:	DESIGNED: JMD/RLT
		TITLE: GFS-5 CAPSULE		REV/CHG: B	SCALE: NTS
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TOLERANCES ON DECIMAL X XX XXX ± 1/64 ± .1 .01 .002 5°		SERIES: GFS AND XFB SOURCES (PHI & BFI)	
THIRD ANGLE PROJECTION				DRAWING NUMBER 3217	
THIS DRAWING IS THE PROPERTY OF ISOTOPE PRODUCTS LABORATORIES, AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ISOTOPE PRODUCTS LABORATORIES.				SHEET: 4 OF 6	



3. IDENTIFY PART NUMBER

② ENGRAVE CHARACTERS 0.030 HIGH x 0.003 MAX DEPTH

1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING  
HAND PRESS FIT PLUG INTO DISK. RESISTANCE WELD TO DISK.  
AND FUSION WELD IN PLACE

NOTE: UNLESS OTHERWISE SPECIFIED

P/N: A3916-X ASSEMBLY, Cs-137 DISK SOURCE

X	A
1	0.394
2	0.895

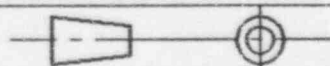


ISOTOPE PRODUCTS  
LABORATORIES  
BURBANK, CALIFORNIA 91504

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES

FRACTION	TOLERANCES ON DECIMAL			ANGLE
	X	XX	XXX	
±1/64	±.1	.01	.002	±.5°

THIRD ANGLE PROJECTION



DESIGN  
JMD/RLT

DRAWING TITLE  
Cs-137 DISK SOURCE

SCALE  
NONE

SERIES TITLE  
CUSTOM SOURCES (290)

SIZE  
A

CAGE CODE  
32993

REVISION  
-

DRAWING NUMBER  
3916

SHEET  
3 OF 5

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WITHOUT EXPRESS AUTHORIZATION BY ISOTOPE PRODUCTS LABORATORIES.

R1201021

LICENSING TRACKING SYSTEM

DATE: 960523

PAGE: 1

LTS WORKSHEET

DOCKET NO : 03019192      LICENSE NO : 04-16778-01E      STATUS: 0  
MAIL CONTROL: 021836      RECEIPT DATE : 960517      ACTION TYPE: 4  
DUE DATE : 960815  
FED. GOVT : C      INST. CODE : 16778      LICENSE REGION: 0  
ISSUE DATE: 950326      ORIGINAL DATE: 810615      EXPIRATION DATE: 19990531  
NAME : ISOTOPE PRODUCTS LABORATORIES      DECOM FIN ASSUR REQD: N  
SUBM: \_  
DEPT/BUREAU: \_\_\_\_\_      CONT PLAN REQD: N      APPRV: \_  
BUILDING : \_\_\_\_\_  
STREET : 1800 N. KEYSTONE STREET  
CITY : BURBANK      STATE: CA      ZIP: 91504  
CONTACT PERSON: MICHAEL DEVINE      PHONE: 818-843-7000  
PRIMARY PGM CODE : 03253      SECONDARY PGM CODES: 03251  
INSPECTION REGION: 4      PRIORITY CODE: 5      INSPECTION CATEGORY: E  
RADIATION SAFETY OFFICER: \_\_\_\_\_  
STATES WHERE USE IS AUTHORIZED: 1      0 - ALL LISTED STATES  
1 - SAME AS STATE IN ADDRESS  
2 - ALL STATES  
3 - NON-AGREEMENT STATES  
AUTHORIZED STATES: \_\_\_\_\_ (USE ONLY IF ABOVE IS ZERO)  
REPORTING IDENTIFICATION SYMBOL: \_\_\_\_\_  
APPROVAL FOR: REDISTRIBUTION: N      STORAGE ONLY: N  
TEMPORARY JOB SITES: N      INCINERATION: N  
BURIAL: N  
EXEMPTIONS: (1) \_\_\_\_\_ (2) \_\_\_\_\_

## POSSESSION LIMIT INFORMATION

PAGE: 2

MATERIAL TYPE : NPA FORM CODE: NPA AGGREGATE CODE: NPA  
MODEL NUMBER : \_\_\_\_\_  
DESCRIPTION : \_\_\_\_\_  
TOTAL QUANTITY : 0000000.000000000 UNIT: \_\_\_\_\_  
OTHER : \_\_\_\_\_ # SOURCES: \_\_\_\_\_

MATERIAL TYPE : \_\_\_\_\_ FORM CODE: \_\_\_\_\_ AGGREGATE CODE: \_\_\_\_\_  
MODEL NUMBER : \_\_\_\_\_  
DESCRIPTION : \_\_\_\_\_  
TOTAL QUANTITY : \_\_\_\_\_ UNIT: \_\_\_\_\_  
OTHER : \_\_\_\_\_ # SOURCES: \_\_\_\_\_

MATERIAL TYPE : \_\_\_\_\_ FORM CODE: \_\_\_\_\_ AGGREGATE CODE: \_\_\_\_\_  
MODEL NUMBER : \_\_\_\_\_  
DESCRIPTION : \_\_\_\_\_  
TOTAL QUANTITY : \_\_\_\_\_ UNIT: \_\_\_\_\_  
OTHER : \_\_\_\_\_ # SOURCES: \_\_\_\_\_

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DESCRIPTION : \_\_\_\_\_  
TOTAL QUANTITY : \_\_\_\_\_ UNIT: \_\_\_\_\_  
OTHER : \_\_\_\_\_ # SOURCES: \_\_\_\_\_

NAME

AUTHORIZATION

ADDRESS WHERE MATERIAL IS USED OR POSSESSED

BUILDING: 1800 N Kingston  
ROOM:  
STREET: Burkhead  
CITY: 11509  
STATE: CA

BUILDING:  
ROOM:  
STREET:  
CITY:  
STATE:

BUILDING:  
ROOM:  
STREET:  
CITY:  
STATE:

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CITY:  
STATE:

BUILDING:  
ROOM:  
STREET:  
CITY:  
STATE:



DOCKET: 03019192 LIC: 04-16778-01E NAME: ISOTOPE PRODUCTS LABORATORIES

PARTY ISSUING MECHANISM: ASSUR TYPE : - (C=CERT D=DFP)  
NAME : MECH TYPE : -  
ADDR1 : MECH AMOUNT :  
ADDR2 : APPROVED? DATE :  
CITY : EXPIRES ? - DATE :  
STATE : ZIP: -

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ADDR1 : MECH AMOUNT :  
ADDR2 : APPROVED? DATE :  
CITY : EXPIRES ? - DATE :  
STATE : ZIP: -

PAGE : 5

INTERIM STORAGE UP TO 1996: N

BETWEEN:

License Fee Management Branch, ARM  
and  
Regional Licensing Sections

(FOR LFMS USE)  
INFORMATION FROM LTS

Program Code: 03253  
Status Code: 0  
Fee Category: 3I  
Exp. Date: 19990531  
Fee Comments:  
Decom Fin Assur Req'd: N

LICENSE FEE TRANSMITTAL

A. REGION HQTRS

1. APPLICATION ATTACHED

Applicant/Licensee: ISOTOPE PRODUCTS LABORATORIES  
Received Date: 960517  
Docket No.: 3019192  
Control No.: 021836  
License No.: 04-16778-01E  
Action Type: Amendment

2. FEE ATTACHED

Amount:  
Check No.: /

3. COMMENTS

Signed  
Date

C. Boyle  
5/23/96

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered 1/1)

1. Fee Category and Amount: 3I \$840

2. Correct Fee Paid. Application may be processed for:

Amendment /  
Renewal \_\_\_\_\_  
License \_\_\_\_\_

3. OTHER \_\_\_\_\_

Signed  
Date

Log	<u>May 1 HQS</u>
Remitter	
Check No.	<u>16331</u>
Amount	<u>\$840</u>
Fee Category	<u>3I</u>
Type of Fee	<u>AMD</u>
Date Check Rec'd.	<u>5/23/96</u>
Date Completed	<u>5/23/96</u>
By:	<u>SA</u>

1996 MAY 24 AM 10:44