

Michael W. Lairmore, M.S.
P.O. Box 296
Midland Park, New Jersey 07432
(201) 693-2277

January 20, 2011

Kathy Modes, Health Physicist
Licensing Assistance Team
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406-1415

MS16
p-3

RECEIVED
REGION I
2011 JAN 24 AM 10:59

RE: Response Letter - Michael W. Lairmore Associates
In Support of Pending Renewal Application
License Number: 29-30227-01
Control Number: 573657

03033875

Dear Ms. Modes:

Pursuant to your correspondence dated January 14, 2011, the following responses are submitted in support of my pending renewal of my radioactive material license. Please refer to the following paragraphs for specific details.

1. **The sealed sources currently possessed, utilized and intended for use in NRC controlled areas are listed below:**
 - A. **Cesium-137 E-Vial Source; Manufactured by NEN/Dupont; Model Numbers: NES-356.** (I do not possess a calibration certificate for this source. I received this sealed source device from my previous employer in 1995- The current activity of this source = 132 uCi).
 - B. **Barium-133 E-Vial Source; Manufactured by NEN/Dupont; Model Number: NES-358.** (I do not possess a calibration certificate for this source. I received this sealed source device from my previous employer in 1995. The current activity of this source = 65 uCi).
 - C. **Barium-133 E-Vial Source; Manufactured by Isotope Products Labs; Model Number: RV-133-250U.** (Certificate Attached - Please refer to Attachment A for details) - Current activity = 115 uCi
 - D. **Cobalt-57 E-Vial Source; Manufactured by Rad-Qual; Model Number: BM06E.** (Certificate Attached- Please refer to Attachment A for details). Current activity = 1.07 mCi

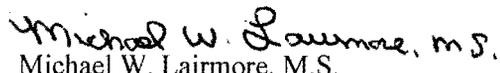
- E. **Eu-152 Rod Source: Manufactured by Isotope Products Labs; Model Number: GF-152-500N.** (Certificate Attached- Please refer to Attachment A for details). Current activity = .215 uCi
- F. **Cesium-137 Rod Source: Manufactured by Isotope Products Labs; Model Number: GF-152-500N.** (Certificate Attached- Please refer to Attachment A for details). Current activity = .342 uCi
- G. **Cobalt-57 Rod Source; Manufactured by Eckert & Ziegler; Model Number: GF-0210.** (Certificate Attached- Please refer to Attachment A for details). Current activity = .328 uCi.
- H. **Ge-68 Rod Source; Manufactured by Isotope Products Labs; Model Number: GF-068.** (Certificate Attached- Please refer to Attachment A for details). Current activity = < 1 uCi
- I. **Cobalt-57 Rod Source: Manufactured by North American Scientific; Model Number: MED3400.** (Certificate Attached- Please refer to Attachment A for details). Current activity = .0125 uCi.

Within the next year, I will need to replace my Cobalt-57 Rod and E-Vial Source. I request authorization for the one of the following, when replacement is needed:

- A. **Cobalt-57 Rod Source; Manufactured by Eckert & Ziegler; Model Number: GF-0210.**
- B. **Cobalt-57 E-Vial Source: Manufactured by Rad-Qual; Model Number: BM06E** or
Cobalt-57 E-Vial Source: Manufactured by Eckert & Ziegler; Model Number: RV-057-5M.

If you require additional information, please contact me at (201) 693-2277 or wmlairmore@optonline.net.

Sincerely,


Michael W. Lairmore, M.S.
President

Attachment A

CERTIFICATE OF CALIBRATION

GAMMA STANDARD SOURCE

Radionuclide:	Ba-133	Reference Date:	1 Sep 98 12:00 PST
Half Life:	10.574 ± 0.041 years	Contained Radioactivity:	259.0 µCi
Catalog No:	RV-133-250U	Contained Radioactivity:	9,583 kBq
Source No:	621-20-2		

Source Description

- | | |
|------------------------------|-------------------------------------|
| a. Capsule type: | RV (27 ml polyethylene bottle) |
| b. Nature of active deposit: | Ba-133 dispersed in an epoxy matrix |
| c. Active diameter/volume: | Approx. 20 ml |
| d. Backing: | Plastic |
| e. Cover: | Plastic |

Radioimpurities:

Cs-134 = 0.7884% as of 25 Aug 98.

Method of Calibration

This source was assayed in a pressurized well-type ionization chamber.

Uncertainty of Measurement

- | | |
|--|--------|
| a. Systematic uncertainty in instrument calibration: | ± 3.0% |
| b. Random uncertainty in assay | ± 0.2% |
| c. Random uncertainty in weighing(s): | ± 0.0% |
| d. Total uncertainty at the 99% confidence level: | ± 3.0% |

NIST Traceability

This calibration is traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

- IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Material (As in NRC Regulatory Guide 4.15).

*2/20/00 SURVEY = 0.08 mCi
Surface = 0.17 mCi
Wipe = 2.2 dpm/m²
Received on 2/20/00
[Signature]*

[Signature]
QUALITY CONTROL

25 Sep 98

Date Signed



ISOTOPE PRODUCTS LABORATORIES

1800 N. KEYSTONE STREET
BURBANK, CALIFORNIA 91504

818-843-7000 FAX 818-843-6168

IPL Ref. No.: 621-20

CERTIFICATE OF CALIBRATION

MODEL MED3400 GAMMA REFERENCE STANDARD

Radionuclide: Co-57 **Activity:** 48.56 kBq (1.312 μ Ci)
Serial Number: 68996 **Reference Date:** 1200 PST February 1, 2006
Half Life⁽¹⁾: 271.77 \pm 0.05 days

PRINCIPAL EMISSIONS⁽¹⁾

Type	Energy (keV)	Intensity (%)
gamma	14.4119	9.54
gamma	122.0612	85.5
gamma	136.4730	10.69

SOURCE DESCRIPTION

Active Diameter: 1 mm **Nature of Active Deposit:** Cobalt Chloride in resin matrix
Overall Diameter: 12.7 mm **Position of Active Bead:** 8 mm from the end of rod
Overall Length: 102 mm

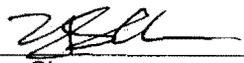
METHOD OF CALIBRATION

The source was calibrated on a high purity germanium detector against a Co-57 standard at 122.0612 keV. The activity of the standard was determined using an efficiency established and verified through ongoing intercomparisons with the National Institute of Standards and Technology. This standard is indirectly (implicitly) traceable to the National Institute of Standards and Technology.

North American Scientific, Inc. actively participates in the Radioactivity Measurements Assurance Program conducted by the National Institute of Standards and Technology in cooperation with the Nuclear Energy Institute.

TOTAL UNCERTAINTY (99% Confidence Level)

Systematic uncertainty	3.02%
Random uncertainty	0.44%
Total uncertainty (quadratic sum)	<u><u>\pm 3.05%</u></u>



Amy Chen
Calibration Laboratory

February 2, 2006

Date

REFERENCES

- (1) Table of Radioactive Isotopes, 7th edition, 1986.

• LEAK TEST CERTIFICATION ON REVERSE •

NIST TRACEABLE CERTIFICATE GAMMA STANDARD SOURCE

Radionuclide:	Ge-68	Customer:	JRT ASSOCIATES
Half-life:	270.8 ± 0.3 days	P.O. No.:	M112290
Catalog No.:	GF-068	Reference Date:	1-Jan-01 12:00 PST
Source No.:	751-22	Contained Radioactivity:	1.074 μCi 39.74 kBq

Physical description:

A. Capsule type:	R 0.5" (12.7mm) diameter x 5.0" (127mm) length
B. Nature of active deposit:	Evaporated metallic salt
C. Active Diameter:	5 mm
D. Backing:	Acrylic
E. Cover:	Acrylic

Radioimpurities:

None detected

Method of Calibration:

This source was assayed using gamma ray spectrometry.

Peak energy used for integration:	1077 keV
Branching ratio used:	0.0324 gammas per decay

Uncertainty of Measurement:

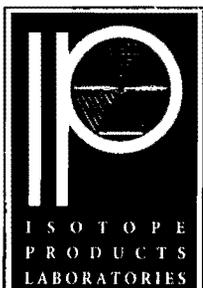
A. Type A (random) uncertainty:	± 0.9 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.0 %
D. Total uncertainty at the 99% confidence level:	± 3.1 %

Notes:

- See reverse side for leak tests performed on this source.
- IPL participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).
- Nuclear data was taken from NCRP Report No. 58, 1985.
- This source has a working life of 18 months.

~~6-1-01~~
~~6-1-01~~
~~8-1-01~~

1/10/01
Shovels
Received on 1/10/01
I m = 0.05 mCi
Surface = 0.18 mCi
Wipe = 46 dpm/100cm²



ISOTOPE PRODUCTS LABORATORIES
1800 N. KEYSTONE ST.
BURBANK, CALIFORNIA 91504
818-843-7000 FAX 818-843-6168

Daniel James Van Dalsen
Quality Control

19-Dec-00
Date Signed



Medical Imaging Laboratory

24937 Avenue Tibbitts Valencia, California 91355
Tel 661-309-1010 Fax 661-257-8303

Industrial Gauging and Medical Imaging Laboratory

1800 North Keystone Street Burbank, California 91504
Tel 661-309-1010 Fax 661-257-8303

CERTIFICATE OF CALIBRATION GAMMA STANDARD SOURCE

Radionuclide: Co-57
Half-life: 271.79 ± 0.09 days
Catalog No.: GF-0210
Source No.: 1407-17-3

Reference Date: 1-Dec-09 12:00 PST
Contained Radioactivity: 0.9488 µCi
Contained Radioactivity: 35.11 kBq

Physical Description:

- A. Capsule type: R 0.5" (12.7mm) diameter x 5.0" (127mm) length
- B. Nature of active deposit: Evaporated metallic salt
- C. Active diameter/volume: 5 mm
- D. Backing: Acrylic
- E. Cover: Acrylic

*2/8/2010
Incoming PKs
Sunnys
1 ml = 0.03 ml
PKs = 0.03 ml
Sunnys = 0.03 ml
open container = 7 ml on 17/11/09
leak test 1/20/09*

Radioimpurities:

Co-56 = 0.00411%; Co-58 = 0.00079% on 1-Dec-09

Method of Calibration:

This source was prepared from a weighed aliquot of solution whose activity in µCi/g was determined using a pressurized well type ionization chamber.

Uncertainty of Measurement:

- A. Type A (random) uncertainty: ± 0.1 %
- B. Type B (systematic) uncertainty: ± 3.0 %
- C. Uncertainty in aliquot weighing: ± 0.6 %
- D. Total uncertainty at the 99% confidence level: ± 3.1 %

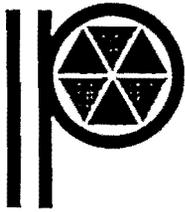
Notes:

- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA-TECDOC-619, 1991.
- This source has a working life of 18 months.

Daniel James Van Dalsen
Quality Control

20-OCT-09
Date

EZIP Ref. No.: 1407-17



ISOTOPE PRODUCTS LABORATORIES

1800 NORTH KEYSTONE STREET, BURBANK, CA 91504
PHONE (818) 843-7000 FAX (818) 558-6751

Nominal Source Data Sheet

Date: July 19, 1994

Customer: Capintec

Catalog No.: GF-137-500N Quantity: 1

Capsule Type: Rod 5" long X 0.625" OD

Nature of Active Deposit: Evaporated metallic salts

Active Diameter/Weight: 5 mm

Backing: Acrylic Cover: Capped acrylic

Nuclide	Source No.	Activity	Ref. Date	Leak Test
<u>Cs-137</u>	<u>467-27</u>	<u>500 nCi</u>	<u>July 15, 1994</u>	<u>1</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Leak Test information is on the reverse side

Impurities: None detected

Remarks: _____

*Received
11/20/01
from West Nuclear Corp.*

Lab Book/Page 467-27



ISOTOPE PRODUCTS LABORATORIES

1800 NORTH KEYSTONE STREET, BURBANK, CA 91504
PHONE (818) 843-7000 FAX (818) 558-6751

Nominal Source Data Sheet

Date: April 1, 1994

Customer: Capintec

Catalog No.: GF-152-500N Quantity: 1

Capsule Type: Rod 5" long X 0.625" OD

Nature of Active Deposit: Evaporated Metallic Salts

Active Diameter/Weight: 5mm

Backing: Acrylic Cover: Capped Acrylic

Nuclide	Source No.	Activity	Ref. Date	Leak Test
<u>Eu-152</u>	<u>460-8</u>	<u>500nCi</u>	<u>March 1, 1994</u>	<u>1</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Leak Test information is on the reverse side

Impurities: None Detected

Remarks: _____

*Received on
11/12/01
from
[unclear]*

Lab Book/Page 460-8