

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

19-00975-01

Docket or Reference Number

030-01788

Amendment No. 61

Department of Veterans Administration Medical Center
Radiology/Nuclear Medicine Service
Fort Howard, Maryland 21052-3029

OFFICIAL RECORD COPY

In accordance with the letter dated August 5, 1996, License Number 19-00975-01 is hereby terminated.

For the U.S. Nuclear Regulatory Commission

Original Signed By:

Michelle Beardsley

Date

SEP 24 1996

By

Nuclear Materials Safety Branch
Region I

King of Prussia, Pennsylvania 19406



DEPARTMENT OF VETERANS AFFAIRS
Medical Center
10 North Greene Street
Baltimore MD 21201

AUG 05 1996

In Reply Refer To: 512/001RS

Materials Licensing Section
Attn: Michelle Beardsley
United States Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

030-01788

Thru: Francis K. Herbig
Deputy Director of Health Physics
National Health Physics Program
VA Medical Center
915 North Grand Boulevard
St. Louis, MO 63106

Subj: Termination of Materials License Number 19-00975-01
Docket Number 030-01788

Dear Ms. Beardsley:

The separate VA Baltimore, Fort Howard, and Perry Point Medical Centers have consolidated into the VA Maryland Health Care System, which is under my direction. Due to this consolidation of services, the Nuclear Medicine section of the Radiology service of the Fort Howard VA Medical Center has ceased principle activities as of July 1, 1996. Although the three Medical Centers are considered one system, each has retained its individual Materials License. Pursuant to 10 CFR 30.36(d)(2), we therefore request termination of Materials License 19-00975-01, issued to Fort Howard, formerly under the direction of Mr. Charles E. Clark. The RSO for that license is Dr. Jesus S. Santos, Jr.

Since the effective date of the consolidation, Ms. Cynthia A. O'Donovan, RSO for the Baltimore Medical Center, has been acting as a consultant health physicist, and has performed the close-out survey required for license termination. Area and equipment wipe tests and surveys indicate no evidence of fixed or removable contamination. We anticipate no need for further decommissioning. The disposal of the radioactive sealed sources has been accomplished through their transfer to the Baltimore Medical Center. A copy of all documentation, which will be kept on file at both facilities for your review, and a Certificate of Disposition of Materials is attached.

Any questions or requests for additional information may be directed to Ms. O'Donovan at the above address or by telephone at (410) 605-7000, extension 6509. Thank you for your consideration in this matter.

DENNIS H. SMITH
Director, VA Maryland Health Care System

Enclosures

123598

OFFICIAL RECORD COPY

ML 10

AUG 22 1996



DEPARTMENT OF VETERANS AFFAIRS
Medical Center
St Louis MO 63125

August 16, 1996

In Reply Refer To:

U.S. Nuclear Regulatory Commission
Region I
Attn: Michelle Beardsley
475 Allendale Rd.
King of Prussia, PA 19406-1415

SUBJECT: NRC License No. 19-00975-01

The enclosed correspondence from the Baltimore, Maryland VA Medical Center has been received and is forwarded to your office for processing. If there are questions, please contact the facility.

Please provide a copy of any correspondence relative to licensing actions for this Medical Center to:

Department of Veterans Affairs
Health Physics Programs (115HP)
915 North Grand Blvd.
St. Louis, MO 63106

Sincerely,

for *Cindy Bukowsky*

Francis K. Herbig
Health Physics Programs

202 SEP 15 1996

RECEIVED

(8-94)

10 CFR 30.38(e)(1)(iv)

10 CFR 40.42(e)(1)(iv)

10 CFR 70.38(e)(1)(iv)

EXPIRES: 05/31/96

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 30 MINUTES. THIS MANDATORY SUBMITTAL IS USED BY NRC AS PART OF THE BASIS FOR ITS DETERMINATION THAT THE FACILITY HAS BEEN CLEARED OF RADIOACTIVE MATERIAL BEFORE THE FACILITY IS RELEASED FOR UNRESTRICTED USE. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0028), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

CERTIFICATE OF DISPOSITION OF MATERIALS

INSTRUCTIONS: ALL ITEMS MUST BE COMPLETED -- PRINT OR TYPE
SEND THE COMPLETED CERTIFICATE TO THE NRC OFFICE SPECIFIED ON THE REVERSE

LICENSEE NAME AND ADDRESS

Department of Veterans Administration Medical Center
Radiology/Nuclear Medicine Service
Fort Howard, MD 21052-3029

LICENSE NUMBER

19-00975-01

LICENSE EXPIRATION DATE

July 31, 2000

A. MATERIALS DATA (Check one and complete as necessary)

THE LICENSEE OR ANY INDIVIDUAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE LICENSEE CERTIFIES THAT:
(Check and/or complete the appropriate item(s) below.)

- ☐ 1. NO MATERIALS HAVE EVER BEEN PROCURED OR POSSESSED BY THE LICENSEE UNDER THIS LICENSE.
- OR
- ☒ 2. ALL ACTIVITIES AUTHORIZED BY THE LICENSE HAVE CEASED AND ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSE NUMBER CITED ABOVE HAVE BEEN DISPOSED OF IN THE FOLLOWING MANNER. (If additional space is needed, use the reverse side or provide attachments.)

Describe specific material transfer actions and, if there were radioactive wastes generated in terminating this license, the disposal actions including the disposition of low-level radioactive waste, mixed waste, Greater-than-Class-C waste, and sealed sources, if applicable.

All radioactive waste generated by this facility had been either disposed of, after proper decay, or had been returned radiopharmaceutical unit dose vendor. Only ^{99m}Tc was used in this department. (See attached for details).

For transfers, specify the date of the transfer, the name of the license recipient, and the recipient's NRC license number or Agreement State name and license number.

Seven sealed calibration sources were leaked-tested and transported in an approved container on June 27, 1996, to be transferred to Materials License 19-01058-01 of the VAMHCS Baltimore Medical Center. See attached documentation.

If materials were disposed of directly by the licensee rather than transferred to another licensee, licensed disposal site or waste contractor, describe the specific disposal procedures (e.g., decay in storage)

B. OTHER DATA

- ☒ 1. OUR LICENSE HAS NOT YET EXPIRED; PLEASE TERMINATE IT.
2. A RADIATION SURVEY WAS CONDUCTED BY THE LICENSEE TO CONFIRM THE ABSENCE OF LICENSED RADIOACTIVE MATERIALS AND TO DETERMINE WHETHER ANY CONTAMINATION REMAINS ON THE PREMISES COVERED BY THE LICENSE. (Check one)
- ☐ NO (Attach explanation)
- ☒ YES, THE RESULTS (Check one)
- ☒ ARE ATTACHED, or
- ☐ WERE FORWARDED TO NRC ON (Date)

3. THE PERSON TO BE CONTACTED REGARDING THE INFORMATION PROVIDED ON THIS FORM

NAME

Cynthia A. O'Donovan
RSO, VAMHCS Baltimore Medical Ctr.

TELEPHONE NUMBER
(Include Area Code)

410-605-7000x6509

4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO

Dennis H. Smith, Director, VA Maryland Health Care System
10 N. Greene Street
Baltimore, MD 21201

123598

CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE

SIGNATURE

DATE

8-1-96

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE FEDERAL GOVERNMENT WITHIN ITS JURISDICTIONS.

OFFICIAL RECORD COPY

FAL 10

AUG 22 1996

FILE CERTIFICATES AS FOLLOWS:

IF YOU ARE A DISTRIBUTOR OF EXEMPT PRODUCTS, SEND TO:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHERS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE,
MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW
JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR
VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANCE SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI,
NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA,
TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,
SEND APPLICATIONS TO:

NUCLEAR MATERIALS SAFETY SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET NW, SUITE 2900
ATLANTA, GA 30323-0199

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI,
OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE ROAD
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO,
HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA,
NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA,
OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA,
TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND
APPLICATIONS TO:

MATERIAL RADIATION PROTECTION SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064



DEPARTMENT OF VETERANS AFFAIRS
Medical Center
10 North Greene Street
Baltimore MD 21201

In Reply Refer To: 512/001RS

REPORT OF NUCLEAR MEDICINE CLOSE-OUT SURVEY

ATTENTION: Eliot Siegel, M.D., Chief, Radiology Service, VAMHCS
Tim Graham, Administrative Officer, Radiology Service, VAMC Fort Howard
Mary Silberzahn, Nuclear Medicine

On June 27, 1996, pursuant to Title 10 of the Code of Federal Regulations (CFR), Parts 30, 40 and 70, the undersigned conducted a close out survey, of the Nuclear Medicine Department at the VAMHCS, Fort Howard Medical Center. Performance of patient studies have been discontinued, and the Department will cease operation as of July 1, 1996. The purpose of this survey was to determine the presence of fixed or removable contamination in all areas and on commonly used surfaces, including equipment, prior to release and transfer to other uses.

METHODS

1. Once it was determined that all radioactive waste and injection material had been disposed of after proper decay or had been returned to the vendor after use, the calibration sources were leak tested and packed into an approved container for transport and transfer to the VAMHCS Baltimore Medical Center, Materials License 19-01058-01. A copy of the license was provided to the technologist. A radioactive White I label was attached to the container.
2. Multiple wipes were taken, using alcohol-moistened pads, throughout the area, as indicated on the attached room diagram. Care was taken to avoid cross contamination of the samples, which were then transported to the Baltimore Medical Center for counting. The instrument used was the Packard Cobra AutoGamma Counter, serial number 400670, in room 3D-102 of the GRECC area of the Research Service. The source wipes were also counted at this time. Results will be recorded in disintegrations per minute (DPM) per 100 cm².
3. A Ludlum, model L-19, microR survey instrument, serial number 123881, with a timely calibration, was used to measure radiation levels throughout the area. A battery and operation check, using a dedicated check source, was performed on the instrument before use. Background was determined to be 10 μ R/hr.

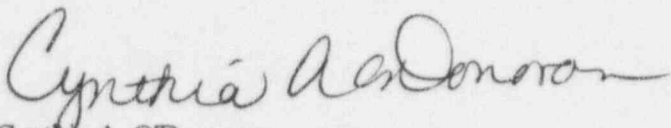
FINDINGS AND RECOMMENDATIONS:

1. Area and equipment wipe tests indicated no evidence of removable contamination. (Please see attachments for room diagram, areas and items wiped and wipe results. A thorough area survey indicated no radiation levels above the 10 μ R/hr background level. The Nuclear Medicine area and all furnishings and equipment contained within it are considered to be free of fixed and removable contamination. There is to be no further use of radioactive material in the department.

VAMHCS Fort Howard Medical Center
Nuclear Medicine Close-out Survey
June 27, 1996
page 2

2. Calibration source leak test results indicated no evidence of removable contamination. (See attached)
3. This report, all pertinent documentation, and a request to transfer the sources to another appropriately licensed facility, will be forwarded to the Nuclear Regulatory Commission (NRC) as part of a request to terminate Materials License 19-00975-01. The area, furnishings and equipment may be released and/or transferred to other uses, pending NRC approval. Departmental records should be kept according to the regulations set forth in Title 10 CFR Part 20, subpart L, sections 21.2101 through 21.2110.

Questions concerning this report should be addressed to the undersigned at (410) 605 - 7000, ext. 6509.



Cynthia A. O'Donovan
Consultant, Radiation Safety Officer, VAMHCS Baltimore Medical Center

Close-out survey for termination of Materials License 19-00975-01
VAMHCS Fort Howard Medical Center

Counter used: Packard Cobra Auto Gamma SN 400670 GRECC room 3D-102
Efficiency for Co-57: 78% Trigger level: 150 dpm

Date of wipe 6/27/96

see attached room diagram

<u>Sample</u>	<u>Area wiped</u>	<u>cpm</u>	<u>net cpm</u>	<u>net dpm</u>	<u>Result</u>
A1	bkg	23.9			
A2	dose cal keyboard	16.2	0.0	0.0	wipe ok
A3	hot lab counter	20.5	0.0	0.0	wipe ok
A4	ultrasound floor	18.9	0.0	0.0	wipe ok
A5	hot lab door/floor	25.5	1.6	2.1	wipe ok
A6	hot lab cabinet	28.2	4.3	5.5	wipe ok
A7	hallway floor	23.0	0.0	0.0	wipe ok
A8	office floor	23.5	0.0	0.0	wipe ok
A9	developer	17.8	0.0	0.0	wipe ok
A10	dev floor/door	25.0	1.1	1.4	wipe ok
A11	bathroom	21.1	0.0	0.0	wipe ok
A12	scan table	23.4	0.0	0.0	wipe ok
A13	camera head	20.7	0.0	0.0	wipe ok
A14	spect table	22.3	0.0	0.0	wipe ok
A15	1st collimator stand	29.5	5.6	7.2	wipe ok
A16	camera room floor	22.9	0.0	0.0	wipe ok
A17	keyboard 1	21.7	0.0	0.0	wipe ok
A18	keyboard 2	26.2	2.3	2.9	wipe ok
A19	formatter	23.5	0.0	0.0	wipe ok
A20	2nd collimator stand	21.0	0.0	0.0	wipe ok

<u>Sample</u>	<u>Area wiped</u>		<u>net cpm</u>	<u>net dpm</u>	<u>Result</u>
B1	bkg	22.0			
B2	phone/stand	16.4	0.0	0.0	wipe ok
B3	door/cabinet	18.9	0.0	0.0	wipe ok
B4	vial source 1 *	18.0	0.0	0.0	wipe ok
B5	vial source 2 *	29.5	7.5	9.6	wipe ok
B6	vial source 3 *	28.5	6.5	8.3	wipe ok
B7	vial source 4 *	23.8	1.8	2.3	wipe ok
B8	vial source 5 *	24.0	2.0	2.6	wipe ok
B9	vial source 6 *	20.4	0.0	0.0	wipe ok
B10	rod source *	15.6	0.0	0.0	wipe ok
B11	dose cal dipper	12.6	0.0	0.0	wipe ok
B12	dose cal well/liner	10.0	0.0	0.0	wipe ok
B13	dose lab sink	20.0	0.0	0.0	wipe ok
B14	dose lab waste area	17.2	0.0	0.0	wipe ok
B15	office keyboard etc.	17.8	0.0	0.0	wipe ok

* source 1 - Co-57 5.4 mci 2/3/94 SN S206077-032
source 2 - Cs-137 201 uci 11/2/79 SN 3561179A-44
source 3 - Ba-133 265 uci 11/2/79 SN 3581179A-31
source 4 - Co-57 5.8 mci 9/16/91 SN S206059-083
source 5 - Co-57 4.9 mci 8/15/89 SN 206040-026
source 6 - Co-57 0.2 mci 6/27/87 SN 206013-22
rod source 0.17 uci 10/23/95 DuPont

VAMHCS Fort Howard Medical Center
Nuclear Medicine Close-out survey
June 26, 1996
page 2

Area and source wipe tests indicate no evidence of removable contamination. A thorough survey of all areas listed above indicated no readings above the 10uR/hr background level. The instrument used, a Ludlum L19 micro-R meter, serial number 123881, owned by the VAMHCS Baltimore Medical Center had a current calibration date. Battery and operation checks, using a dedicated check source, were performed before use.

Questions or comments concerning this survey may be directed to the undersigned at (410) 605 - 7000 extension 6509.

Cynthia A. O'Donovan

Cynthia A. O'Donovan
Radiation Safety Officer
VAMHCS Baltimore Medical Center

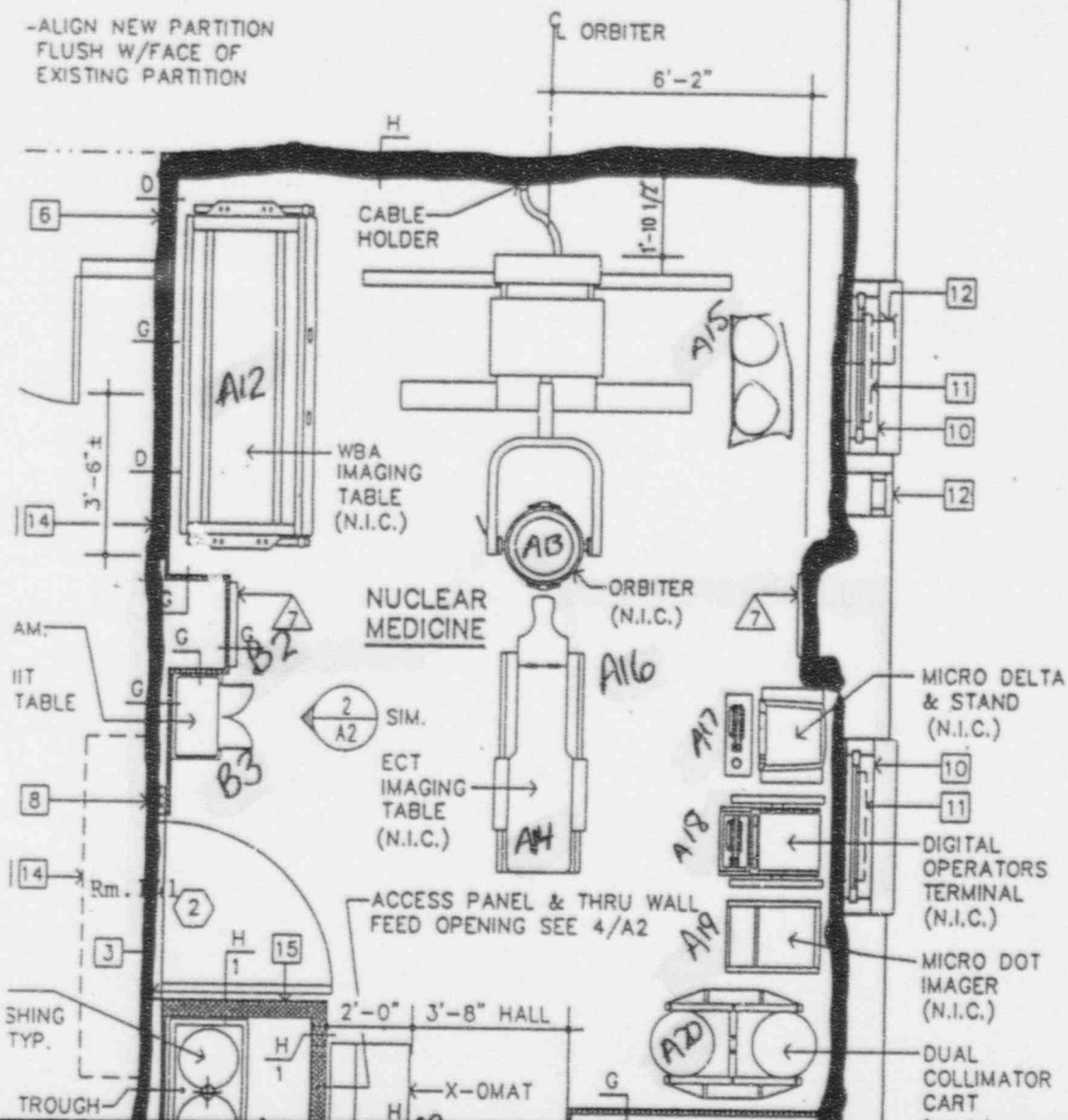
15 July 96
Date

CORDS

OFFICE - NORTH

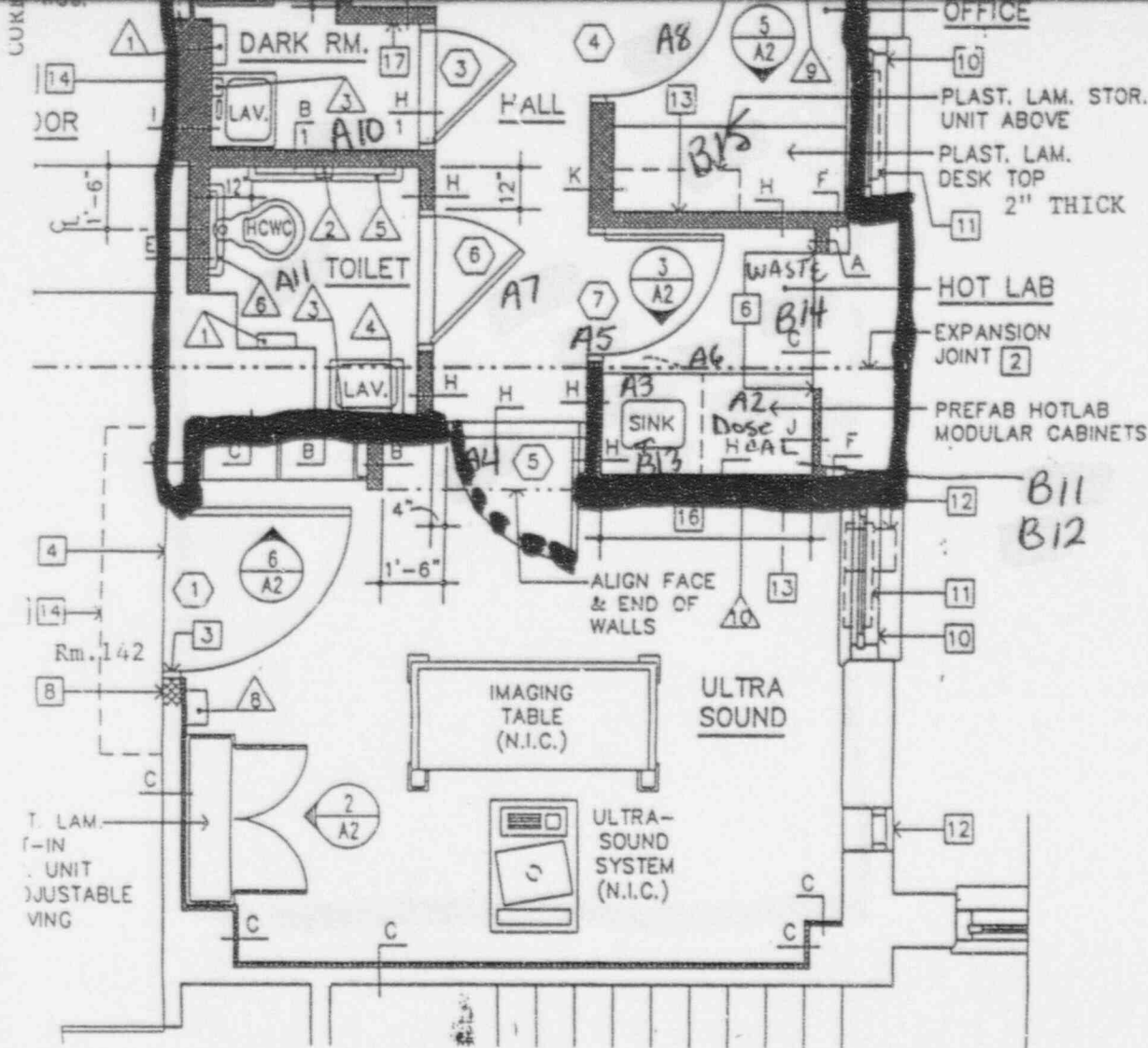
ATT.

-ALIGN NEW PARTITION
FLUSH W/FACE OF
EXISTING PARTITION



OUTSIDE

No adjacent room
or walkways.



**ANSTEC
APERTURE
CARD**

Also Available on

SCALE
1 inch equals 4'

*Nuclear Medicine, Ft Howard
VA*

9610070051-01

CERTIFICATE OF RADIOACTIVITY CALIBRATION

COBALT-57 REFERENCE SOURCE

NES 206

S/N S206077-032

Half-Life: 271.7 days

The radiation output of this source was compared to a secondary standard of known activity content and showed a measured response of 200 MBq (5.4mCi) as of 02/03/94.*

DESCRIPTION OF THE SOURCE

The activity is uniformly distributed in a cast epoxy matrix equivalent to 20 milliliters of solution in a 27 milliliter polyethylene vial.

PRINCIPLE PHOTON EMISSIONS

ENERGY (keV)	14.4	122.1	136.5	692.0
INTENSITY (%)	9.54	85.6	10.58	0.10

REFERENCE: A Handbook of Radioactivity Measurements Procedures. NCRP Report No. 58, Second Edition. February, 1985.

METHOD OF CALIBRATION

This source was calibrated by direct measurement in an ionization chamber whose response for the radionuclide and source geometry was verified by using a secondary standard. This secondary standard was prepared gravimetrically in the Vial E geometry directly from an NIST calibrated solution of cobalt-57. DuPont participates in a National Institute of Standards and Technology - U.S. Council of Energy Awareness measurement assurance program in order to insure the continuing traceability of DuPont calibrations to NIST.

RADIOIMPURITIES

The solution used to prepare this reference source was examined for photon emitting impurities with a Ge(Li) spectrometer system. The radioimpurity content was determined to be < 0.4% of the cobalt-57 based on the emission rate of the 122.1 keV gamma ray. The combined activity of the ^{56}Co & ^{58}Co impurity was 0.14% of the cobalt-57 on the calibration date.

ERRORS

Random Errors (99% confidence level)

Precision of the measurement of the source

Precision of the measurement of the secondary standard

± 0.6%

± 0.6%

Systematic Errors

Accuracy of the secondary standard (linear sum of the estimated upper limits of errors involved in preparation)

± 1.4%

Maximum error due to ^{56}Co & ^{58}Co impurities

± 2.0%

Overall Error

$$\sqrt{(0.6)^2 + (0.6)^2} + 1.4 + 2.0 =$$

± 4.2%

*For more information on calibration method, contact DuPont's customer Technical Services group. Some response variation can be expected between individual dose calibrators.

THIS VIAL "E" REFERENCE SOURCE CONTAINS ACCELERATOR PRODUCED RADIOACTIVE MATERIAL. THEREFORE, THE RADIATION CONTROL AGENCIES IN VARIOUS STATES EXERCISE REGULATORY AUTHORITY FOR THE RECEIPT, POSSESSION, USE AND TRANSFER OF THIS SOURCE.

CERTIFICATE OF RADIOACTIVITY CALIBRATION

Gamma Reference Source, Vial Type E
Catalog No. NES- 356
Cesium-137

Half-Life: 30 ± 0.5 yrs.

The source content activity of Cesium-137 was measured and determined to be 201 microcuries $\pm 4.3\%$ effective 11/2/79 for Source Ser. No 3561179A- 44.

DESCRIPTION OF THE SOURCE

The activity is uniformly distributed in a cast epoxy resin matrix equivalent to 20 milliliters of solution in a 27 milliliter polyethylene vial.

PRINCIPAL RADIATIONS

	Intensity (%)
L-X-ray 0.00447 MeV	1.25
K-X-ray 0.0329	6.88
γ_1 0.662	84.6

METHOD OF CALIBRATION

The source was calibrated by direct comparison to a standard certified by the National Bureau of Standards by measurement of the current produced in a 4 π gamma ionization chamber using a precision electrometer.

IMPURITIES

Less than 1% by Ge(Li) solid state detector gamma ray spectrometry.

ERRORS

Random Errors (3 times the standard deviation)

Precision of the NENC measurement $\pm 2.5\%$

Systematic Errors


Accuracy of the NBS standard $\pm 1.8\%$

Overall Error

2.5 + 1.8 = $\pm 4.3\%$

Richard Simpson

This Vial E Reference Source is licensed by the U.S. Nuclear Regulatory Commission pursuant to 10CFR 32.74 for distribution to persons licensed pursuant to 10CFR 35.14 or equivalent agreement state license.

 New England Nuclear Boston, Massachusetts



New England Nuclear

549 Albany Street, Boston, Massachusetts 02118

CALL TOLL-FREE 800-225-1572 Telex 94-0996
(In Massachusetts and International 617-482-9595)

CERTIFICATE OF RADIOACTIVITY CALIBRATION

Gamma Reference Source, Vial Type E
Catalog No. NES-358
Barium-133

Half-Life: 10.5 ± 0.1 years

The source content activity of Barium-133 was measured and determined to be 265
microcuries $\pm 5.0\%$ effective 11/2/79 for Source Ser. No. 3581179A-31

DESCRIPTION OF THE SOURCE

The activity is uniformly distributed in a cast epoxy resin matrix equivalent to 20 milliliters of solution in a 27 milliliter polyethylene vial.

DECAY SCHEME

		Intensity (%)
γ_1	0.0810 MeV	33.4
γ_2	0.2764	7.30
γ_3	0.3029	18.66
γ_4	0.3560	62.4
γ_5	0.3839	8.86

Reference: M. J. Martin, Nuclear Decay Data for Selected Radionuclides,
ORNL-5114, March 1976.

METHOD OF CALIBRATION

The source was calibrated by measurement of the current produced in a 4 π gamma ionization chamber using a precision electrometer. The response of the chamber to gamma radiation has been previously calibrated using standards certified by the National Bureau of Standards.

IMPURITIES


Less than 1% by Ge(Li) solid state detector gamma ray spectrometry.

ERRORS

Random Errors (3 times the standard deviation)				$\pm 2.0\%$
Precision of the NENC current measurement				
Systematic Errors				$\pm 3.0\%$
Accuracy of the calibration of the NENC chamber				
Overall Error				$\pm 5.0\%$
2.0	+	3.0	=	

Robert Miner

This Vial E Reference Source is licensed by the U.S.
Nuclear Regulatory Commission pursuant to 10CFR 32.74
for distribution to persons licensed pursuant to 10CFR
35.14 or equivalent agreement state license.

 New England Nuclear Boston, Massachusetts



New England Nuclear

549 Albany Street, Boston, Massachusetts 02118

CALL TOLL-FREE 800-225-1572 Telex 94-0996
(In Massachusetts and International 617-482-9595)

CERTIFICATE OF RADIOACTIVITY CALIBRATION

COBALT-57 REFERENCE SOURCE
Half-Life: 271.7 days

NES 206

S/N S206059-083

The radiation output of this source was compared to a secondary standard of known activity content and showed a measured response of 215 MBq (5.8mCi) as of 09/16/91.*

DESCRIPTION OF THE SOURCE

The activity is uniformly distributed in a cast epoxy matrix equivalent to 20 milliliters of solution in a 27 milliliter polyethylene vial.

PRINCIPLE PHOTON EMISSIONS

ENERGY (keV)	14.4	122.1	136.5	692.0
INTENSITY (%)	9.54	85.6	10.58	0.16

REFERENCE: A Handbook of Radioactivity Measurements Procedures, NCRP Report No. 58, Second Edition, February, 1985.

METHOD OF CALIBRATION

This source was calibrated by direct measurement in an ionization chamber whose response for the radionuclide and source geometry was verified by using a secondary standard. This secondary standard was prepared gravimetrically in the Vial E geometry directly from an NIST calibrated solution of cobalt-57.

DuPont participates in a National Institute of Standards and Technology - U.S. Council of Energy Awareness measurement assurance program in order to insure the continuing traceability of DuPont calibrations to NIST.

RADIOIMPURITIES

The solution used to prepare this reference source was examined for photon emitting impurities with a Ge(Li) spectrometer system. The radioimpurity content was determined to be < 0.4% of the cobalt-57 based on the emission rate of the 122.1 keV gamma ray. The combined activity of the ^{56}Co & ^{58}Co impurity was 0.28% of the cobalt-57 on the calibration date.

ERRORS

Random Errors (99% confidence level)

Precision of the measurement of the source

$\pm 0.6\%$

Precision of the measurement of the secondary standard

$\pm 0.6\%$

Systematic Errors

Accuracy of the secondary standard (linear sum of the estimated upper limits of errors involved in preparation)

$\pm 1.4\%$

Maximum error due to ^{56}Co & ^{58}Co impurities

$\pm 2.0\%$

Overall Error

$$\sqrt{(0.6)^2 + (0.6)^2} + 1.4 + 2.0 =$$

$\pm 4.2\%$

*For more information on calibration method, contact DuPont's Customer Technical Services group. Some response variation can be expected between individual dose calibrators.

THIS VIAL "E" REFERENCE SOURCE CONTAINS ACCELERATOR PRODUCED RADIOACTIVE MATERIAL. THEREFORE, THE RADIATION CONTROL AGENCIES IN VARIOUS STATES EXERCISE REGULATORY AUTHORITY FOR THE RECEIPT, POSSESSION, USE AND TRANSFER OF THIS SOURCE.

076800-1188

CERTIFICATE OF RADIOACTIVITY CALIBRATION

COBALT-57 REFERENCE SOURCE

NES 206

S/N S206040-026

Half-Life: 271.7 days

The radiation output of this source was compared to a secondary standard of known activity content and showed a measured response of 181 MBq (4.9mCi) as of 08/15/89.*

DESCRIPTION OF THE SOURCE

The activity is uniformly distributed in a cast epoxy matrix equivalent to 20 milliliters of solution in a 27 milliliter polyethylene vial.

PRINCIPLE PHOTON EMISSIONS

ENERGY (keV)	14.4	122.1	136.5	692.0
INTENSITY (%)	9.54	85.6	10.58	0.16

REFERENCE: A Handbook of Radioactivity Measurements Procedures. NCRP Report No. 58, Second Edition. February, 1985.

METHOD OF CALIBRATION

This source was calibrated by direct measurement in an ionization chamber whose response for the radionuclide and source geometry was verified by using a secondary standard. This secondary standard was prepared gravimetrically in the Vial E geometry directly from an NIST calibrated solution of cobalt-57.

DuPont participates in a National Institute of Standards and Technology - U.S. Council of Energy Awareness measurement assurance program in order to insure the continuing traceability of DuPont calibrations to NIST.

RADIOIMPURITIES

The solution used to prepare this reference source was examined for photon emitting impurities with a Ge(Li) spectrometer system. The radioimpurity content was determined to be < 0.4% of the cobalt-57 based on the emission rate of the 122.1 keV gamma ray. The combined activity of the ⁵⁶Co & ⁵⁸Co impurity was 0.15% of the cobalt-57 on the calibration date.

ERRORS

Random Errors (99% confidence level)

Precision of the measurement of the source ± 0.6%

Precision of the measurement of the secondary standard ± 0.6%

Systematic Errors

Accuracy of the secondary standard (linear sum of the estimated upper limits of errors involved in preparation) ± 1.4%

Maximum error due to ⁵⁶Co & ⁵⁸Co impurities ± 2.0%

Overall Error

$$\sqrt{(0.6)^2 + (0.6)^2} + 1.4 + 2.0 = \pm 4.2\%$$

*For more information on calibration method, contact DuPont's Customer Technical Services group. Some response variation can be expected between individual dose calibrators.

THIS VIAL "E" REFERENCE SOURCE CONTAINS ACCELERATOR PRODUCED RADIOACTIVE MATERIAL. THEREFORE, THE RADIATION CONTROL AGENCIES IN VARIOUS STATES EXERCISE REGULATORY AUTHORITY FOR THE RECEIPT, POSSESSION, USE AND TRANSFER OF THIS SOURCE.

CERTIFICATE OF RADIOACTIVITY CALIBRATION

COBALT-57 REFERENCE SOURCE - NES-206

Serial # S206013-22

Half-Life: 271.7 days

The radiation output of this source was compared to a secondary standard of known activity content and showed a measured response of 192 MBq (5.2 mCi) as of 6/27/87.

DESCRIPTION OF THE SOURCE

The activity is uniformly distributed in a cast epoxy matrix equivalent to 20 milliliters of solution in a 27 milliliter polyethylene vial.

PRINCIPLE PHOTON EMISSIONS

ENERGY (keV)	14.4	122.1	136.5	692.0
INTENSITY (%)	9.54	85.6	10.58	0.16

Reference: *A Handbook of Radioactivity Measurements Procedures*, NCRP Report No. 58, Second Edition, February, 1985.

METHOD OF CALIBRATION

This source was calibrated by direct measurement in an ionization chamber whose response for the radionuclide and source geometry was verified by using a secondary standard. This standard was prepared gravimetrically in the Vial E geometry directly from an NBS calibrated solution of cobalt-57. Du Pont participate in a National Bureau of Standards — Atomic Industrial Forum measurement assurance program in order to insure the continuing traceability of Du Pont calibrations to NBS.

RADIOIMPURITIES

The solution used to prepare this reference source was examined for photon emitting impurities with a Ge (Li) spectrometer system. The radioimpurity content was determined to be <0.4% of the cobalt-57 based on the emission rate of the 122.1 keV gamma ray. The combined activity of the ^{56/58}Co impurity was 0.21 % of the cobalt-57 on the calibration date.

ERRORS

Random Errors (99% confidence level)

Precision of the measurement of the source

Precision of the measurement of the secondary standard

± 0.6%

Systematic Errors

± 0.6%

Accuracy of the secondary standard (linear sum of the estimated upper limits of errors involved in preparation)

Maximum error due to ^{56/58}Co impurities

± 1.5%

Overall Error

± 2.0%

$$[(0.6)^2 + (0.6)^2]^{1/2} + 1.5 + 2.0 =$$

± 4.4%

* For more information on calibration method, contact Du Pont's Customer Technical Services group. Some response variation can be expected between individual dose calibrators.

THIS VIAL "E" REFERENCE SOURCE CONTAINS ACCELERATOR PRODUCED RADIOACTIVE MATERIAL. THEREFORE, THE RADIATION CONTROL AGENCIES IN VARIOUS STATES EXERCISE REGULATORY AUTHORITY FOR THE RECEIPT, POSSESSION, USE AND TRANSFER OF THIS SOURCE.

E.I. du Pont de Nemours & Co. (Inc.),
331 Treble Cove Rd., No. Billerica, MA 01862
CALL TOLL-FREE 800-225-1572 Telex: 951451 or 6817017
(In Massachusetts and International: 617-482-9595)



BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

: PROGRAM CODE: 02120
: STATUS CODE: 0
: FEE CATEGORY: EX 7C
: EXP. DATE: 20050731
: FEE COMMENTS: -----
: DECOM FIN ASSUR REQD: N
:

LICENSE FEE TRANSMITTAL

A. REGION *I*

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: V. A., DEPARTMENT OF
RECEIVED DATE: 960822
DOCKET NO: 3001788
CONTROL NO.: 123598
LICENSE NO.: 19-00975-01
ACTION TYPE: TERMINATION

2. FEE ATTACHED

AMOUNT: -----
CHECK NO.: -----

3. COMMENTS

SIGNED *M.A. Perkins*
DATE *8/26/96*

8. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED / __/)

1. FEE CATEGORY AND AMOUNT: -----

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT -----
RENEWAL -----
LICENSE -----

3. OTHER -----

SIGNED -----
DATE -----

SEP 24 1996

Dennis H. Smith
Director, VA Maryland Health Care System
Department of VA Medical Center
10 North Greene Street
Baltimore, MD 21201

Dear Mr. Smith:

Please find enclosed Amendment No. 61 terminating License No. 19-00975-01 as requested by the letter dated August 5, 1996. The facility at 9600 N. Point Road, Fort Howard, Maryland may be released for unrestricted use.

Your cooperation with us is appreciated.

Sincerely,

ORIGINAL SIGNED BY:

Michelle R. Beardsley
Division of Nuclear Materials Safety

License No. 19-00975-01
Docket No. 030-01788
Control No. 123598

Enclosure:
Amendment No. 61

cc: Francis K. Herbig
Health Physics Programs (115HP)
Department of Veterans Affairs
915 North Grand Blvd.
St. Louis, MO 63106

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NAME	Beardsley						
DATE	09/02/96	09/	/96	09/	/96	09/	/96