

LEW RAUCH, D.Sc.N., INC.
SPECIALIZING IN METROLOGICAL REPAIR
AND CALIBRATION
760 WEST RIVENDALE
SPRINGFIELD, MISSOURI 65807

July 8, 1985

To: U.S. Nuclear Regulatory Commission, Region III
Material Licensing Section
799 Roosevelt Road
Glen Ellyn, IL 60137

RECEIVED

'85 AUG -8 F

I request authority to Amend my NRC license number 24-20203-01 dated Sept. 30, 1981 to include the following.

1. Change of Address
New Address and Name
Lew Rauch D.Sc.
760 West Rivendale
Springfield, Mo. 65807

Old Address & Name
Lew Rauch D. S. N.
2649 South Luster
Springfield, Mo.

2. Change of Name
Lew Rauch D.Sc.

I have cease providing a leak Test Service at the 2649 S. Luster address until authorization is approved to relocate. The lab area at 2649 S. Luster has been wipe tested and the following closing statement is provided.

- a. Final Survey Date; June 30, 1985
 - b. Equipment used Ludlum Scaler Model 1000, Serial Number 16639, Gm Detector, Model 44-7, Ludlum Model 120 Gas proportional Detector, Cotton Swabs, and leak test kits.
 - c. New England Nuclear Beta reference source set Model Number NES-2000S calibrated June 1983.
 - d. Results; No detectable removeable contamination.
(Background) 18 counts per minute at 30 percent efficiency.
3. Enclose is a diagram of my new lab area and a check for \$60.00.
 4. If I can provide additional information please contact me. My new mailing address is, 760 West Rivendale, Springfield, Mo. 65807.

Applicant	any
Check No.	1384
Unit Fee Category	any
Transit Fee	any
Dr. Check Rec'd	3/8/85
Received By	any

Sincerely,

Lew Rauch
Lew Rauch D.Sc.
Radiation Safety,
Officer.

RECEIVED
JUL 29 1985
REGION III

JUL 29 1985

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REG LIC30
24-20203-01 PDR

U.S. NUCLEAR
REGULATORY COMMISSION
LICENSE NO. 24-20203-01
U.S. FEDERAL
COMMUNICATIONS COMMISSION
LICENSE NO. P1-17-18887

ALL STANDARDS ARE TRACEABLE TO
THE NATIONAL BUREAU OF STANDARDS

MEMBER
AMERICAN INSTITUTE
OF INDUSTRIAL ENGINEERS

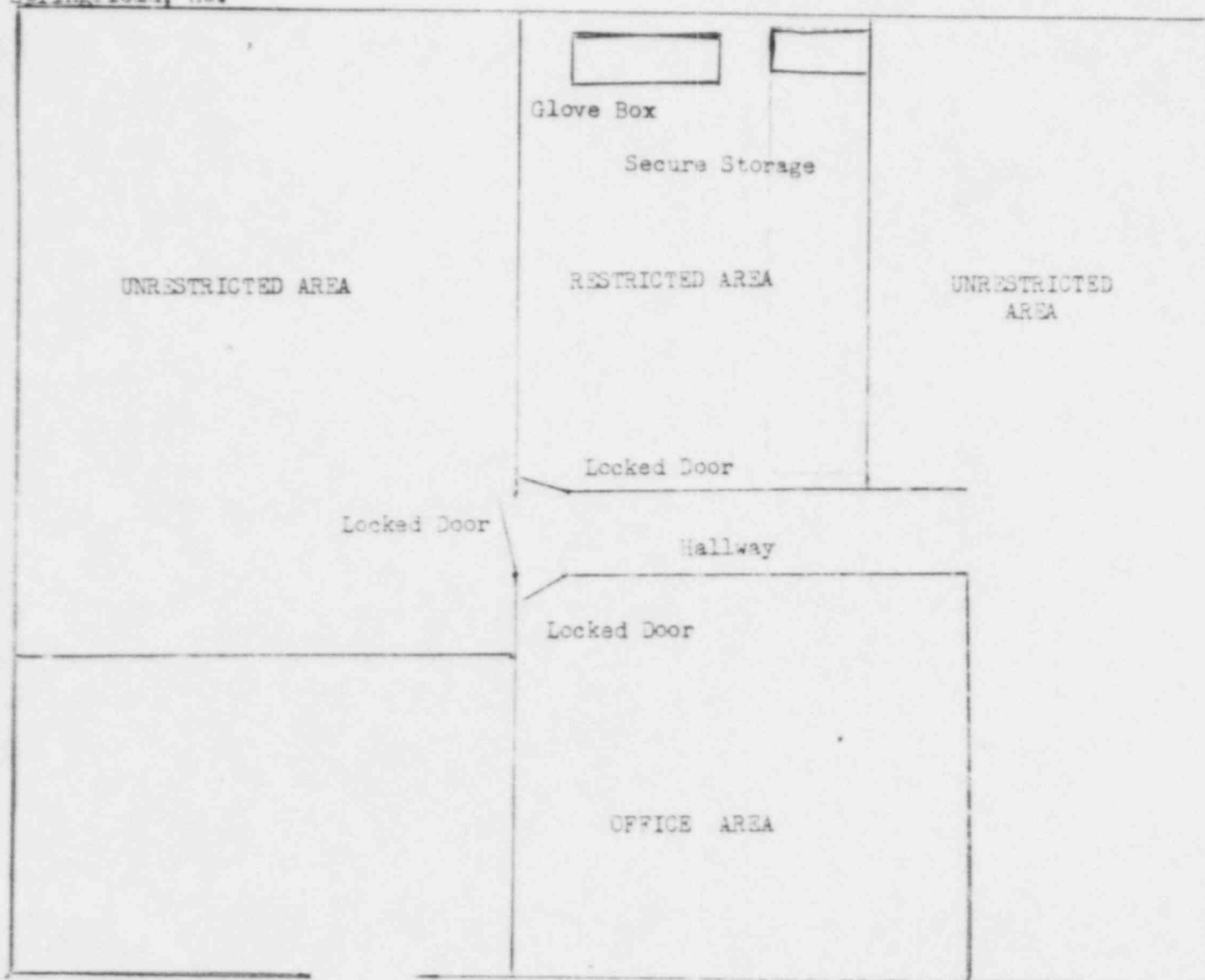
TELEPHONE
(417) 887-2200
PAGER
503

CONTROL NO. 76943

Location: Dr. Lew Rauch
700 West Rivendale
Springfield, Mo.

North

BASEMENT AREA BELOW GROUND



CERTIFICATE OF RADIOACTIVITY CALIBRATION

Strontium-90 Reference Source
NES-267

Half-Life: 29.12 ± 0.24 years
Lot Number: 267062783

The activity of Strontium-90 was found to be, 0.0197 microcuries on June 27, 1983.

DESCRIPTION OF THE SOURCE

The activity was deposited between two approximately 0.9 mg/cm² aluminized mylar films sealed to an aluminum ring with a 24 mm outer diameter. The source is housed in an aluminum holder which is 10 mm in height and 32 mm in diameter.

DECAY SCHEME

		Intensity (%)
Strontium-90:	^{β₁} 0.546 MeV maximum	100
	0.196 average	
Yttrium-90:	^{β₁} 2.284 maximum	99.984 (1 weak- omitted)
	0.935 average	

Reference: A Handbook of Radioactivity Measurements Procedures, NCRP Report No. 58, November 1978.

METHOD OF CALIBRATION

An aliquot was taken volumetrically from a solution which was calibrated by liquid scintillation counting. The counting efficiency was determined using aliquots of the National Bureau of Standards certified Strontium-90 solution SRM 4234.

New England Nuclear Corporation participates in a National Bureau of Standards Atomic Industrial Forum measurement assurance program in order to insure the continuing traceability of NEN's radioassays to the NBS.

RADIOIMPURITIES

A random sampling of this production lot was examined for photon-emitting impurities with a Ge(Li) spectrometer system. The radioimpurities were determined to be < 1% expressed as a percentage of the beta-ray-emission rate of Strontium-90.

ERRORS

Random Errors (99% confidence level)

Precision of the measurement of the solution by liquid scintillation counting ± 0.5%

Systematic Errors

Accuracy of the NBS standard ± 1.47%

Half-Life error in decaying the NBS standard ± 0.15%

Error in pipetting ± 1.5%

Overall Error

0.5 + 1.47 + 0.15 + 1.5 = ± 4.122

CERTIFICATE OF RADIOACTIVITY CALIBRATION

Promethium-147 Reference Source
NES-266

Half-Life: 2.6234 ± 0.0002 years
Lot Number: 266013183A

The activity of Promethium-147 was found to be, 0.099 microcuries on 1/31/83.

DESCRIPTION OF THE SOURCE

The activity was deposited between two approximately 0.9 mg/cm^2 aluminized mylar films sealed to an aluminum ring with a 24mm outer diameter. The source is housed in an aluminum holder which is 10mm in height and 32mm in diameter.

DECAY SCHEME

β^- 0.2246 MeV maximum
0.06196 average

Intensity (%)

99.9940

Reference: A Handbook of Radioactivity Measurements Procedures, NCRP Report No. 58, November 1978.

METHOD OF CALIBRATION

An aliquot was taken volumetrically from a solution which was calibrated by liquid scintillation counting. The counting efficiency for Promethium-147 had been previously determined using a solution certified by the National Bureau of Standards, SRM 4940-B.

New England Nuclear Corp. participates in a National Bureau of Standards - Atomic Industrial Forum measurement assurance program in order to insure the continuing traceability of NEN's radioassays to the NBS.

RADIOIMPURITIES

A random sampling of this production lot was examined for photon-emitting impurities with a Ge(Li) spectrometer system. The radioimpurities were determined to be < 1% expressed as a percentage of the beta-ray-emission rate of Promethium-147.

ERRORS

Random Errors (99% confidence level)

Precision of the measurement by liquid scintillation counting

$\pm 0.5\%$

Precision of the Pipetting

$\pm 0.4\%$

Systematic Errors

Estimated maximum error in efficiency determination

$\pm 4.0\%$

Overall Error

$$\{ (0.5)^2 + (0.4)^2 \}^{1/2} + 4.0 =$$

$\pm 4.6\%$

RADIOACTIVE MATERIAL

The radioactive material described or contained herein is exempt from NRC or agreement state licensing requirements. Not for human use. Introduction into foods, beverages, cosmetics, drugs or medicines, or into products manufactured for commercial distribution is prohibited. Exempt quantities should not be combined.



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)

James Morris

CERTIFICATE OF RADIOACTIVITY CALIBRATION

Carbon-14 Reference Source
NES-264

Half-Life: 5730 ± 40 years
Lot Number: 2640883A

The activity of Carbon-14 was found to be, 0.147 microcuries in August of 1983.

DESCRIPTION OF THE SOURCE

The activity was deposited between two approximately 0.9 mg/cm^2 aluminized mylar films sealed to an aluminum ring with a 24 mm outer diameter. The source is housed in an aluminum holder which is 10 mm in height and 32 mm in diameter.

DECAY SCHEME

β^- 0.1565 MeV maximum
0.0495 average

Intensity (%)

100

Reference: A Handbook of Radioactivity Measurements Procedures, NCRP Report No. 58, November 1978.

METHOD OF CALIBRATION

An aliquot was taken volumetrically from a solution which was calibrated by liquid scintillation counting. The counting efficiency was determined by the internal standards method using aliquots of a ^{14}C -toluene solution certified by the National Bureau of Standards for New England Nuclear under P.O. No. 34004.

New England Nuclear Corporation participates in a National Bureau of Standards Atomic Industrial Forum measurement assurance program in order to insure the continuing traceability of NEN's radioassays to the NBS.

RADIOIMPURITIES

A random sampling of this production lot was examined for photon-emitting impurities with a Ge(Li) spectrometer system. The radioimpurities were determined to be $< 1\%$ expressed as a percentage of the beta-ray-emission rate of Carbon-14.

ERRORS

Random Errors (99% confidence level)

Precision of the measurement by liquid scintillation counting $\pm 0.7\%$

Systematic Errors

Accuracy of the NBS standard $\pm 2.0\%$

Error in pipetting $\pm 2.0\%$

Overall Error

0.7 + 2.0 + 2.0 = $\pm 4.7\%$

RADIOACTIVE MATERIAL

The radioactive material described or contained herein is exempt from NRC or agreement state licensing requirements. Not for human use. Introduction into foods, beverages, cosmetics, drugs or medicinals, or into products manufactured for commercial distribution is prohibited. Exempt quantities should not be combined.

CONTROL NO. 7 943 2