



Lee Hospital

320 MAIN STREET JOHNSTOWN, PA 15901 (814) 533-0123

Aug-16-I

Applicant
Check No.	909740
Amount/Fee Category	\$120.70
Type of Fee	Amendment
Date Check Made	8/15/85
Received By	<i>[Signature]</i>

July 31, 1985

United States Nuclear
Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Ref: NRC 37-05501-02

Att: John E. Glenn, PH.D.
Nuclear Material Section B

Dear Dr. Glenn:

Please review the following information in order to amend our nuclear materials license. Enclosed is a check in the amount of \$120.00 to cover the current fee for the amendment.

We will be relocating the nuclear medicine lab in its entirety. Please reference the enclosed diagrams:

1. Attachment A - general layout and surroundings;
2. Attachment B - storage and working areas;
3. Attachment C - air flow system (HVAC);
4. Attachment D - calculations for 133 Xenon use.

In addition, the exhaust hood has been reworked as a separate air handling system, and a floor vent has been added to "scavenge" any gases, should an accidental leak occur. We would like to eliminate the use of the Craftsman Home and Shop vacuum as listed on our original application for Xenon gas use.

Also, we would like approval to use the Lineator, a device for testing dose calibrator linearity. A copy of the manufacturer's literature is enclosed as Attachment E.

The present Nuclear Medicine areas will be surveyed and wipe tested per regulatory guide 10.8, once they are vacated. A copy will be forwarded to your office.

8511190012 850916
REG1 LIC30
37-05501-02 PDR

"OFFICIAL RECORD COPY"

ML19

04202

JOHN AUGUSTINE, Chairman
WILLIAM R. HORNER, Secretary
WILLIAM T. LEE, Assistant Treasurer

ROBERT BARRETT, 1st Vice Chairman
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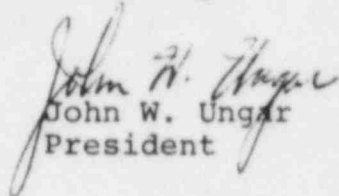
AUG 05 1985

John E. Glenn, Ph.D.
U. S. Nuclear Regulatory Commission
July 31, 1985
page 2

In summary, we would like to amend our license as follows:

1. Relocate the nuclear medicine facility;
2. Eliminate the use of the vacuum unit for Xenon studies;
3. Obtain approval for use of the Lineator device.

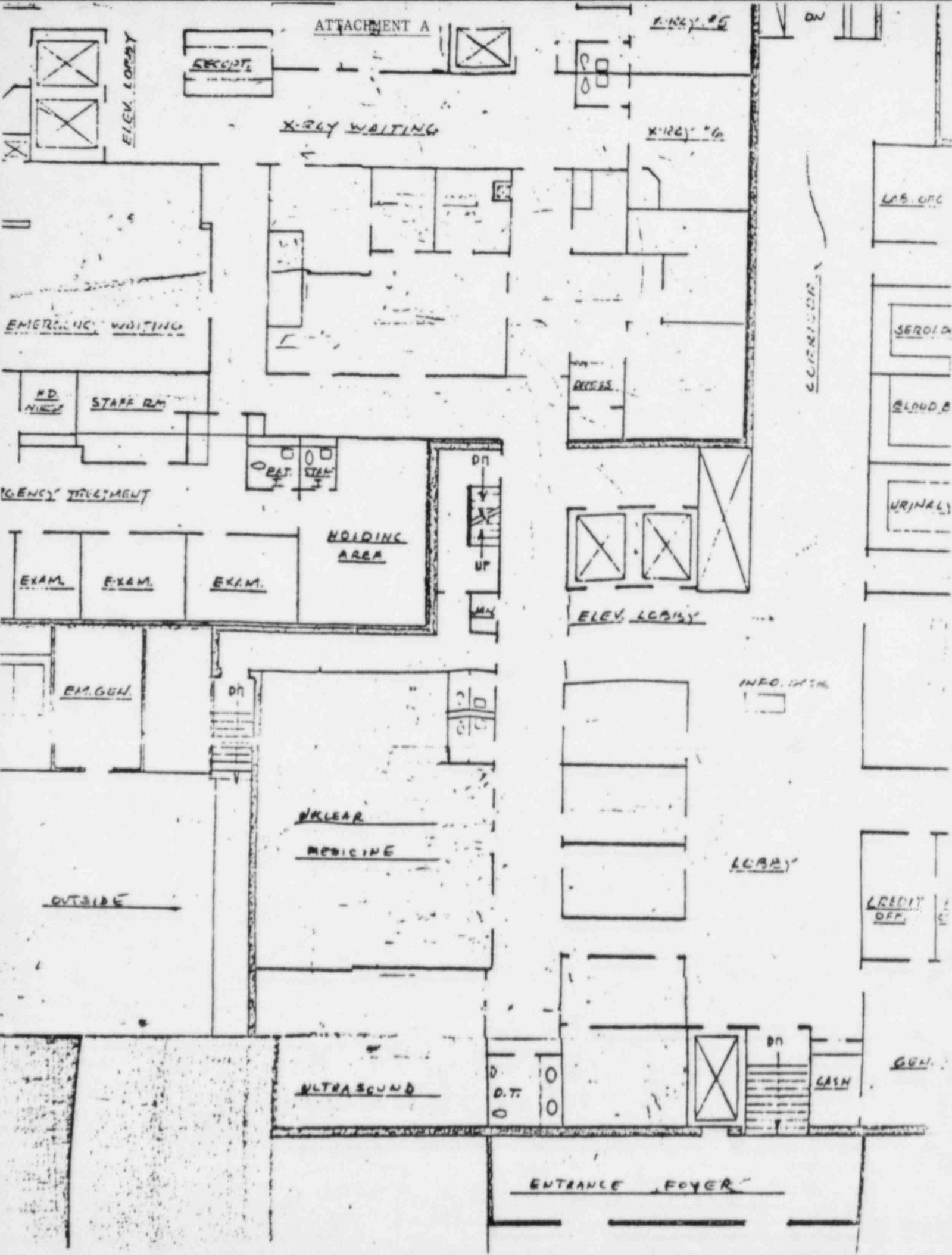
Sincerely,

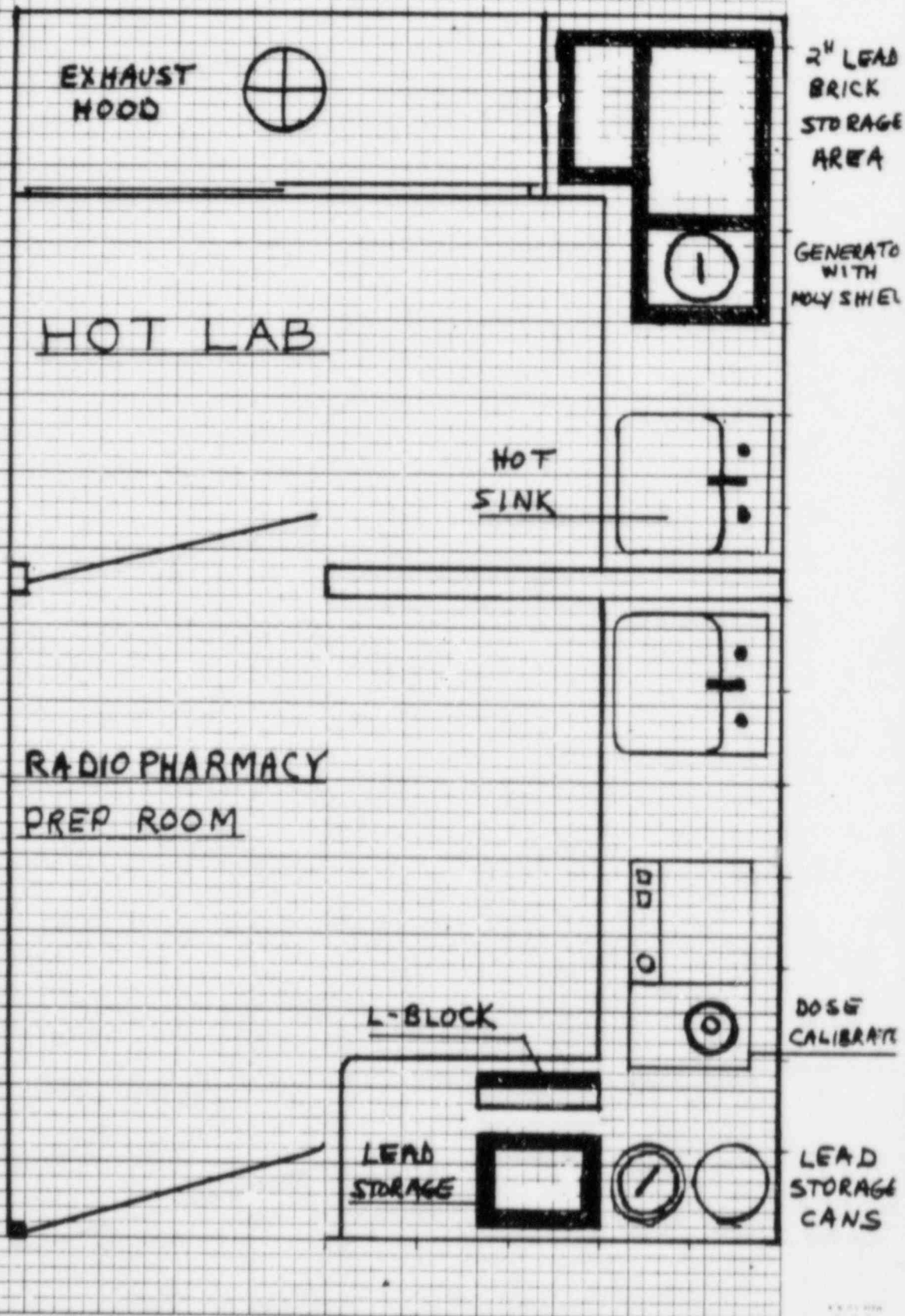

John W. Ungar
President

mab

Attachments/Enclosures

ATTACHMENT A



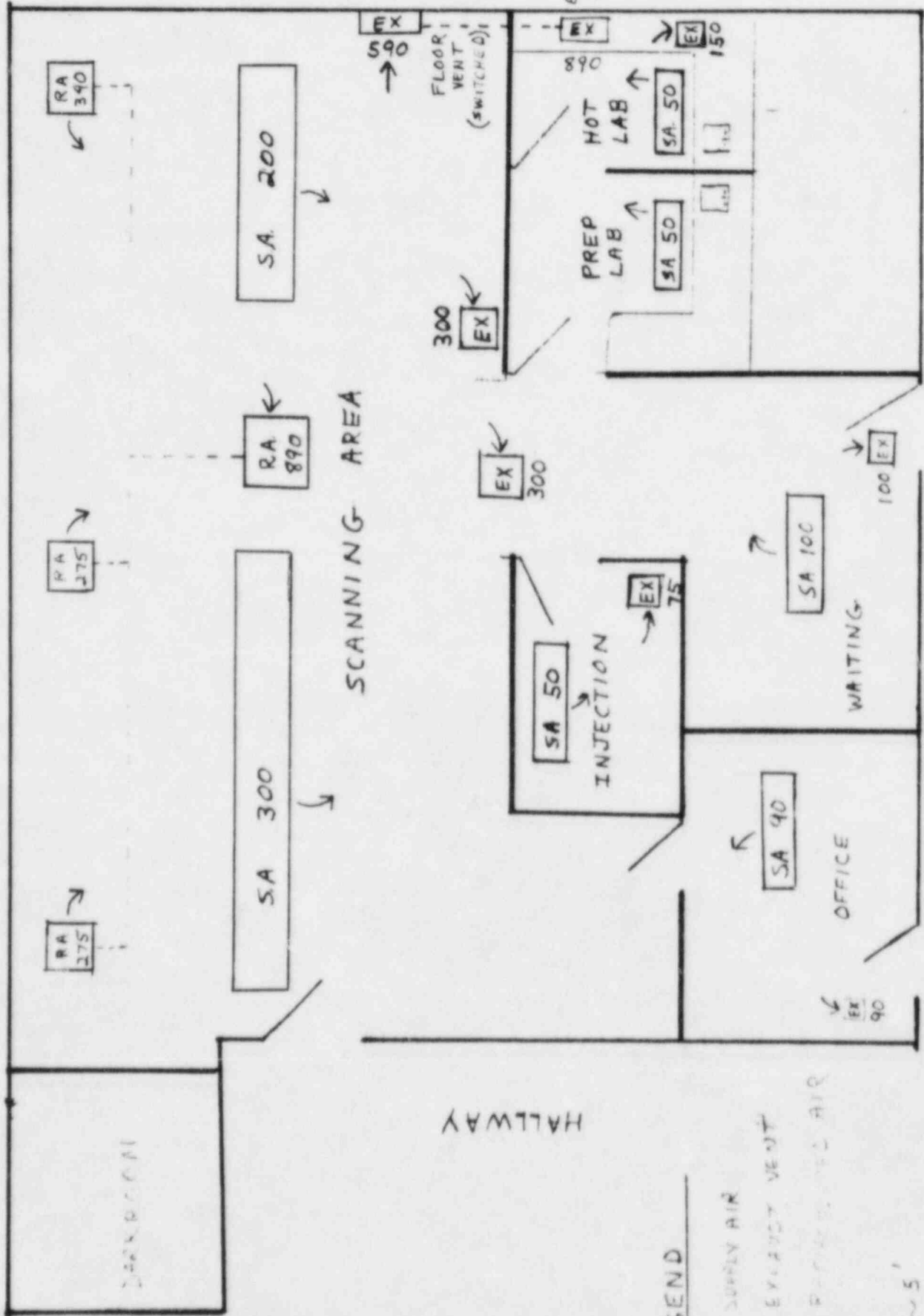
NUCLEAR MEDICINE FACILITY

1 square = 2"

HALLWAY

NUCLEAR MEDICINE AIR FLOW DIAGRAM

BUILDING EXTERIOR



LEGEND

SA - SUPPLY AIR

EX - EXHAUST VENT

RA - RETURN AIR

1" = 5'

HALLWAY

[ALL READINGS ARE C.F.M.]

ATTACHMENT D

133 XENON GAS CALCULATIONS

MAXIMUM ACTIVITY USED PER WEEK:

$$A = \frac{10 \text{ Millicuries}}{\text{Patient}} \times \frac{8 \text{ Patients}}{\text{Week}} \times \frac{1000 \text{ Microcuries}}{\text{Millicurie}}$$

$$A = 8 \times 10^4 \text{ Microcuries/Week}$$

$$V = \frac{8 \times 10^4 \text{ Microcuries/Week}}{1 \times 10^{-5} \text{ Microcuries/ML}} \times 0.20$$

$$V = 1.6 \times 10^9 \text{ ML/Week}$$

REQUIRED VENTILATION RATE:

$$\frac{1.6 \times 10^9 \text{ ML/Week}}{40 \text{ Hr/Week}} + \frac{1.7 \times 10^6 \text{ ML/Hour}}{\text{ft}^3/\text{Min}}$$

$$= \frac{4 \times 10^7 \text{ ML/Hour}}{\frac{1.7 \times 10^6 \text{ ML/Hour}}{\text{ft}^3/\text{Min}}}$$

$$= 23.5 \text{ ft}^3/\text{Min}$$

133 XENON GAS CALCULATIONS (Cont)

FOR EXHAUST HOOD USE:

$$A = \frac{8 \text{ Patients}}{\text{Week}} \times \frac{10 \text{ Millicuries}}{\text{Patient}} \times \frac{1000 \text{ Microcuries}}{\text{Millicurie}} \times \frac{52 \text{ Weeks}}{\text{Year}}$$

$$A = 4.16 \times 10^6 \text{ Microcuries/Year}$$

$$V = 890 \text{ ft/Min} \times 1 \text{ ft}^2 \times 1.49 \times 10^{10} \frac{\text{ML/Yr}}{\text{ft}^3/\text{Min}}$$

$$V = 1326 \times 10^{10} \text{ ML/Yr}$$

$$V = 1.326 \times 10^{13} \text{ ML/Year}$$

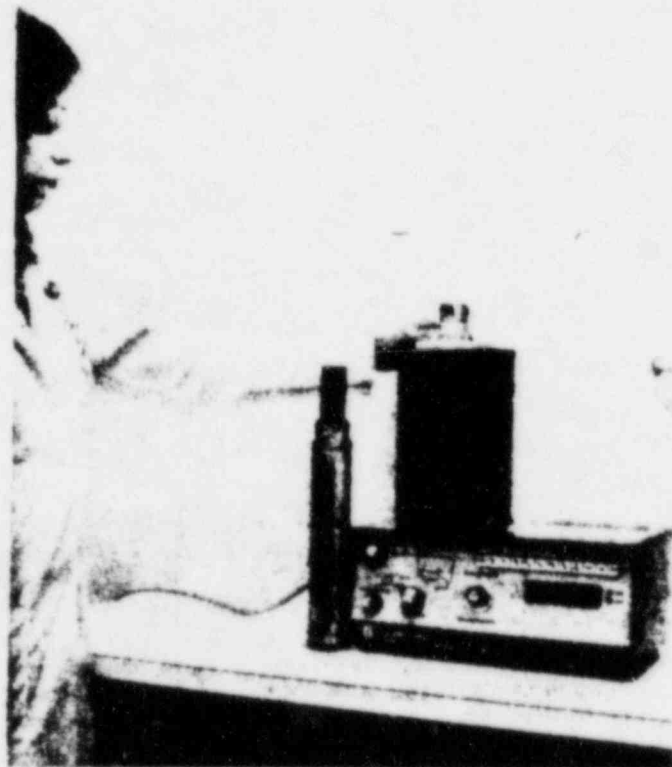
$$C = \frac{4.16 \times 10^6 \text{ Microcuries/Year}}{1.326 \times 10^{13} \text{ ML/Year}}$$

$$C = 3.13 \times 10^{-7} \text{ Microcuries/ML}$$

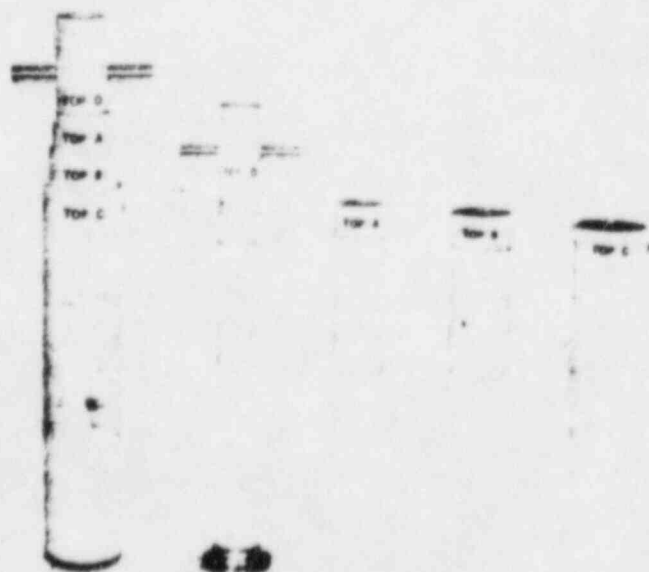
The Lineator

Tests Linearity of Dose Calibrators Over a Wide Dynamic Range

- Simple
- Effective
- Economical



The Lineator is a simple device for testing linearity and dynamic range of isotope calibrator instruments. It simplifies compliance with the Nuclear Regulatory Commission regulatory guide 10.8 and various state requirements.



The Lineator consists of four tubes, three are lead lined and can be arranged concentrically. The smallest diameter tube is labeled O and is used to contain and position a source of Technetium 99m of the maximum activity to be measured in the dose calibrator in normal service. The lead lined tubes, labeled A, B, & C, slide over the central tube, and are used singly, or in a combination. Each of these outer tubes absorbs some of the radiation from the source and reduces the effective source activity seen by the dose calibrator. Use of the Lineator allows the operator to simulate a total of eight different source strengths with only one source. The effective reduction increases from tubes A to B to C, and is affected slightly by the shape of the source used, and by the characteristics of the isotope calibrator.

The principal of operation of the Lineator is reproducibility over a wide dynamic range, rather than absolute calibration. Initially the linearity of the dose calibrator must be established by conventional means, such as dilution or decay of a Technetium source. The initial calibration using the Lineator then establishes the effective reductions in activity (ratios of activity with lead tube(s) inserted relative to source in central tubes alone). All subsequent use of the Lineator will show the same effective ratios unless the dose calibrator becomes defective, at which time it must be repaired.

086-507 Lineator \$275.00

VENDOR NO. :

August 2, 1985

MEMBER OF HOSPITAL COUNCIL OF WESTERN PENNSYLVANIA

ISSUED TO

UNITED STATES NUCLEAR REGULATORY
COMMISSION: Region I
631 Park Avenue
King of Prussia, PA 19406

S
H T
I O
P

LEE HOSPITAL
320 MAIN STREET
JOHNSTOWN, PA. 15901

15915 ← PURCHASE ORDER NO.

THIS NUMBER MUST APPEAR ON ALL PACKAGES, BILLS OF LADING,
INVOICES AND CORRESPONDENCE PERTAINING HERETO

TAX EXEMPT NO. 75-02807-2

YOUR ACCEPTANCE OF THIS ORDER INCLUDES ALL TERMS, SPECIFICATIONS, PRICES, DELIVERY AND CONDITIONS STATED HERETO AND ON REVERSE SIDE.

SPECIAL INSTRUCTIONS/TERMS

DATE REQUIRED _____

54419 VIA

ACKNOWLEDGEMENT
REQUIRED

CHECK ENCLOSED

Aug. 2, 1985

LEE HOSPITAL DOCK

ITEM	QUANTITY	UNIT	VENDOR ITEM NUMBER	DESCRIPTION	HOSPITAL NUMBER	UNIT PRICE	EXTENDED PRICE
1	ea			<p>Check for NRC License Amendment Fee for changes to NRC #37-05501-02 Byproduct Materials License for the following changes:</p> <ol style="list-style-type: none"> 1. Relocation of Nuclear Medicine Facility 2. Elimination of use of the Vacuum Unit for Xenon Studies 3. Obtain approval for use of Lineator Device 			\$120.00
<p>NUCLEAR MEDICINE 7380.85</p>							

• INVOICE IN TRIPLICATE
ATTENTION: ACCOUNTS PAY-
ABLE

• DELIVERIES ACCEPTED FROM
8:30-4:00 P.M.
MONDAY THROUGH FRIDAY
ONLY
DELIVERIES NOT ACCEPTED
ON NATIONAL HOLIDAYS

• ONLY QUANTITIES SPECIFIED
WILL BE ACCEPTED.

• ALL SHIPMENTS F.O.B. HOSPITAL FREIGHT, PREPAID AND ALLOWED UNLESS STIPULATED OTHERWISE

• PAYMENT OF FREIGHT CHARGES ON BACKORDERS WILL NOT BE THE RESPONSIBILITY OF THE HOSPITAL

- NO PRICE INCREASES OR SUBSTITUTIONS WILL BE ACCEPTED WITHOUT PRIOR APPROVAL OF THE PURCHASING DEPARTMENT

• THIS ORDER MAY BE CANCELLED UNLESS CONDITIONS OF PURCHASE ARE MET, INCLUDING NON-DELIVERY IN TIME STIPULATED.

X

ORIGINAL ORDER
PLEASE PROCESS

CONFIRMING ORDER (DO NOT DUPLICATE) PLACED WITH:

Carl A. McHall
AUTHORIZED SIGNATURE

表 1 主成分分析的结果 (n=100) 与 100 个调查对象的年龄

Limf

TOTAL

VENDOR'S COPY

BETWEEN: William O. Miller, Chief
License Fee Management Branch
Office of Administration -

John E. Glenn, Chief
Nuclear Materials Section B
Division of Engineering and
Technical Programs

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED

Applicant/Licensee: Lee Hospital

Application Dated: 7/31/85

Control No.: 04202

License No.: 37-05501-02

2. FEE ATTACHED

Amount: \$ 120.00

Check No.: 909740

3. COMMENTS

Signed Brenda K. Hatch

Date 8/8/85

62120

B. LICENSE FEE MANAGEMENT BRANCH

1. Fee Category and Amount: 7C

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

Amendment ☒

Renewal ☐

License ☐

Signed Lita Jacques

Date 8/20/85

"SECTION COPY"

LEE HOSPITAL
320 MAIN STREET, JOHNSTOWN PA 15901 909740 August 2, 1985

NRC License Amendment Fee

PLEASE DETACH BEFORE DEPOSITING

PLEASE DETACH BEFORE DEPOSITING

LEE HOSPITAL 320 MAIN STREET JOHNSTOWN, PA 15901		909740	
#14		August 2, 1985	
IDENTIFICATION NO.		CHECK NUMBER	
DATE		AMOUNT	
One hundred twenty dollars and 00/100		DOLLARS	
U.S. Nuclear Regulatory Commission			
042721		1031301053: 00 1 1170 411*	
		John W. Hugo	