

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET  
OFFICIAL RECORD COPY**

License Number

20-20566-01

Docket or Reference Number

030-1942i

Amendment No. 08

New England Pathology Services, Inc.  
250 Andover Street  
Wilmington, Massachusetts 01887

In accordance with the letter with attachments dated September 10, 1996, the two facsimiles dated September 18, 1996, the facsimile dated September 19, 1996, and the two facsimiles dated September 20, 1996, License Number 20-20566-01 is hereby terminated.



For the U.S. Nuclear Regulatory Commission

Original Signed By:

John D. Kinneman

By

Nuclear Materials Safety Branch  
Region I

King of Prussia, Pennsylvania 19406

Date SEP 26 1996

9610070380 960926  
PDR ADOCK 03019421  
B PDR

**ML 10**

SEP 26 1996

Dr. Joseph C. Bergeron  
President  
New England Pathology Services, Inc.  
250 Andover Street  
Wilmington, Massachusetts 01887

Dear Dr. Bergeron:

Please find enclosed Amendment No. 08 terminating License No. 20-20566-01 as requested by your letter with attachments dated September 10, 1996. The facility at 250 Andover Street, Wilmington, Massachusetts may be released for unrestricted use.

Your cooperation with us is appreciated.

Sincerely,

Original Signed By:  
John D. Kinneman

John D. Kinneman, Chief  
Nuclear Materials Safety Branch 2  
Division of Nuclear Materials Safety

License No. 20-20566-01  
Docket No. 030-19421  
Control No. 123669

Enclosure:  
Amendment No. 08

DOCUMENT NAME: R:\WPS\MLTR\L2020566.01

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI	N			
NAME	JMcFadden/jrm		JKinneman				
DATE	09/15/96		09/26/96		09/ /96		09/ /96

OFFICIAL RECORD COPY

ML 10

MATERIALS LICENSE  
SUPPLEMENTARY SHEET  
OFFICIAL RECORD COPY

License Number

20-20566-01

Docket or Reference Number

030-19421

Amendment No. 08

New England Pathology Services, Inc.  
250 Andover Street  
Wilmington, Massachusetts 01887

In accordance with the letter with attachments dated September 10, 1996, the two facsimiles dated September 18, 1996, the facsimile dated September 19, 1996, and the two facsimiles dated September 20, 1996, License Number 20-20566-01 is hereby terminated.



For the U.S. Nuclear Regulatory Commission

Original Signed By:

John D. Kinneman

By

Nuclear Materials Safety Branch  
Region I

King of Prussia, Pennsylvania 19406

Date SEP 26 1996

SEP 26 1996

Dr. Joseph C. Bergeron  
President  
New England Pathology Services, Inc.  
250 Andover Street  
Wilmington, Massachusetts 01887

Dear Dr. Bergeron:

Please find enclosed Amendment No. 08 terminating License No. 20-20566-01 as requested by your letter with attachments dated September 10, 1996. The facility at 250 Andover Street, Wilmington, Massachusetts may be released for unrestricted use.

Your cooperation with us is appreciated.

Sincerely,

Original Signed By:  
John D. Kinneman

John D. Kinneman, Chief  
Nuclear Materials Safety Branch 2  
Division of Nuclear Materials Safety

License No. 20-20566-01  
Docket No. 030-19421  
Control No. 123669

Enclosure:  
Amendment No. 08

DOCUMENT NAME: \WPS\MLTR\L2020566.01

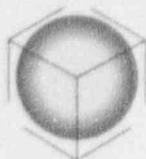
To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/enc "E" = Copy w/ attach/enc "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI	N			
NAME	JMcFadden/jrm		JKinneman				
DATE	09/15/96		09/26/96		09/ /96		09/ /96

OFFICIAL RECORD COPY

ML 10





New England  
Pathology Services

250 Andover Street, Wilmington, Massachusetts 01887 508 - 658 - 3600

September 25, 1996

MS16  
L-7

Jack McFadden  
Licensing Assistance Section  
Nuclear Materials Regulating Branch  
U.S. Nuclear Regulatory Commission, Region 1  
476 Allendale Road  
King of Prussia, PA 19406-1415

Dear Mr. McFadden:

Thank you for your hard work in expediting this matter. I greatly appreciate your thoroughness and efficiency. It was a pleasure to work with you.

I am enclosing the hard copies and fax cover sheet.

Thank you.

Sincerely,

Joseph C. Bergeron, M.D.  
President

OFFICIAL RECORD COPY

ML 10

123 669  
SEP 26 1996

New England Pathology Services  
250 Andover Street  
Wilmington, MA 01887

**Fax Cover Sheet**

DATE: 9/20/96  
TO: JACK McFADDEN  
FROM: JOSEPH BERGERON  
RE:  
CC:

TIME: 3:40 pm  
PHONE: (610) 337-5269  
FAX: (508) 658-3600  
FAX: (508) 658-0439

Number of pages including cover sheet: 4

**Message**

NOTE: If you experience trouble with this transmission, please call (508) 658-3600 and  
ask for HEIDI THODAY

\*\*\*\*\*  
**CONFIDENTIALITY NOTICE**

The information contained in this facsimile message is legally privilege and confidential information intended only for the use of the individual named above. If the reader of this message is not the intended recipient, or the employer of agent responsible to deliver it to the intended recipient, you are hereby notified that any use, dissemination, distribution or copy of this telecopy is strictly prohibited. If you have received this facsimile in error, please notify us by calling the sender and return the original message to us at the address shown above via the U.S. Postal Service. THANK YOU!

\*\*\*\*\*



---

**LABORATORY TECHNOLOGIES, INC.**

---

35 East Irving Park Road, Roselle, Illinois 60172  
TEL: (708) 529-3112 800-542-1123 FAX: (708) 529-3141

September 20, 1996

DR. BERGERON:

The  $I^{125}$  Multi calibrator set I9605YS is NIST Traceable.

Secondly, each source within the set is also matched to better than .3% variance between sources by the SUM-PEAK Coincidence counting method (J.S. Eldridge & P. Crowther Nucleonics 22 No. 6, 56 (1964)) for DPM. This is the identical method used by NIST (SEE CERTIFICATE) for their Standard Reference Material.

Enclosed is the NIST  $I^{125}$  Certificate from our Manufacturer.

Sincerely,

Donald L. Oesterlin

## Certificate

Standard Reference Material 4407L-M  
Radioactivity Standard

Radionuclide	Iodine-125
Source identification	4407L-M-26
Source description	Liquid in NIST borosilicate-glass ampoule <sup>(1)</sup>
Solution composition	Approximately 56 $\mu\text{g}$ KI, 390 $\mu\text{g}$ LiOH $\cdot$ H <sub>2</sub> O, and 28 $\mu\text{g}$ Fe <sub>2</sub> SO <sub>4</sub> per gram of solution <sup>(2)</sup>
Mass	4.95854 grams
Radioactivity concentration	$1.195 \times 10^6$ Bq g <sup>-1</sup>
Reference time	1200 EST December 13, 1988
Overall uncertainty	1.05 percent <sup>(3)</sup>
Photon-emitting impurities (Activity ratios at reference time)	<sup>126</sup> I/ <sup>125</sup> I: $(5.5 \pm 0.6) \times 10^{-7}$ <sup>(4)</sup>
Half life	59.6 $\pm$ 0.2 days <sup>(5)</sup>
Calibration method	Sum-peak coincidence counting (Cf. J.S. Eldridge and P. Crowther, Nucleonics 22, No 6, 56 (1964))

This Standard Reference Material was prepared in the Center for Radiation Research, Ionizing Radiation Division, Radioactivity Group, Dale D. Hoppes, Group Leader.

Gaithersburg, MD 20899  
December, 1988

Stanley D. Rasberry, Chief  
Office of Standard Reference Materials

\*Notes on back

NOTES

- (1) Approximately five milliliters of solution. Ampoule specifications:

body diameter	$16.5 \pm 0.5$ mm
wall thickness	$0.60 \pm 0.04$ mm
barium content	less than 2.5 percent
lead oxide content	less than 0.02 percent
other heavy elements	trace quantities

- (2) Solution density  $0.998 \pm 0.002$  g/mL at 23.3°C.

- (3) The overall uncertainty was formed by taking three times the quadratic combination of standard deviations of the mean, or approximations thereof, for the following:

a) extrapolation to zero count rate	0.08 percent
b) escape loss	0.08 percent
c) decay scheme parameters	0.13 percent
d) gravimetric measurements	0.15 percent
e) timer	0.04 percent
f) integration of areas under peaks	0.08 percent
g) source-to-detector distance	0.25 percent
h) background	0.01 percent

- (4) Limits of detection for impurity gamma rays, as a percentage of the emission rate of the K x-rays emitted in the decay of iodine-125, are 0.01 percent for photons between 40 and 1900 keV.

- (5) NCRP Report No. 58, 2nd edition, February 1985, p. 431.

4407L-M

New England Pathology Services  
250 Andover Street  
Wilmington, MA 01887

## Fax Cover Sheet

DATE: 9/20/96 TIME: 10:12 am  
TO: Jack McFadden PHONE: (610) 337 5269  
FROM: Joseph Bergen FAX: (508) 658-3600  
RE: (508) 658-0439  
CC:

Number of pages including cover sheet: 8

### Message

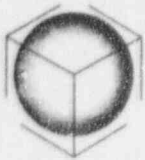
NOTE: If you experience trouble with this transmission, please call (508) 658-3600 and

ask for

### CONFIDENTIALITY NOTICE

The information contained in this facsimile message is legally privilege and confidential information intended only for the use of the individual named above. If the reader of this message is not the intended recipient, or the employer of agent responsible to deliver it to the intended recipient, you are hereby notified that any use, dissemination, distribution or copy of this telecopy is strictly prohibited. If you have received this facsimile in error, please notify us by calling the sender and return the original message to us at the address shown above via the U.S. Postal Service. THANK YOU!





# New England Pathology Services

250 Andover Street, Wilmington, Massachusetts 01887 508 · 658 · 3600

## Memorandum

DATE: September 20, 1996  
TO: Jack McFadden  
BY FAX (610) 337-5269  
FROM: Joseph Bergeron, M.D.

- 
1. Ludlum - 675 count / minute per micro R per hour for I-125
  2. Certificate of Calibration and bench test date for detectors

LUDLUM MEASUREMENTS, INC.

P. O. BOX 810

501 OAK STREET

SWEETWATER, TX USA 79566

(800) 622-0828 USA



DESIGNER AND MANUFACTURER

OF

*Scientific and Industrial  
Instruments*

(915) 235-5494

FAX: (915) 235-4672

## Fax Coversheet

DATE: 9 / 20 / 96

TO: Mr. Michael Hooper

FAX: 508 988 0502

New Pathology Services

FROM: Dwane Stevens, Sales Manager

FAX No. (915) 235-4672

FAX No. (915) 235-1687

Number of Pages Including Cover Sheet 2

This was sent from Ludlum Measurements, Inc., If you have any trouble receiving the document(s) please call us at (915) 235-5494

### Comments:

Referencing our earlier conversation, Ludlum Measurements, Inc. states that the sensitivity of a Model 3 with a Model 44-3 will be 675 counts per minute per microR per hour for I-125 energy.

Please let us know if we can be of further help.

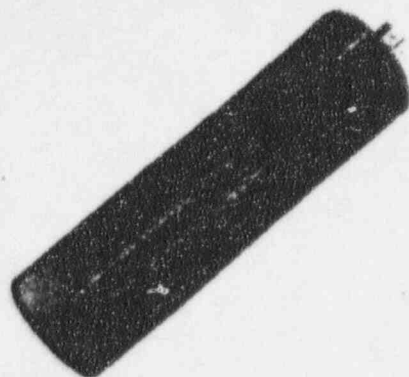
Best regards,

  
Dwane Stevens

## DETECTORS

## Gamma Scintillation

## Model 44-3

LOW ENERGY GAMMA  
SCINTILLATOR

## Model 44-17

LOW ENERGY GAMMA  
SCINTILLATOR

## Common Specifications

INDICATED USE:  $^{125}\text{I}$ , and X-Ray survey

RECOMMENDED ENERGY RANGE: Approximately 10 - 60 keV

ENERGY RESPONSE: Energy dependant

COMPATIBLE INSTRUMENTS: General purpose survey meters, ratemeters, and scalars

OPERATING VOLTAGE: Typically 500 - 1200 volts

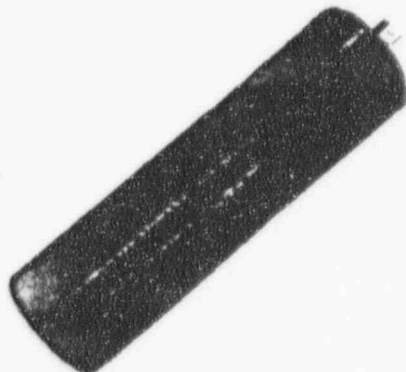
	44-3	44-17
SCINTILLATOR	1" (2.5cm) diameter 1mm T NaI(Tl) crystal	2" (5.1cm) diameter 2mm T NaI(Tl) crystal
ENTRY WINDOW	15 mg/cm <sup>2</sup> *	43 mg/cm <sup>2</sup>
WINDOW AREA	2 cm <sup>2</sup> active and open	17.8 cm <sup>2</sup> active and open
BACKGROUND	40 cpm/ $\mu\text{R/hr}$	160 cpm/ $\mu\text{R/hr}$
EFFICIENCY (4pi geometry)	19% - $^{125}\text{I}$	20% - $^{125}\text{I}$
SENSITIVITY	675 cpm/ $\mu\text{R/hr}$ ( $^{125}\text{I}$ )	N/A
TUBE	1.5 (3.8cm) diameter magnetically shielded photomultiplier	2" (5.1cm) diameter magnetically shielded photomultiplier
DYNODE STRING RESISTANCE	100 megohm	60 megohm
SIZE	2" (5.1cm) diameter 7" (17.8cm) L	2.6" (6.7cm) diameter 9" (22.9cm) L
WEIGHT	1 lbs (0.5kg)	1.5 lb (0.7kg)

\* Model 44-3 is also available with a 7.8 mg/cm<sup>2</sup> window for energies as low as 5 keV

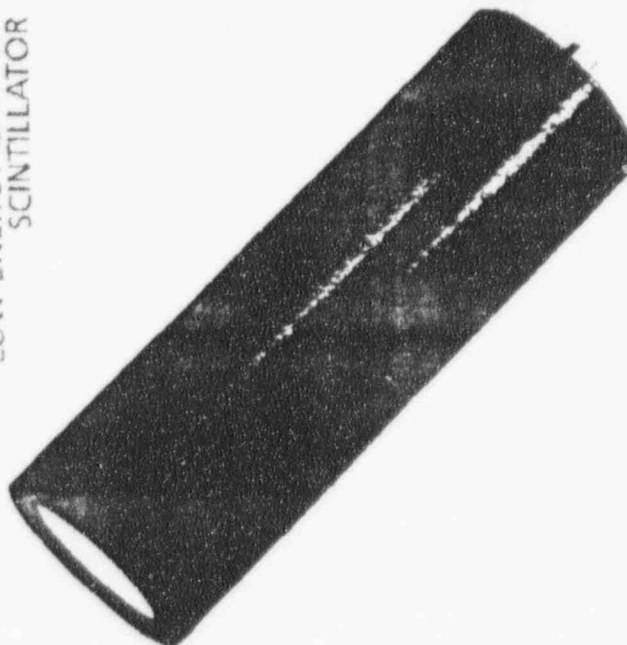
## DETECTORS

## Gamma Scintillation

## Model 44-3

LOW ENERGY GAMMA  
SCINTILLATOR

## Model 44-17

LOW ENERGY GAMMA  
SCINTILLATOR

## Common Specifications

INDICATED USE:  $^{125}\text{I}$ , and X-Ray survey

RECOMMENDED ENERGY RANGE: Approximately 10 - 60 keV

ENERGY RESPONSE: Energy dependant

COMPATIBLE INSTRUMENTS: General purpose survey meters, ratemeters, and scalars

OPERATING VOLTAGE: Typically 500 - 1200 volts

	44-3	44-17
SCINTILLATOR	1" (2.5cm) diameter 1mm T NaI(Tl) crystal	2" (5.1cm) diameter 2mm T NaI(Tl) crystal
ENTRY WINDOW	15 mg/cm <sup>2</sup> *	43 mg/cm <sup>2</sup>
WINDOW AREA	2 cm <sup>2</sup> active and open	17.8 cm <sup>2</sup> active and open
BACKGROUND	40 cpm/ $\mu\text{R/hr}$	160 cpm/ $\mu\text{R/hr}$
EFFICIENCY (4pi geometry)	19% - $^{125}\text{I}$	20% - $^{125}\text{I}$
SENSITIVITY	675 cpm/ $\mu\text{R/hr}$ ( $^{125}\text{I}$ )	N/A
TUBE	1.5 (3.8cm) diameter magnetically shielded photomultiplier	2" (5.1cm) diameter magnetically shielded photomultiplier
DYNODE STRING RESISTANCE	100 megohm	60 megohm
SIZE	2" (5.1cm) diameter 7" (17.8cm) L	2.6" (6.7cm) diameter 9" (22.9cm) L
WEIGHT	1 lbs (0.5kg)	1.5 lb (0.7kg)

\*Model 44-3 is also available with a 7.8 mg/cm<sup>2</sup> window for energies as low as 5 keV



Designer and Manufacturer  
of  
Scientific and Industrial  
Instruments

# CERTIFICATE OF CALIBRATION

**LUDLUM MEASUREMENTS, INC.**  
P.O. BOX 810 PH. 915-235-5494  
501 OAK STREET FAX NO. 915-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER NEW ENGLAND PATHOLOGY SERVICES ORDER NO. 214948  
Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 39105  
Mfg. Ludlum Measurements, Inc. Model 44-3 Serial No. PR044475  
Cal. Date 09/22/95 Cal Due Date 09/22/96 Cal. Interval 1 Year Meterface 202-002  
Check mark: ☒ Applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 36 % Alt 715.8 mm Hg  
☐ New Instrument Instrument Received ☐ Within Toler.  $\pm 10\%$  ☐ 10-20% ☐ Out of Tol. ☒ Requiring Repair  
☒ Mechanical ck. ☒ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity  
☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation ☒ Geotropism  
☒ Audio ck. ☐ Alarm Setting ck. ☒ Batt. ck. (Min. Volt) 2.2 VDC  
Instrument Volt Set 850 V Input Sens. 30 mV Def. Oper. 850 V at 30 mV Threshold Dial Ratio        =        mV  
☐ HV Readout (2 points) Ref./Inst.        /        V Ref./Inst.        /        V

## COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	400 K cpm	N/A	400
X 100	100 Kcpm		100
X 10	40 K cpm		400
X 10	10 K cpm		100
X 1	4 K cpm		400
X 1	1 K cpm		100
X 0.1	400 cpm		400
X 0.1	100 cpm		100

\*Uncertainty within  $\pm 10\%$  C.F. within  $\pm 20\%$

ALL Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			Log Scale		

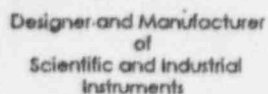
Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of MIL-STD-45662A and ANSI N323-1978. State of Texas Calibration License No. LO-1963

## Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ Neutron Am-241 Be S/N T-304  
☐ Alpha S/N        ☐ Beta S/N        ☒ Other I-129 0.077uCi  
☒ m 500 S/N 121025 ☐ Oscilloscope S/N        ☒ Multimeter S/N A5099

Calibrated By: Ronald [Signature] Date 9/22/95  
Reviewed By: [Signature] Date 9-23-95  
FORM C22A 03/25/95





**LUDLUM MEASUREMENTS, INC.**  
POST OFFICE BOX 810 PH. 915-235-5494  
501 OAK STREET FAX NO. 915-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

Detector 44-3 Serial No. PR044475

Customer NEW ENGLAND PATHOLOGY SERVICES

Order #. 214948

Counter 3 Serial No. 39105

Counter Input Sensitivity 30 mV

Count Time cpm Distance Source to Detector Surface

Other \_\_\_\_\_

Signature Donald West Date 9/22/95





Designer and Manufacturer  
of  
Scientific and Industrial  
Instruments

# CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

POST OFFICE BOX 810 PH. 915-235-5494  
501 OAK STREET FAX NO. 915-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER NEW ENGLAND PATHOLOGY SERVICES

ORDER NO. 214391

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 32469

Mfg. Ludlum Measurements, Inc. Model 44-3 Serial No. PR024386

Cal. Date 08/16/95 Cal Due Date 08/16/96 Cal. Interval 1 Year Meterface 202-049

Check mark ☒ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 47 % Alt 703.8 mm Hg

☐ New Instrument ☐ Instrument Received ☒ Within Toler. +10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair

☒ Mechanical ck. ☒ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity

☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation ☒ Geotropism

☒ Audio ck. ☐ Alarm Setting ck. ☒ Batt. ck. (Min. Volt) 2.2 VDC

Instrument Volt Set 750 V Input Sens. 31 mV Det. Oper. 750 V at 31 mV Threshold  
Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

## COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	300 k cpm	5.3K	3K
X 100	100 k cpm	11K	1K
X 10	30 k cpm	2.8K	3K
X 10	10 k cpm	.9K	1K
X 1	3 k cpm	2.8K	3K
X 1	1 k cpm	.9K	1K
X 0.1	300 cpm	2.8K	3K
X 0.1	100 cpm	.9K	1K

\*Uncertainty within  $\pm 10\%$  C.F. within  $\pm 20\%$

All Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			Log Scale		

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of MIL-STD-45662A and ANSI N323-1978.

State of Texas Calibration License No. LO-1963

## Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879

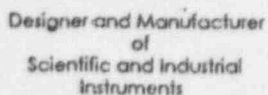
☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☒ Other I-129 .077uCi

☒ m 500 S/N 63893 ☐ Oscilloscope S/N ☒ Multimeter S/N 57770262

Calibrated By: Michael Moore Date 8-16-95

Reviewed By: Debbie Seimone Date 8-16-95



**UDLUM MEASUREMENTS, INC.**  
POST OFFICE BOX 810 PH. 915-235-5494  
501 OAK STREET FAX NO. 915-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

Detector 44-3 Serial No. PR024386

Customer NEW ENGLAND PATHOLOGY SERVICES

Order #. 214391

Counter 3 Serial No. 2 469

Counter Input Sensitivity 31 mV

Count Time CPM Distance Source to Detector Surface

Other \_\_\_\_\_

[illegible]

Signature Michael Moore

Date 8-16-95

New England Pathology Services  
250 Andover Street  
Wilmington, MA 01857

**Fax Cover Sheet**

DATE: 9/19/96 TIME: 2:00pm  
TO: JACK MCFADDEN PHONE: (610) 337-5269  
FAX:  
FROM: JOSEPH BERGERON, M.D. PHONE: (508) 658-3600  
FAX: (508) 658-0439  
RE:  
CC:

Number of pages including cover sheet: 3

**Message**

NOTE: If you experience trouble with this transmission, please call (508) 658-3600 and

ask for

Wendy Thoday

\*\*\*\*\*  
**CONFIDENTIALITY NOTICE**

The information contained in this facsimile message is legally privilege and confidential information intended only for the use of the individual named above. If the reader of this message is not the intended recipient, or the employer of agent responsible to deliver it to the intended recipient, you are hereby notified that any use, dissemination, distribution or copy of this telecopy is strictly prohibited. If you have received this facsimile in error, please notify us by calling the sender and return the original message to us at the address shown above via the U.S. Postal Service. THANK YOU!

\*\*\*\*\*



Designer and Manufacturer  
of  
Scientific and Industrial  
Instruments

# CERTIFICATE OF CALIBRATION

(A)

LUDLUM MEASUREMENTS, INC.

OFFICE BOX 810 PH. 915-235-5494  
501 OAK STREET FAX NO. 915-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER NEW ENGLAND PATHOLOGY SERVICES

ORDER NO. 214391

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 22469

Mfg. Ludlum Measurements, Inc. Model 44-3 Serial No. PR024386

Cal. Date 08/16/95 Cal Due Date 08/16/96 Cal. Interval 1 Year Meterface 202-049

Check mark ☒ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 47 % Alt 703.8 mm Hg

☐ New Instrument ☐ Instrument Received ☒ Within Toler.  $\pm 10\%$  ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair

☒ Mechanical ck. ☒ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity

☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation ☒ Geotropism

☒ Audio ck. ☐ Alarm Setting ck. ☒ Batt. ck. (Min. Volt) 2.2 VDC

Instrument Volt Set 750 V Input Sens. 31 mV Det. Oper. 750 V at 31 mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

## COMMENTS:

ATTACH  
(A)

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	300 k cpm	3.3k	3k
X 100	100 k cpm	1.1k	1k
X 10	30 k cpm	2.9k	3k
X 10	10 k cpm	.9k	1k
X 1	3 k cpm	2.8k	.3k
X 1	1 k cpm	.9k	1k
X 0.1	300 cpm	2.8k	3k
X 0.1	100 cpm	.9k	1k

\*Uncertainty within  $\pm 10\%$  C.F. within  $\pm 20\%$

All Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			Log Scale		

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of MIL-STD-45662A and ANSI N323-1978. State of Texas Calibration License No. LO-1963

## Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879

☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☒ Other I-129 .077UCi

☒ m 500 S/N 63893 ☐ Oscilloscope S/N ☒ Multimeter S/N 57770262

Calibrated By: Michael Moss Date 8-16-95

Reviewed By: Debbie Seibner Date 8-16-95

## Notice

### Licensing and Labeling Information

"Radioactive Material - Not for Human Use - Introduction Into Food, Beverages, Cosmetics, Drugs or Medicinals, or Into Products Manufactured for Commercial Distribution is Prohibited. Exempt quantities should not be combined."

The user instructions with this product are very specific for nuclear detection equipment quality control purposes. It is therefore reasonable to believe the user has been trained in radiation safety precautions or is operating under the supervision of a person with such training.

### RADIOACTIVE REFERENCE SOURCE TEST REPORT

Description: I-125 gamma source trapped in resin, dried and sealed in a 12x75mm test tube.

Nominal activity: approximately 0.125 uCi

Date of wipe test: 6/1/96

Wipe test method: one source from each set is wiped externally with a tissue moistened with alcohol. The tissue is then counted in a NaI(tl) well-type detector and the results enclosed.  
Acceptable limit of surface contamination; 0.005uCi.

Lot number: I96054S

New England Pathology Services  
250 Andover Street  
Wilmington, MA 01887

Fax Cover Sheet

DATE: 9/18/96 TIME: 1130 am  
TO: Betsy Ulrich PHONE: (610) 337-5269  
FROM: Joseph Bugerov, M.D. FAX: (508) 658-3600  
RE: (508) 658-0439  
CC:

Number of pages including cover sheet: 3

Message

Includes  
Revised calculations

NOTE: If you experience trouble with this transmission, please call (508) 658-3600 and

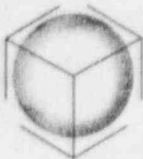
ask for

Leah Hoday

CONFIDENTIALITY NOTICE

The information contained in this facsimile message is legally privilege and confidential information intended only for the use of the individual named above. If the reader of this message is not the intended recipient, or the employer of agent responsible to deliver it to the intended recipient, you are hereby notified that any use, dissemination, distribution or copy of this telecopy is strictly prohibited. If you have received this facsimile in error, please notify us by calling the sender and return the original message to us at the address shown above via the U.S. Postal Service. THANK YOU!





# New England Pathology Services

250 Andrew Street, Wilmington, Massachusetts 01887 508-658-3000

September 18, 1996

BY FAX (610) 337-5269

Ms. Betsy Ullrich  
Licensing Assistance Section  
Nuclear Materials Regulating Branch  
U.S. Nuclear Regulatory Commission, Region 1  
476 Allendale Road  
King of Prussia, PA 19406-1415

*Revised calculation of isotope concentration.*

RE: NEPS Decommissioning Request

Answers to questions discussed are:

1. Maximum liquid I-125 waste for 1995 was calculated by using manufacturer package inserts for kits purchased in 1995 and multiplying the total volume purchased by the manufacturer's stated maximal concentration of isotope in each vial. Maximal I-125 liquid in 1995 is calculated as being 44,615 microcuries or 44.6 millicuries. Maximum tritium purchased in 1995 was 7000 microcuries. The isotopes purchased in the past were of similar quantities. Maximal amount is greater than true amounts.

Approximate water purchased in 1995 using Town of Wilmington Water and Sewer Department, phone (517) 658-3116, Account # 3R01-0302, records, between November 15, 1994 - September 13, 1995 was 136,950 cu. feet or about 13,695 cu. feet per month.

$13,695 \text{ ft}^3 \times 12 \text{ months} = 164,340 \text{ cu. feet/year}$

7.5 gallons of water per cu. feet equals 1,232,500 gallons per year.

$44,615 \text{ microcuries} / 1,232,550 \text{ gallons} = 0.036 \text{ microcuries of I-125 per gallon of water}$

$7000 \text{ microcuries of tritium} / 1,232,550 \text{ gallons} = .0056 \text{ microcuries of tritium per gallon of water}$

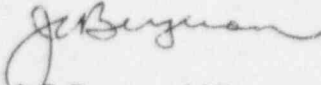
This is the maximal amount to septic system and/or leaching field. Septic system was pumped periodically. Septage was brought to Town of Wilmington and was brought to a dump station which I am told is piped to the MWRA sewage system which goes to Deer Island in the Atlantic Ocean for processing. Ground water was tested for isotopes per report included with request for decommissioning (September 10, 1996). Ground water was not at an unsafe level of activity.

2. The septic tank was pumped by DEERAY Septic Pumping (617) 658-2223 and the septage was placed in the Town of Wilmington, MA dump station and went via sewer pipe to MWRA for processing or septage, probably at Deer Island per Town of Wilmington Water and Sewer department (617) 658-3116.
3. The sink drain in the lab was swabbed in the trap and had acceptable levels of activity. The sink trap was also checked with a survey meter and level of activity was acceptable. Only one sink drain was ever used.
4. The survey meter was calibrated by the Ludlum Company. We spoke with Drew Carson at (915) 235-4947. He said that the meter was calibrated with I-129 and then subsequent electronic calibration. Either Drew Carson or Paul Fritz at Ludlum may be contacted as to the validity of the method. They assured us that it was calibrated to an appropriate standard and would be happy to talk to you.

The gamma counter was calibrated with I-125 source which is traced to standards. Don Oesterlin at Laboratory Technologies, Inc. (800) 529-3112 would be happy to assure the validity of this source which he said is NIST traceable. The material used in the source is manufactured. The actual DPM is calculated by using the dual peaks (Eldredge) method.

I will call you this morning to follow up on this information. Thank you for your assistance.

Sincerely,



Joseph C. Bergeron, M.D.  
President

Attached - 7 pages from gamma counter quality control log from Laboratory Technologies, Inc.

A revision of isotope calculation was done because initial calculations should have used isotope concentration per vial but calculation was performed based on milliliters in each vial. Manufacturer stated concentration by vial rather than by milliliter.

# Laboratory Technologies, Inc.

The Technology Leader since..... 1983

\*Reliability

\*Value

\*Innovation

*NEW* G-2000<sup>™</sup> Multi-well gamma counters  
5-25 Wells Manual or Automated

The WIPER<sup>™</sup> gamma wipe test counter

Wipe Test Kits

Bind-It<sup>™</sup> I-125/I-131 Removal Handsoap

Bind-It<sup>™</sup> I-125/I-131 Decontamination Fluid

LTI Multi-Calibrator<sup>™</sup> Brand  
I-125 and Co-57 Calibration Sources

*NEW* ACCULYTE<sup>™</sup> Chemiluminescence Systems

High Volume - up to 4000 samples/ hour  
Medium Volume - automated single detector system  
Low Volume - manual single detector system



Laboratory Technologies, Inc.

35 E. Irving Park Road, Roseville Illinois 60172  
Telephone: In IL 708-529-3112 ; 800-542-1123 Fax: 708-529-3141

## HOW TO USE THE GAMMA COUNTER DAILY PERFORMANCE LOG

**DATE CPM:** For long term gamma counter stability checking, the efficiency for I125 and Co57 can be calculated on a daily basis using the computer-generated gamma counter performance log.

Both I125 and Co57 will decrease in activity each day. The performance log lists the theoretical activity for each day; making decay correction calculations unnecessary.

**ENTER HI CAL CPM & WELL:** When counting the Multi-Calibrators on a multiwell gamma counter, enter highest CPM obtained ( or if your gamma counter calculates efficiency automatically, enter the highest efficiency. Space is provided to enter the well number to allow troublesome detectors to be spotted over a period of time.

**ENTER LO CAL CPM & WELL:** As above, but for the lowest well.

**CALC HI-LO DIFF:** Subtract the CPM's for the highest and lowest wells ( leave blank if your gamma counter calculates this parameter automatically).

**CALC % DIFF, ( DIFF/LO CAL):** Divide the HI-LO DIFF by the lowest well CPM to obtain a measure of the detector balancing. If your gamma counter makes this calculation automatically, enter the % efficiency spread here.

**ACTION LEVEL :** The %DIFF should not exceed 5%. This parameter applies only to multiwells and will reflect three parameters: (1) how closely the wells are matched (2) the error due to counting statistics alone (3) how closely the calibrators are matched. The calibrators are matched to within 0.5%. If you collect at least 100,000 counts, our recommendation, the counting error will be about 3.0%. You may want to collect significantly more counts when counting the calibrators and when performing normalization and publish a tighter action level to your personnel.

**CALC %EFF, ( LO/DPM \* 100):** Make this calculation to determine the efficiency of your gamma counter for that isotope.

**ACTION LEVEL:** The counting efficiency should be within +/- 2.5% of previous values. Since the same isotope you use in your assays is used in the MultiCalibrators (I125, Co57) , you can expect them to drop in activity each day. Performance Log takes the radioactive decay of the isotope into account and lists the DPM (disintegrations per minute) for that day. Dividing the CPM by the DPM will yield the counting efficiency of your instrument for that isotope.

**ENTER LO BG CPM & WELL #.** Do the same for the lowest background.

**CALC HI/LO BG RATIO;** Divide the highest by the lowest background CPM.

**ACTION LEVEL:** THE HI/LO RATIO should not exceed 5.

Be careful that your gamma counter is displaying true background and not background that has been corrected for action level of 5 pertains only to the true backgrounds.

# GAMMA COUNTER QUALITY CONTROL LOG

LABORATORY TECHNOLOGIES, INC. 125I  
 MULTI-CALIBRATORS MULTILOG LOT: I9605YS  
 COUNT FOR 0.6 MINUTES

EXPIRES: 29 DEC 96

	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	1JUL96 274378	2JUL96 271198	3JUL96 268055	4JUL96 264948	5JUL96 261878	6JUL96 258843	7JUL96 255843
ENTER HI CAL CPM & WELL #		#15 84.71	#15 84.23	#11 84.37 →		#14 84.25	
ENTER LO CAL CPM & WELL #		#3 80.92	#3 80.48	#3 80.84 →		#3 80.63	
CALC HI-LO DIFF	N/A						→
CALC % DIFF (DIFF/LO CAL)		4.53	4.48	4.22 →		4.33	
CALC % EFF (LO/DPM*100)		83.63	83.49	83.67 →		83.64	
ENTER HI BG CPM & WELL #		#5 63	#5 67	#13 → 64		#5 55	
ENTER LO BG CPM & WELL #		#14 32	#12 34	#8 → 33		#7 32	
CALC HI/LO BG RATIO		1.969	1.971	1.939 →		1.719	
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	8JUL96 252877	9JUL96 249947	10JUL96 247050	11JUL96 244187	12JUL96 241357	13JUL96 238559	14JUL96 235795
ENTER HI CAL CPM & WELL #	#11 84.34	#17 84.46	#19 84.33	#9 84.37	#11 84.51	#9 81.49	
ENTER LO CAL CPM & WELL #	#3 81.08	#3 80.85	#3 80.91	#3 80.62	#3 80.81	#3 81.08	
CALC HI-LO DIFF	N/A						→
CALC % DIFF (DIFF/LO CAL)	3.89	4.32	4.09	4.49	4.42	4.07	
CALC % EFF (LO/DPM*100)	83.67	83.60	83.66	83.65	83.82	83.69	
ENTER HI BG CPM & WELL #	#14 70	#16 64	#13 65	#4 62	#1 53	#13 58	
ENTER LO BG CPM & WELL #	#19 31	#15 29	#7, 15 33	#6, 18 36	#12 31	#10 31	
CALC HI/LO BG RATIO	2.258	2.207	1.970	1.722	1.710	1.871	



# GAMMA COUNTER QUALITY CONTROL LOG

LABORATORY TECHNOLOGIES, INC. 125I  
 MULTI-CALIBRATOR'S MULTILOG LOT: I9605YS  
 COUNT FOR 0.7 MINUTES

EXPIRES: 29 DEC 96

	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	15JUL96 233062	16JUL96 230361	17JUL96 227691	18JUL96 225052	19JUL96 222444	20JUL96 219866	21JUL96 217317
ENTER HI CAL CPM & WELL #	#17 84.59	#11 84.47	#1 84.30	#11 84.93	#15 84.32	#11 84.95	
ENTER LO CAL CPM & WELL #	#3 81.00	#3 80.92	#3 80.76	#3 80.88	#3 80.98	#3 81.22	
CALC HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)	4.28	4.24	4.24	4.83	4.24	4.45	
CALC % EFF (LO/DPM*100)	83.75	83.65	83.59	83.83	83.73	83.73	
ENTER HI BG CPM & WELL #	#13 62	#12 61	#12 52	#12 66	#5 64	#16 62	
ENTER LO BG CPM & WELL #	#6 34	#6, 47 29	#7 23	#9 33	#1 36	#4, 7 33	
CALC HI/LO BG RATIO	1.912	2.103	2.304	2.000	1.778	1.879	
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	22JUL96 214799	23JUL96 212309	24JUL96 209849	25JUL96 207417	26JUL96 205013	27JUL96 202637	28JUL96 200288
ENTER HI CAL CPM & WELL #	#11 84.92	#15 84.51	#11 84.80	#5 84.76	#15 84.78	#6 84.61	
ENTER LO CAL CPM & WELL #	#3 80.95	#3 80.88	#3 80.76	#3 81.36	#3 80.78	#3 80.52	
CALC HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)	4.74	4.33	4.59	4.05	4.77	4.88	
CALC % EFF (LO/DPM*100)	83.79	83.88	83.83	83.89	83.89	83.80	
ENTER HI BG CPM & WELL #	#16 64	#10 64	#4 58	#5 55	#5, 13 60	#13 61	
ENTER LO BG CPM & WELL #	#2 31	#7 34	#13, 15 36	#7 28	#7 31	#6 34	
CALC HI/LO BG RATIO	2.065	1.882	1.611	1.964	1.933	1.794	



# GAMMA COUNTER QUALITY CONTROL LOG

LABORATORY TECHNOLOGIES, INC. 1251  
 MULTI-CALIBRATORS MULTILOG LOT: I9605YS  
 COUNT FOR 0.9 MINUTES

EXPIRES: 29 DEC 96

	MON	TUE	WED	THU	FRI	SAT	SUN
DATE & DPM	29JUL96 197967	30JUL96 195673	31JUL96 193405	1AUG96 11163	2AUG96 188948	3AUG96 186758	4AUG96 184594
ENTER HI CAL CPM & WELL #	#17 84.67	#14 84.60	#15 84.72	#14 84.51	#14 84.53	#11 84.56	
ENTER LO CAL CPM & WELL #	#3 80.81	#3 80.71	#3 80.85	#3 81.45	#3 81.26	#3 81.53	
CALC HI-LO DIFF	N/A						→
CALC % DIFF (DIFF/LO CAL)	4.60	4.64	4.61	3.51	3.90	3.62	
CALC % EFF (LO/DPM*100)	83.84	83.79	83.93	83.79	83.90	83.90	
ENTER HI BG CPM & WELL #	#5 62	#18 59	#10 66	#4 62	#13 65	#18 59	
ENTER LO BG CPM & WELL #	#17 33	#8 32	#19 33	#15 27	#19 36.	#6 27	
CALC HI/LO BG RATIO	1.879	1.844	2.000	2.296	1.806	2.185	
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE & DPM	5AUG96 182454	6AUG96 180340	7AUG96 178249	8AUG96 176184	9AUG96 174142	10AUG96 172123	11AUG96 170129
ENTER HI CAL CPM & WELL #	#17 84.49	#11 84.68	#15 84.79	#14 84.74	#5 84.76	#11 84.96	
ENTER LO CAL CPM & WELL #	#3 81.65	#3 80.77	#3 81.48	#3 81.23	#3 81.05	#3 80.94	
CALC HI-LO DIFF	N/A						→
CALC % DIFF (DIFF/LO CAL)	3.38	4.66	3.94	4.17	4.43	4.78	
CALC % EFF (LO/DPM*100)	83.80	83.84	83.77	83.92	83.86	84.01	
ENTER HI BG CPM & WELL #	#5 64	#13 69	#12 67	#3 57	#16 57	#5 54	
ENTER LO BG CPM & WELL #	#17 30	#7 39	#15 35	#7 26	#9 26	#7 19	
CALC HI/LO BG RATIO	2.133	1.769	1.914	2.192	2.192	2.842	

# GAMMA COUNTER QUALITY CONTROL LOG

LABORATORY TECHNOLOGIES, INC. 3251  
MULTI-CALIBRATORS MULTILOG LOT: 19605YS  
COUNT FOR 1.0 MINUTES

EXPIRES: 29 DEC 96

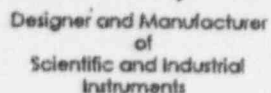
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	12AUG96 168157	13AUG96 166208	14AUG96 164282	15AUG96 162378	16AUG96 160496	17AUG96 158636	18AUG96 156797
ENTER HI CAL CPM & WELL #	#11 84.68	#5 84.69	#5 85.12	#5 84.68	#5 81.33	#11 84.72	
ENTER LO CAL CPM & WELL #	#3 80.97	#3 81.01	#3 81.54	#3 81.29	#14 77.52	#3 81.78	
CALC HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)	4.41	4.39	4.26	4.05	2.26	3.50	
CALC % EFF (LO/DPM*100)	84.03	83.97	84.03	83.85	80.14	84.06	
ENTER HI BG CPM & WELL #	#18 68	#4 61	#18 66	#1 67	#14 73	#4 57	
ENTER LO BG CPM & WELL #	#7 32	#7,15 37	#11,15 36	#9 30	#9 44	#20 26	
CALC HI/LO BG RATIO	2.125	1.649	1.833	2.233	1.659	2.192	
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	19AUG96 154980	20AUG96 153184	21AUG96 151408	22AUG96 149654	23AUG96 147919	24AUG96 146205	25AUG96 144510
ENTER HI CAL CPM & WELL #	#11 84.84	#11 84.68	#9 84.73	#11 84.81		#11 85.17	
ENTER LO CAL CPM & WELL #	#3 81.52	#3 80.89	#3 80.85	#3 81.16		#3 81.29	
CALC HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)	3.96	4.52	4.63	4.35		4.62	
CALC % EFF (LO/DPM*100)	83.96	84.00	83.99	83.89		84.06	
ENTER HI BG CPM & WELL #	#13 82	#18 63	#10 52	#13,14 54		#3 54	
ENTER LO BG CPM & WELL #	#7 29	#7 32	#7 21	#8,9 40		#7 28	
CALC HI/LO BG RATIO	2.828	1.969	2.476	1.350		1.929	

# GAMMA COUNTER QUALITY CONTROL LOG

LABORATORY TECHNOLOGIES, INC. 125I  
MULTI-CALIBRATORS MULTILOG LOT: I9605YS  
COUNT FOR 1.2 MINUTES

EXPIRES: 29 DEC 96

	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	26AUG96 142836	27AUG96 141180	28AUG96 139544	29AUG96 137927	30AUG96 136328	31AUG96 134748	1SEP96 133186
ENTER HI CAL CPM & WELL #	#5 84.85	#11 85.05	#11 85.04	#15 84.90	#10 84.64	#14 84.97	
ENTER LO CAL CPM & WELL #	#3 81.41	#3 80.98	#3 81.44	#3 81.14	#3 81.18	#3 81.99	
CALC HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)	4.09	4.85	4.29	4.48	4.12	3.55	
CALC % EFF (LO/DPM*100)	84.03	84.12	84.03	84.04	83.96	84.09	
ENTER HI BG CPM & WELL #	#4 59	#14, 16, 20 53	#2 58	#13 67	#5 59	#4, 8 52	
ENTER LO BG CPM & WELL #	#19 35	#11, 12 34	#3 36	#20 32	#15 25	#7 29	
CALC HI/LO BG RATIO	1.686	1.559	1.611	2.094	2.360	1.793	
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	2SEP96 131643	3SEP96 130117	4SEP96 128609	5SEP96 127119	6SEP96 125645	7SEP96 124189	8SEP96 122750
ENTER HI CAL CPM & WELL #							
ENTER LO CAL CPM & WELL #							
CALC HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)							
CALC % EFF (LO/DPM*100)							
ENTER HI BG CPM & WELL #							
ENTER LO BG CPM & WELL #							
CALC HI/LO BG RATIO							



**UDLUM MEASUREMENTS, INC.**  
POST OFFICE BOX 810 PH. 915-235-5494  
501 OAK STREET FAX NO. 915-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

Detector 44-3 Serial No. PR044475

Customer NEW ENGLAND PATHOLOGY SERVICES

Order #. 214948

Counter 3 Serial No. 39105

Counter Input Sensitivity 30 mV

Count Time cdm Distance Source to Detector Surface

Other \_\_\_\_\_

[illegible]

Signature Kenneth West

Date 9/22/95





# New England Pathology Services

2000 Andover Street, Suite 100, Andover, MA 01810-1000  
Tel: (508) 658-3600 Fax: (508) 658-3601

September 10, 1996

Licensing Assistance Section  
Nuclear Materials Regulating Branch  
U.S. Nuclear Regulatory Commission, Region 1  
476 Allendale Road  
King of Prussia, PA 19406-1415

RE: Termination of License and Decommissioning of facility - New England Pathology Services

Dear Sir:

We have decided to terminate our NRC license and request rapid decommissioning of our facility in order to sell this laboratory. We believe we have provided you with the appropriate material to rapidly accomplish the decommissioning. Please call Joseph Bergeron, M.D. or Heidi Thoday at (508) 658-3600 should you require any additional information.

Enclosed in this packet are

Page 1 - Cover Letter  
Page 2 - NRC Form 314  
Page 3 - Addendum to NRC Form 314  
Pages 4, 5 and 6 - Decontamination Procedures, Survey Meter Procedure, Wipe Test Procedure, I-125 protocol, H3 Protocol and Monitoring Results  
Page 7 - 8 - Collection Locations for Wipe Tests (Table 1)  
Pages 9 - 10 - Wipe test data in dpm and cpm  
Pages 11 - 14 - Raw data for wipe tests for I-125  
Pages 15 - 17 - Raw data for wipe tests for tritium  
Page 18 - Certificate of Calibration of Survey Meter  
Page 19 - Gamma Counter Quality Control Log  
Page 20 - Calibration test of tritium counter  
Pages 21 - 22 - Survey meter data  
Pages 23 - 25 - Floor Plan with sites surveyed and wipe tested labeled by number  
Pages 26 - 27 - Letter from Bionomics listing facility names and licenses for incineration or disposal of waste.  
Pages 28 - 30 - Report of ground water testing for isotopes  
Pages 31 - 40 - Manifests for radioactive waste shipment for incineration and disposal

We believe that we are in compliance with regulations and that this facility does not have sufficient residual material to result in an unreasonable risk to the health and safety of the public. We request a written termination of Material License No. 20-20566-01 in accord with request of the company purchasing the lab.

Sincerely,

Joseph C. Bergeron, M.D.  
President

cc: Division of Fuel Cycle Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

JCB/hit  
PLD/12  
5327  
decom

# GAMMA COUNTER QUALITY CONTROL LOG

LABORATORY TECHNOLOGIES, INC. 125I  
MULTI-CALIBRATORS MULTILOG LOT: I9605YS  
COUNT FOR 1.2 MINUTES

EXPIRES: 29 DEC 96

	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	26AUG96 142836	27AUG96 141180	28AUG96 139544	29AUG96 137927	30AUG96 136328	31AUG96 134748	1SEP96 133186
ENTER HI CAL CPM & WELL #	#5 84.85	#11 85.05	#11 85.04	#15 84.90	#10 84.64	#14 84.97	
ENTER LO CAL CPM & WELL #	#3 81.41	#3 80.98	#3 81.44	#3 81.14	#3 81.18	#3 81.99	
CALC HI-LO DIFF	N/A						→
CALC % DIFF (DIFF/LO CAL)	4.09	4.85	4.29	4.48	4.12	3.55	
CALC % EFF (LO/DPM*100)	84.03	84.12	84.03	84.04	83.96	84.09	
ENTER HI BG CPM & WELL #	#4 59	#14,16,20 53	#2 58	#13 67	#5 59	#4,8 52	
ENTER LO BG CPM & WELL #	#19 35	#11,12 34	#3 36	#20 32	#15 25	#7 29	
CALC HI/LO BG RATIO	1.686	1.559	1.611	2.094	2.360	1.793	
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	2SEP96 131643	3SEP96 130117	4SEP96 128609	5SEP96 127119	6SEP96 125645	7SEP96 124189	8SEP96 122750
ENTER HI CAL CPM & WELL #							
ENTER LO CAL CPM & WELL #							
CALC HI-LO DIFF	N/A						→
CALC % DIFF (DIFF/LO CAL)							
CALC % EFF (LO/DPM*100)							
ENTER HI BG CPM & WELL #							
ENTER LO BG CPM & WELL #							
CALC HI/LO BG RATIO							123669

MIL 10

OFFICIAL RECORD COPY



License No. 20-20566-01  
Docket No. 030-19421  
Control No. 123669

New England Pathology Services, Inc.  
250 Andover Street  
Wilmington, MA 01887

MEMO TO FILE

September 20, 1996

- Q1. Your letter on page 3 stated that liquid Iodine-125 waste and liquid tritium waste, prior to December 13, 1995, went into the laboratory drain to the sewer which at this site was a septic system. Please provide copies of the liquid radioactive waste disposal records which were required by 10 CFR 20.303 and then 10 CFR 20.2003. For your information, copies of the current 10 CFR 20 (see 10 CFR 20.2003) and Regulatory Guide Appendix X are attached.

ANSWER 1

On September 18, 1996, the licensee faxed conservatively estimated disposal data which indicated that the fractional amounts of the 10 CFR 20 App. B effluent limits disposed on a monthly basis were 4.8 and 0.0015 for Iodine-125 and tritium, respectively and that the fractional amounts of the 10 CFR 20 App. B sewer limits disposed on a monthly basis were 0.48 and 0.00015 for Iodine-125 and tritium, respectively; the data indicated that the maximum amount of Iodine-125 in the leach field as of September 1996 was approximately 0.5 millicurie.

- Q2. Your letter on page 3 stated that the septic system tanks were pumped monthly until 1995. Please identify who did the pumping and describe the specifics of disposition of the material removed by pumping.

ANSWER 2

The licensee's faxes on September 18, 1996 responded to this issue. The contractor transferred the pumped septage to a dumping station inputting to a municipal sewage treatment facility.

- Q3. Your letter on page 5 described your wipe test procedures. Sink drains were wiped by forcing a swab into the drain and wiping the area. Please describe how the sink traps were surveyed. If the inside of the sink traps were not sampled, please justify how your method provided results representative of contamination on the inside of pipes and plumbing.

Dr. J.C. Bergeron  
New England Pathology Services, Inc.

-2-

ANSWER 3

The licensee responded that only the sink drain in Bench H was used to dispose of radioactive liquid waste, that the trap was wiped, and that sample site data for that wipe, as submitted in their letter dated September 10, 1996 showed 21 dpm Iodine-125 and 46 dpm tritium.

- Q4. Your letter on page 18 provided a certificate of calibration for a Ludlum Model 3 survey meter with a Model 202-002 meter face (0 - 5K counts/minute) and with a Ludlum Model 44-3 detector probe attached. This certificate of calibration did not contain radiation calibration data. Please provide the last full radiation calibration record for the survey meter used to obtain the survey meter data (mRem/hr at 1 cm) on pages 21 and 22 of your letter.

ANSWER 4

Per M. Hooper in a telephone discussion on 09/17/96, the conversion from cpm to mr/hr was made by comparing survey data from one Ludlum survey reading out in both mr/hr and cpm to survey data from another Ludlum survey meter reading out in only cpm and this is how the mr/hr survey data in their survey report was generated; a survey was done with a Ludlum survey meter reading out in mr/hr and cpm but later it was discovered that this meter's calibration expired two weeks earlier on 08-16-96; then the survey was redone using the Ludlum survey meter which readout in cpm only.

A fax from the licensee on 09-20-96 provided Ludlum calibration data for Iodine-125 in cpm and a Ludlum-provided conversion factor from cpm to mr/hr. Based on this data, the question concerning calibration and measurement units has been explained.

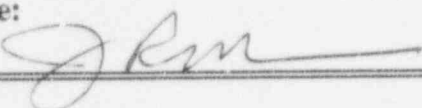
- Q5. Your letter on page 19 provided a gamma counter quality control log for a LTI Genesis gamma counter Model 5020. This log did not contain sufficient radiation calibration data. Please provide the last full radiation calibration record for the gamma counter used to obtain the Iodine-125 wipe test data on pages 9 and 10 of your letter.

ANSWER 5

Telephone discussions with the licensee and with Don Oesterlin of Laboratory Technologies on September 19, 1996 indicated that the counter calculates counting efficiency and displays the counting efficiency in the field labeled "enter hi cal cpm & well #"; the licensee's fax dated 09-20-96 provided information stating that the calibration source was NIST traceable.

O/C -  
Amount in field  
is 1/10th of  
less than  
5 mCi  
Khan  
9/20/96  
OFFICIAL RECORD COPY

JRM  
09-20-96

<b>TELEPHONE CONVERSATION RECORD</b>		<b>Date:</b> 09/17/96 and 09/19/96	<b>Time:</b>
<b>Mail Control No.:</b> 123669		<b>License No.:</b> 20-20566-01	<b>Docket No.:</b> 030-19421
<b>Person Called:</b> Joseph C. Bergeron, M.D., Pres.		<b>Organization:</b> New England Pathology Serv., Inc.	<b>Telephone Number:</b> 508- 658-3600
<b>Person Calling:</b> John R. McFadden			
<b>Subject:</b> License Termination Request			
<p><b>Summary:</b> 1) Faxes were received, and calculations for disposal of liquid radwaste to septic system were reviewed; this data is tentatively sufficient to disposition this issue. 2) Per licensee personnel, (Michelle) only sink drain in bench H was ever used for liquid radwaste disposal. 3) Per Dr. Bergeron, wipe test data submitted for this drain and others included swabbing the traps involved. 4) Per Dr. Bergeron, the septic tank was pumped monthly to extend the useful life of the leach field. 5) Per Dr. Bergeron, of the 3 test wells for which radioactivity measurements were provided, two were in the leach field itself and one was down gradient from the leach field location. 6) Per Michelle Hooper, Laboratory Technologies provides a turnkey system including the gamma counter, reference standard, and gamma counter quality control log; she transcribes instrument readout data to the log and is not aware of what calculations are performed by the instrument and could not explain how 81.41 cpm and 142,836 dpm converts to 84.03 % counting efficiency. 7) Per M. Hooper, a person at NRC explained how to convert cpm to mr/hr by comparing survey data from one Ludlum survey reading out in mr/hr and cpm to survey data from another Ludlum survey meter reading out in only cpm and this is how the mr/hr survey data in their survey report was generated; a survey was done with a Ludlum survey meter reading out in mr/hr and cpm but later it was discovered that this meter's calibration expired two weeks earlier on 08-16-96; then the survey was redone using the Ludlum survey meter which readout in cpm only. Dr. Bergeron 508/988-0505; Michelle Hooper 508/988-0456</p>			
<b>Action Required/Taken:</b> Licensee to fax additional information concerning survey meter calibration.			
<b>Signature:</b> 		<b>Date:</b> September 19, 1996	

License No. 20-20566-01  
Docket No. 030-19421  
Control No. 123669

Dr. Joseph C. Bergeron  
President  
New England Pathology Services, Inc.  
250 Andover Street  
Wilmington, MA 01887

Dear Dr. Bergeron:

This is in reference to your letter dated September 10, 1996 requesting termination of the above-referenced license.. In order to continue our review, we need the following additional information:

1. Your letter on page 3 stated that liquid Iodine-125 waste and liquid tritium waste, prior to December 13, 1995, went into the laboratory drain to the sewer which at this site was a septic system. Please provide copies of the liquid radioactive waste disposal records which were required by 10 CFR 20.303 and then 10 CFR 20.2003. For your information, copies of the current 10 CFR 20 (see 10 CFR 20.2003) and Regulatory Guide Appendix X are attached.
2. Your letter on page 3 stated that the septic system tanks were pumped monthly until 1995. Please identify who did the pumping and describe the specifics of disposition of the material removed by pumping.
3. Your letter on page 5 described your wipe test procedures. Sink drains were wiped by forcing a swab into the drain and wiping the area. Please describe how the sink traps were surveyed. If the inside of the sink traps were not sampled, please justify how your method provided results representative of contamination on the inside of pipes and plumbing.
4. Your letter on page 18 provided a certificate of calibration for a Ludlum Model 3 survey meter with a Model 202-002 meter face (0 - 5K counts/minute) and with a Ludlum Model 44-3 detector probe attached. This certificate of calibration did not contain radiation calibration data. Please provide the last full radiation calibration record for the survey meter used to obtain the survey meter data (mRem/hr at 1 cm) on pages 21 and 22 of your letter.

A typical calibration record for a survey instrument should include, as a minimum:

- a. The manufacturer and model number of the source used.

OFFICIAL RECORD COPY

ML 10

Deficiency Phone Call  
Licensee *JPM*  
to respond 9-17-96  
to this  
draft  
letter

- b. The nuclide and activity of the radioactive material contained in the source.
  - c. The accuracy of the source. Traceability of the source to a primary standard should be provided.
  - d. Data for a two-point calibration of each scale of use with the points separated by at least 50% of the scale.
  - e. A calculated and a measured reading for each calibration point. A point is considered calibrated if the measured exposure rate differs from the calculated exposure rate by not more than 20 percent. A correction chart or graph showing the correction factors deduced from the calibration data should be conspicuously attached to the instrument.
  - f. The apparent exposure rate from a dedicated check source as determined at the time of calibration. This data should be conspicuously noted on the instrument.
  - g. The date of calibration.
  - h. The name and signature of the person who performed the calibration.
4. Your letter on page 19 provided a gamma counter quality control log for a LTI Genesis gamma counter Model 5020. This log did not contain sufficient radiation calibration data. Please provide the last full radiation calibration record for the gamma counter used to obtain the Iodine-125 wipe test data on pages 9 and 10 of your letter.

A typical calibration record for a counting instrument should include, as a minimum:

- a. The manufacturer and model number of the source used.
- b. The nuclide and activity of the radioactive material contained in the source.
- c. The accuracy of the source. Traceability of the source to a primary standard should be provided.
- d. Counting data for background and for the reference source.
- e. A calculation for counting efficiency and for minimum detectable activity. The calibration data should be conspicuously noted on the instrument.
- f. The date of calibration.
- g. The name and signature of the person who performed the calibration.

Dr. J.C. Bergeron  
New England Pathology Services, Inc.

-3-

We will continue our review upon receipt of this information. Please reply in duplicate to my attention at the Region I Office and refer to Mail Control No. 123669. If you have any technical questions regarding this deficiency letter, please call John R. McFadden, Ph.D. at (610) 37-5257.

If we do not receive a reply from you within 30 calendar days from the date of this letter, we shall assume that you do not wish to pursue your application.

Sincerely,

John D. Kinneman, Chief  
Nuclear Materials Safety Branch 2  
Division of Nuclear Materials Safety

License No. 20-20566-01  
Docket No. 030-19421  
Control No. 123669

Enclosures:

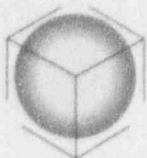
1. 10 CFR Part 20
2. Regulatory Guide Appendix X

DOCUMENT NAME: R:\WPS\DLTR\L2020566.01

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	C	DNMS/RI	N			
NAME	JMcFadden/jrm		JKinneman				
DATE	09/ /96		09/ /96		09/ /96		09/ /96





# New England Pathology Services

250 Andover Street, Wilmington, Massachusetts 01887 508-658-3600

September 10, 1996

030-19421

Licensing Assistance Section  
Nuclear Materials Regulating Branch  
U.S. Nuclear Regulatory Commission, Region 1  
476 Allendale Road  
King of Prussia, PA 19406-1415

RE: Termination of License and Decommissioning of facility - New England Pathology Services

Dear Sir:

We have decided to terminate our NRC license and request rapid decommissioning of our facility in order to sell this laboratory. We believe we have provided you with the appropriate material to rapidly accomplish the decommissioning. Please call Joseph Bergeron, M.D. or Heidi Thoday at (508) 658-3600 should you require any additional information.

Enclosed in this packet are

Page 1 - Cover Letter  
Page 2 - NRC Form 314  
Page 3 - Addendum to NRC Form 314  
Pages 4, 5 and 6 - Decontamination Procedures, Survey Meter Procedure, Wipe Test Procedure, I-125 protocol, H3 Protocol and Monitoring Results  
Page 7 - 8 - Collection Locations for Wipe Tests (Table 1)  
Pages 9 - 10 - Wipe test data in dpm and cpm  
Pages 11 - 14 - Raw data for wipe tests for I-125  
Pages 15 - 17 - Raw data for wipe tests for tritium  
Page 18 - Certificate of Calibration of Survey Meter  
Page 19 - Gamma Counter Quality Control Log  
Page 20 - Calibration test of tritium counter  
Pages 21 - 22 - Survey meter data  
Pages 23 - 25 - Floor Plan with sites surveyed and wipe tested labeled by number  
Pages 26 - 27 - Letter from Bionomics listing facility names and licenses for incineration or disposal of waste.  
Pages 28 - 30 - Report of ground water testing for isotopes  
Pages 31 - 40 - Manifests for radioactive waste shipment for incineration and disposal

We believe that we are in compliance with regulations and that this facility does not have sufficient residual material to result in an unreasonable risk to the health and safety of the public. We request a written termination of Material License No. 20-20566-01 in accord with request of the company purchasing the lab.

Sincerely,

Joseph C. Bergeron, M.D.  
President

cc: Division of Fuel Cycle Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

JCB/hlt  
PLD/12  
5327  
decom

OFFICIAL RECORD COPY

ML 10

SEP 11 1996

123669

<b>NRC FORM 316</b> (6-95) 10 CFR 30.26(c)(1)(iv) 10 CFR 40.42(c)(1)(iv) 10 CFR 70.38(c)(1)(iv)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>		<b>APPROVED BY OMB: NO. 3160-0028</b>		<b>EXPIRES: 08/30/98</b>	
<b>CERTIFICATE OF DISPOSITION OF MATERIALS</b>				<small>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 20 MINUTES. THIS SUBMETTAL 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 (T-4 P33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3160-0028), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503. AN AGENCY MAY NOT CONDUCT OR SPONSOR, AND A PERSON IS NOT REQUIRED TO RESPOND TO, A COLLECTION OF INFORMATION UNLESS IT DISPLAYS A CURRENTLY VALID DATA CONTROL NUMBER.</small>			
<b>INSTRUCTIONS: ALL ITEMS MUST BE COMPLETED - PRINT OR TYPE SEND THE COMPLETED CERTIFICATE TO THE NRC OFFICE SPECIFIED ON THE REVERSE</b>							
<b>LICENSEE NAME AND ADDRESS</b> NEW ENGLAND PATHOLOGY SERVICES 250 ANDOVER STREET WILMINGTON, MA 01887				<b>LICENSE NUMBER</b> 20-20566-01		<b>LICENSE EXPIRATION DATE</b> NOVEMBER 30, 1998	
<b>A. MATERIALS DATA</b> (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.)							
<input type="checkbox"/> 1. NO MATERIALS HAVE EVER BEEN PROCURED OR POSSESSED BY THE LICENSEE UNDER THIS LICENSE. OR							
<input checked="" type="checkbox"/> 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.							
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.							
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)							
SEE ADDENDUM ATTACHED							
<b>B. OTHER DATA</b>							
<input checked="" type="checkbox"/> 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)							
<input type="checkbox"/> NO (Attach explanation)							
<input checked="" type="checkbox"/> YES, THE RESULTS (Check one)							
<input checked="" type="checkbox"/> ARE ATTACHED, or							
<input type="checkbox"/> WERE FORWARDED TO NRC ON (Date)							
3. THE PERSON TO BE CONTACTED REGARDING THE INFORMATION PROVIDED ON THIS FORM				NAME JOSEPH C. BERGERON, M.D.		TELEPHONE NUMBER (Include Area Code) (508) 658-3600	
4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO NEW ENGLAND PATHOLOGY SERVICES 250 ANDOVER STREET, WILMINTON, MA 01887							
<b>CERTIFYING OFFICIAL</b>							
I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT							
PRINTED NAME AND TITLE JOSEPH C. BERGERON, M.D., PRESIDENT				SIGNATURE Joseph Bergeron (President)		DATE 9/5/96	
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 UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTIONS.							

SEP 11 1996

## Addendum to NRC Form 314

Solid Iodine-125 waste has been allowed to decay in storage. All I-125 waste that has not decayed in storage as of 9/5/96 has been packaged, labeled, manifested and transported by Bionomics Inc. of Kingston, Tenn. for incineration at Scientific Ecology Group in Oakbridge, Tenn. or Permafix in Gainesville, Florida and subsequent burial of ash at Barnwell, South Carolina. Liquid Iodine-125 waste and liquid tritium waste prior to 12/13/95 went into the laboratory drain to sewer which at this site was the septic system. The septic system tanks were pumped monthly until 1995. After 12/13/95 liquid Iodine-125 and tritium waste was accumulated in steel barrels and stored on site. Those steel barrels have been labeled, manifested and transported by Bionomics of Kingston, Tenn. for incineration of the liquid at Scientific Ecology Group, Oakridge, Tenn. and subsequent burial of the compressed barrels at Barnwell, South Carolina.

In conjunction with the termination of the nuclear testing and request for decommissioning of the facility, testing of groundwater for isotopes was conducted by an environmental testing firm. The ground water tested within regulatory standards. Appropriate pages from that report and our attorney's cover letter are attached.

## NEW ENGLAND PATHOLOGY SERVICES, INC.

Decontamination of site at:  
250 Andover Street  
Wilmington, Ma. 01887  
9/4/96

### Overview

New England Pathology Services (NEPS) is a regional Clinical Reference Laboratory serving the Hospital Laboratories of the New England States. NEPS does not compete with Laboratories but rather complements them by providing testing that is not routinely done in the Hospital setting. Of the 353 tests offered by NEPS 15 require the use of the radio-isotope I-125 and one requires the use of H-3 (tritium). Isotope testing constitutes about 3% of the total test volume.

NEPS occupies a 32000 sq. ft., 2 story building at 250 Andover Street, Wilmington, Ma. This is the only site at which Radioactive Testing (RIA) is performed. The RIA laboratory occupies approx. 2400 sq. ft. in the NE end of the second floor. This is the only area in which radioactive testing is conducted. Isotopes are also received on the loading dock (first floor) and transported to RIA via a dumb waiter. Also radioactive waste is stored for decay in the 2 walk-in refrigerators on the first floor.

Maximum activity on site never exceeds 5.0 mCi. of I-125 and 2.0 mCi. of H-3.

### Decontamination Procedures

NEPS ceased all RIA procedures on August 30, 1996 by sending these tests to other reference laboratories. All residual radioactive tracer in kits was disposed of into liquid waste containers. Absorbent bench coverings were removed and placed into solid waste receptacle. All floors, refrigerators, freezers, benches, shelves, window sills, sink drains and instruments in areas where isotope was used, stored or waste stored were thoroughly washed with detergent and dried. All solid and liquid radioactive waste was removed from site by; Bionomics, Inc. of Kingston, Tn., copy of manifest attached. All Radiation warning signs were removed.

### Monitoring Procedures

#### Area Survey Meter Procedure

All areas where isotope was used, stored or waste stored were surveyed. Also areas that could possibly be contaminated by RIA material passing through them or personnel frequenting these areas were also surveyed. These areas included; lavatories, cafeteria, clean room, loading dock, dumb waiter, courier area, roof, air conditioner and toxicology hoods. All floors, benches, shelves, refrigerators, freezers, storage areas, window sills, ceiling, air vents, sink drains, hoods, instruments, roof above RIA, Air Conditioner unit and roof air vent were surveyed. (See Table III)

A Ludlum Model 3 (ser #39105) survey meter was used with a model 44-3 (ser # Pro44475) probe.

For survey meter and probe calibration see attach. A

5

Acceptable Radioactivity:  
< 1.0 millirem/hr at 1 cm.

NOTE: Equivalent to < 1.0 millirad/hr at 1 cm for gamma emitters.

Wipe test procedures:

A total of 94 wipe test locations were selected (see table 1 and floor plans 1,2 3). Sites were selected to thoroughly saturate areas where isotopes were used or stored and to monitor other areas that had remote possibilities of contamination. All locations were tested by both the I-125 and H-3 protocols.

Any area that exceeds acceptable radioactivity levels/CPM (see acceptable limits for I-125 and H-3 protocols) were to be thoroughly decontaminated by washing area with "Count-Off" (Dupont) 10% solution, rinsed well with tap water, dried and retested by wipe test protocol.

I-125 protocol:

Using alcohol swabs, wipe an area approximately 4 x 4 inches ( 100 sq. cm). Place swab in labeled polypropylene tube and count on the Genesis gamma counter in the collect only mode for I-125.

The daily Background may be subtracted manually. Read and record each tube. Sink drains are wiped by forcing swab into drain and wiping area. This is likely to be representative of contamination on the inside of pipes and plumbing.

I-125 is measured in a 20 well LTI Genesis gamma counter ,Model 5020 ( ser# 571411)  
I-125 efficiency > 80% See Attach B for calibration data

Acceptable Radioactivity:

All corrected (background) cpm values must be < 240 cpm/100 sq. cm  
Equivalent to 300 dpm/100 sq. cm given a gamma counter efficiency of 80%.

Average cpm must be < 80 cpm/100 sq. cm.  
Equivalent to 100 dpm/100sq. cm given a gamma counter efficiency of 80%

H-3 protocol:

Using Kim wipe moistened with water, wipe an area approximately 4 x 4 inches ( 100 sq. cm). Place wipe in labeled Liquid scintillation tube add 7 ml Universol liquid scintillation cocktail (ICN Biomedical) and count on the Delta 300 beta counter.

The daily Background may be subtracted manually. Read and record each tube. Sink drains are wiped by forcing swab into drain and wiping area. This is likely to be representative of contamination on the inside of pipes and plumbing.

H-3 is measured on a Searle, Delta 300, model 6891 Liquid Scintillation Counter.  
H-3 efficiency is > 60%. See Attach C for calibration data

Acceptable Radioactivity:

All corrected (background) cpm values must be  $< 9000 \text{ CPM} / 100 \text{ sq. cm}$   
Equivalent to  $< 15000 \text{ dpm} / 100 \text{ sq cm}$  given beta counter efficiency of 60%

Average corrected cpm values must be  $< 3000 \text{ cpm} / 100 \text{ sq cm}$   
Equivalent to  $< 5000 \text{ dpm} / 100 \text{ sq cm}$

Monitoring Results

Survey Meter results

The radioactivity of all surfaces was less than  $0.4 \text{ millirem/hr}$  at  $1 \text{ cm}$   
The average surface activity was  $< 0.2 \text{ millirem/hr}$  at  $1 \text{ cm}$

Wipe test procedure results

Wipe test data is presented in table II. Actual raw count print outs from instruments are also attached.

I-125 wipe test results

Maximum cpm obtained was  $36 \text{ cpm} / 100 \text{ sq cm}$   
Average cpm obtained was  $7.455 \text{ cpm} / 100 \text{ sq. cm}$

Conclusion: Negligible I-125 contamination

H-3 wipe test results

Maximum cpm obtained was  $358 \text{ cpm} / 100 \text{ sq cm}$   
Average cpm obtained was  $42.39 \text{ cpm} / 100 \text{ sq cm}$

Conclusion: Negligible H-3 contamination



COLLECTION LOCATIONS FOR WIPE TESTS (TABLE 1)Sites in RIA Lab Area

- 1 - 11 Floor areas RIA Lab (see floor plan #1)
- 12 Bench A
- 13 Top shelf Bench A
- 14 Bench B
- 15 Top Shelf Bench B
- 16 Sink Drain in Bench C
- 17 Bench C
- 18 Sink Drain in Bench A
- 19 Sink Drain in Bench H
- 20 Bench H
- 21 Bench D
- 22 Top Shelf in Bench D
- 23 Bench E
- 24 Water Bath on Bench E
- 25 Bench F
- 26 Water Bath on Bench F
- 27 Bench G
- 28 Top shelf of Bench G
- 29 Bottom Shelf Refrigerator
- 30 Top shelf refrigerator
- 31 Floor Waste storage closet
- 32 Air vent Waste store closet
- 33 Bottom Shelf Freezer
- 34 Top shelf freezer
- 35-40 Window sills RIA lab
- 41-43 Air Vents RIA Ceiling
- 44 Quantum Instrument
- 45 Gamma Counter
- 46 Inside Beta Counter #1
- 47 Outside Beta Counter #1
- 48 Inside Beta Counter #2
- 49 Outside Beta counter #2
- 50 Floor Ladies room
- 51 Sink Ladies room
- 52 floor mens room
- 53 sink Mens room
- 54 Bench I
- 55 Bench J
- 56 Top shelf Bench J
- 57 Bench K
- 58 Bench L
- 59 Inside Ultra Centrifuge #1
- 60 Inside Ultra Centrifuge #2
- 61 Desk office
- 62 Floor office

COLLECTION LOCATIONS FOR WIPE TESTS (TABLE 1)

Sites Outside Ria Lab Second Floor (see floor plan #2)

- 63 Floor of Dumb Waiter
- 64 Ceiling of Dumb Waiter
- 65 Floor Courier Area
- 66 Main Bench Courier Atea

Sites on Roof

- 67-68 Roof Above RIA
- 69-70 Air Cond Unit for Ria on roof
- 71 Air Vent Roof

Sites Outside Ria Lab Second Floor (see floor plan #2)

- 72 Accessioning Reception Bench
- 73 Inside Hood in Toxicology
- 74 Floor in front of tox hood
- 75 Floor in Solvent Waste room

Sites Outside Ria Lab First Floor (see floor plan #3)

- 76 Loading Dock Bench
- 77 Loading Dock Floor near dumb waiter
- 78 Loading dock floor middle
- 79 Walkin Refrigerator Back Floor (cage)
- 80 Walkin Refrigerator Floor Front
- 81 Walkin Refrigerator Ceiling
- 82 Walkin Refrigerator front of Blower unit
- 83 Floor outside Walkin Refrigerator
- 84 Floor Walkin #2
- 85 Inside Door Walkin #2
- 86 Floor corridor outside walkin area
- 87 Floor outside Walkin area
- 88 Floor Mens room
- 89 Sink Mens room
- 90 Floor Ladies Room
- 91 Sink Ladies Room
- 92 Floor Cafeteria
- 93 Floor Clean Room
- 94 Sink Clean Room



SITE	I-125	I-125	WIPE DATA.XLS-125	
	dpm	cpm	dpm	cpm
47	24	20	51	31
48	0	0	31	19
49	0	0	592	358
50	0	0	35	21
51	0	0	45	27
52	0	0	55	33
53	20	17	43	26
54	0	0	43	24
55	0	0	51	31
56	21	18	48	29
57	2	2	40	24
58	15	13	41	25
59	17	14	102	62
60	12	10	51	31
61	5	4	48	29
62	33	28	31	19
63	11	9	55	33
64	6	5	68	41
65	0	0	53	32
66	1	1	69	42
67	19	16	41	25
68	0	0	129	78
69	8	7	71	43
70	0	0	64	39
71	0	0	64	39
72	5	4	73	44
73	30	25	61	37
74	0	0	31	19
75	11	9	43	26
76	2	2	36	22
77	12	10	128	77
78	0	0	43	26
79	17	14	66	40
80	0	0	53	32
81	0	0	84	51
82	0	0	200	121
83	17	14	63	38
84	15	13	36	22
85	0	0	38	23
86	1	1	68	41
87	29	24	43	26
88	2	2	61	37
89	8	7	48	29
90	26	22	93	56
91	0	0	66	40
92	0	0	46	28
93	12	10	50	30
94	8	7	38	23
Average				
	8.936170213	8	70.19148936	42

ASSAY ID: CPM 125-I

ASSAY EDITED BY:  
DATE: SEP 04 96  
DISPLAY CURVE: NO  
SOURCE OF DATA: COUNT TRAY  
DESTINATION OF RESULTS: PTA

ON: JAN 22 93  
TIME RUN: 12:32 PM  
EDIT CURVE: NO

USER ID: LTI  
COUNT TIME: 0.50 MIN  
STORE CURVE: NO

USE STORED CURVE: NO  
USE TEMPLATE: NO  
TERMINATE ON GC CRASH: NO

FIRST CURVE:  
AUTO REPLACE OUTLIERS: NO  
PLOT L-J GC CHARTS: NO

SECOND CURVE:  
UPDATE TEMPLATE: NO  
UPDATE GC LOG: NO

FIRST PROTOCOL ID: CPM 125-I ISOTOPE: 125-I

PROTOCOL EDITED BY: LTI

ON: JAN 03 85 UNITS:

TUBE REPLICATIONS DOSE TUBE LOADING ORDER  
UNK 1 TEMPLATE RESPONSE LOWER LIMIT UPPER LIMIT NAME

SCREENING LEVELS  
LEVEL NAME VALUE  
1 -1.00

RESPONSE VARIABLE IS CPM  
TUBE CPM

#	CPM
1	10
2	8
3	0
4	0
5	4
6	3
7	0
8	5
9	0
10	16
11	2
12	2
13	3
14	0
15	1
16	0
17	6
18	3
19	0
20	4
21	0
22	14
23	16
24	3
25	16
26	0
27	0
28	2
29	9
30	16
31	6

Background

# 1-20

33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98

12  
10  
0  
18  
36  
0  
4  
5  
19  
4  
3  
6  
0  
0  
18  
10  
0  
0  
13  
7  
0  
0  
0  
6  
8  
0  
30  
7  
7  
6  
0  
20  
2  
13  
0  
4  
32  
6  
0  
0  
4  
12  
11  
18  
10  
0  
4  
0  
0  
23  
12  
9  
20  
0  
10  
0  
0  
0  
25  
0  
0  
0  
0  
0

Background

21

# 21-40

40

Background





164	13
165	0
166	7
167	20
168	0
169	0
170	0
171	0
172	4
173	0
174	7
175	0
176	6
177	2
178	5
179	14
180	0
181	0
182	0
183	14
184	10
185	0
186	1
187	24
188	2
189	7
190	21
191	0
192	0
193	10
194	7

Background

#81-94

# -3 WIPE CPM

15

141: 1.00  
36.0  
12 72.0  
0.527

140: 1.00  
14.0  
11 37.0  
0.376

139: 1.00  
21.0  
10 55.0  
0.381

138: 1.00  
18.0  
9 36.0  
0.473

137: 1.00  
15.0  
8 41.0  
0.463

136: 1.00  
24.0  
7 51.0  
0.476

135: 1.00  
15.0  
6 40.0  
0.375

134: 1.00  
21.0  
5 52.0  
0.403

133: 1.00  
26.0  
4 51.0  
0.545

132: 1.00  
12.0  
3 46.0  
0.256

131: 1.00  
22.0  
2 41.0  
0.536

130: 1.00  
10.0  
1 cpm 27.0  
Ratio 0.376

129: 1.00  
10.0  
Background 25.0  
0.400

154: 1.00  
10.0  
25 29.0  
0.344

153: 1.00  
14.0  
24 36.0  
0.366

152: 1.00  
17.0  
23 33.0  
0.515

151: 1.00  
5.0  
22 22.0  
0.227

150: 1.00  
11.0  
21 34.0  
0.323

149: 1.00  
16.0  
20 52.0  
0.307

148: 1.00  
11.0  
19 26.0  
0.392

147: 1.00  
10.0  
18 27.0  
0.370

146: 1.00  
11.0  
17 30.0  
0.366

145: 1.00  
10.0  
16 37.0  
0.270

144: 1.00  
15.0  
15 36.0  
0.416

143: 1.00  
76.0  
14 126.0  
0.603

142: 1.00  
25.0  
13 44.0  
0.566

167: 1.00  
16.0  
38 31.0  
0.516

166: 1.00  
43.0  
37 68.0  
0.632

165: 1.00  
29.0  
36 50.0  
0.580

164: 1.00  
27.0  
35 43.0  
0.627

163: 1.00  
11.0  
34 17.0  
0.647

162: 1.00  
3.0  
33 19.0  
0.157

161: 1.00  
11.0  
32 26.0  
0.392

160: 1.00  
15.0  
31 33.0  
0.454

159: 1.00  
45.0  
30 92.0  
0.489

158: 1.00  
60.0  
29 104.0  
0.576

157: 1.00  
11.0  
28 29.0  
0.379

156: 1.00  
19.0  
27 40.0  
0.475

155: 1.00  
10.0  
26 31.0  
0.322

160: 1.00  
6.0  
51 27.0  
0.222

179: 1.00  
6.0  
50 21.0  
0.285

178: 1.00  
242.0  
49 356.0  
0.675

177: 1.00  
5.0  
48 19.0  
0.263

176: 1.00  
16.0  
47 31.0  
0.516

175: 1.00  
6.0  
46 27.0  
0.296

174: 1.00  
6.0  
45 21.0  
0.285

173: 1.00  
12.0  
44 33.0  
0.363

172: 1.00  
14.0  
43 33.0  
0.424

171: 1.00  
6.0  
42 19.0  
0.315

170: 1.00  
10.0  
41 23.0  
0.434

169: 1.00  
42.0  
40 62.0  
0.677

168: 1.00  
27.0  
39 46.0  
0.566

193: 1.00  
28.0  
64 41.0  
0.682

192: 1.00  
11.0  
63 33.0  
0.333

191: 1.00  
5.0  
62 19.0  
0.263

190: 1.00  
10.0  
61 29.0  
0.344

189: 1.00  
16.0  
60 31.0  
0.516

188: 1.00  
32.0  
59 62.0  
0.516

187: 1.00  
3.0  
58 25.0  
0.120

186: 1.00  
11.0  
57 24.0  
0.458

185: 1.00  
11.0  
56 29.0  
0.379

184: 1.00  
14.0  
55 31.0  
0.451

183: 1.00  
12.0  
54 24.0  
0.500

182: 1.00  
7.0  
53 26.0  
0.269

181: 1.00  
14.0  
52 33.0  
0.424

206: 1.00  
37.0  
77 77.0  
0.460

205: 1.00  
6.0  
76 22.0  
0.272

204: 1.00  
8.0  
75 26.0  
0.307

203: 1.00  
4.0  
74 19.0  
0.210

202: 1.00  
14.0  
73 37.0  
0.378

201: 1.00  
10.0  
72 44.0  
0.227

200: 1.00  
17.0  
71 39.0  
0.435

199: 1.00  
16.0  
70 39.0  
0.410

198: 1.00  
17.0  
69 43.0  
0.395

197: 1.00  
47.0  
68 76.0  
0.602

196: 1.00  
5.0  
67 25.0  
0.200

195: 1.00  
20.0  
66 42.0  
0.476

194: 1.00  
12.0  
65 32.0  
0.375

220: 1.00  
91 9.0  
40.0  
0.225

219: 1.00  
1.0  
90 56.0  
0.321

218: 1.00  
16.0  
89 29.0  
0.620

217: 1.00  
14.0  
88 37.0  
0.376

216: 1.00  
6.0  
87 26.0  
0.307

215: 1.00  
8.0  
86 41.0  
0.195

214: 1.00  
11.0  
85 23.0  
0.476

213: 1.00  
6.0  
84 22.0  
0.272

212: 1.00  
17.0  
83 36.0  
0.447

211: 1.00  
85.0  
82 121.0  
0.702

210: 1.00  
22.0  
81 51.0  
0.431

209: 1.00  
7.0  
80 32.0  
0.216

208: 1.00  
16.0  
79 46.0  
0.400

207: 1.00  
10.0  
78 26.0  
0.384

223: 1.00  
6.0  
94 23.0  
0.266

222: 1.00  
10.0  
93 30.0  
0.333

221: 1.00  
12.0  
92 28.0  
0.428



Designer and Manufacturer  
of  
Scientific and Industrial  
Instruments

# CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

OFFICE BOX 810 PH. 915-235-5494  
501 OAK STREET FAX NO. 915-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER NEW ENGLAND PATHOLOGY SERVICES

ORDER NO. 214948

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 39105

Mfg. Ludlum Measurements, Inc. Model 44-3 Serial No. PRO44475

Cal. Date 09/22/95 Cal Due Date 09/22/96 Cal. Interval 1 Year Meterface 202-002

Check mark ☒ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 36 % Alt 715.8 mm Hg

☐ New Instrument ☐ Instrument Received ☐ Within Toler.  $\pm 10\%$  ☐ 10-20% ☐ Out of Tol. ☒ Requiring Repair

☒ Mechanical ck. ☒ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity

☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation ☒ Geotropism

☒ Audio ck. ☐ Alarm Setting ck. ☒ Batt. ck. (Min. Volt) 2.2 VDC

Instrument Volt Set 850 V Input Sens. 30 mV Det. Oper. 850 V at 30 mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

## COMMENTS:

ATTACHMENT A

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	400 K cpm	N/A	400
X 100	100 Kcpm		100
X 10	40 K cpm		400
X 10	10 K cpm		100
X 1	4 K cpm		400
X 1	1 K cpm		100
X 0.1	400 cpm		400
X 0.1	100 cpm		100

\*Uncertainty within  $\pm 10\%$  C.F. within  $\pm 20\%$

ALL Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			Log Scale		

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of MIL-STD-45662A and ANSI N323-1978. State of Texas Calibration License No. LO-1963

## Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879

☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☒ Other I-129 0.077uCi

☒ m 500 S/N 121025 ☐ Oscilloscope S/N ☒ Multimeter S/N A5099

Calibrated By: Ronald [Signature] Date 9/22/95

Reviewed By: [Signature] Date 9-23-95



# GAMMA COUNTER QUALITY CONTROL LOG

ATTACHED  
(15) 19

LABORATORY TECHNOLOGIES, INC. 125I  
MULTI-CALIBRATORS MULTILOG LOT: I9605YS  
COUNT FOR 1.2 MINUTES

EXPIRES: 29 DEC 96

	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	26AUG96 142836	27AUG96 141180	28AUG96 139544	29AUG96 137927	30AUG96 136328	31AUG96 134748	1SEP96 133186
ENTER HI CAL CPM & WELL #	#5 84.85	#11 85.05	#11 85.04	#15 84.90	#10 84.64	#14 84.97	
ENTER LO CAL CPM & WELL #	#3 81.41	#3 80.98	#3 81.44	#3 81.14	#3 81.18	#3 81.99	
CALC HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)	4.09	4.85	4.29	4.48	4.12	3.55	
CALC % EFF (LO/DPM*100)	84.03	84.12	84.03	84.04	83.96	84.09	
ENTER HI BG CPM & WELL #	#4 59	#14, 16, 20 53	#2 58	#13 67	#5 59	#4, 8 52	
ENTER LO BG CPM & WELL #	#19 35	#11, 12 34	#3 36	#20 32	#15 25	#7 29	
CALC HI/LO BG RATIO	1.686	1.559	1.611	2.094	2.360	1.793	
	MON	TUE	WED	THU	FRI	SAT	SUN
DATE DPM	2SEP96 131643	3SEP96 130117	4SEP96 128609	5SEP96 127119	6SEP96 125645	7SEP96 124189	8SEP96 122750
ENTER HI CAL CPM & WELL #							
ENTER LO CAL CPM & WELL #							
CALC % HI-LO DIFF	N/A						
CALC % DIFF (DIFF/LO CAL)							
CALC % EFF (LO/DPM*100)							
ENTER HI BG CPM & WELL #							
ENTER LO BG CPM & WELL #							
CALC HI/LO BG RATIO							



# FACTORY AUTHORIZED CALIBRATION TEST

(PREVENTIVE MAINTENANCE CHECK)

ATTACHMENT C

CUSTOMER: NE Pathology Lab

DATE: 8/9/96

WARRANTY ☐  
CONTRACT ☒

250 Andover St

CONTRACT NO AC11114B107/12

CITY: Milwaukee

STATE: ma

ZIP: 01887

Bernie Sanfield  
PERFORMING SERVICE ENGINEER (SIGNATURE)

Michelle Hogen  
CUSTOMER SIGNATURE

MODEL NUMBER

SERIAL NUMBER

SYSTEM

6891

33518

## 1. Electronics Chasis:

- ☒ Check all fans.
- ☒ Clean and reseal all connectors on PC boards as required.
- ☒ Check cables and connectors.

## Front Panels:

- ☒ Check all knobs, switches, and push buttons for ease of operation.
- ☒ Check displays, lamps, and LEDs for correct operation.
- ☒ Check switches and push buttons for correct electronic operation.

## 3. Printout (when included):

- ☒ Check for correct printout.
- ☒ Check readability of printout.
- ☒ Lubricate as required.
- ☐ Check local operation of printer.
- ☐ Check tape reader and cassette where used for proper operation.
- ☒ Check cables for signs of wear or abuse.

## 4. Mechanical:

- ☒ Check that printed sample number information corresponds to sample placement in conveyor.
- ☒ Check sample sensing information.
- ☒ Check for proper upper and lower limit operation.
- ☐ Check for sample bottoming in crystal (gamma).
- ☒ Check that sample goes into well properly (liquid).
- ☒ Check for proper indexing of the sample over the well.
- ☒ Check the external standard for proper operation (liquid).

- ☒ Check all limit/obstruction switches for proper operation.
- ☒ Lubricate gears, chains, shafts, as required.
- ☒ Check cables at PMTs.
- ☐ Check card reader where applicable.

## 5. (Gamma):

- ☐ \_\_\_\_\_ CPM Background in <sup>125</sup>I channel.
- ☐ \_\_\_\_\_ % <sup>125</sup>I Efficiency in <sup>125</sup>I channel.
- ☐ Check for correct peaking in window.
- ☐ Check for count rate deviation between channels \_\_\_\_\_ %.
- ☐ Check window closing on manual analyzers.
- ☐ Check reproducibility

## 6. (Liquid):

Background 19.5 CPM <sup>3H</sup>  
35.5 CPM <sup>14C</sup>  
Efficiency 60.5 % <sup>3H</sup>  
94.5 % <sup>14C</sup>  
Crosstalk <1 % <sup>3H</sup> in <sup>14C</sup>  
<10 % <sup>14C</sup> in <sup>3H</sup>

- ☒ Check for proper program operation.
- ☒ Check window operation on manual systems.
- ☒ Check reproducibility

## 7. Power Supply:

- ☒ Check and adjust all low voltage supplies for correct voltage and ripple.
- ☒ Check high voltage for voltage and ripple.
- ☒ Back-up batteries and charge circuits

## 8. ☒ Complete and Apply Calibration Label.

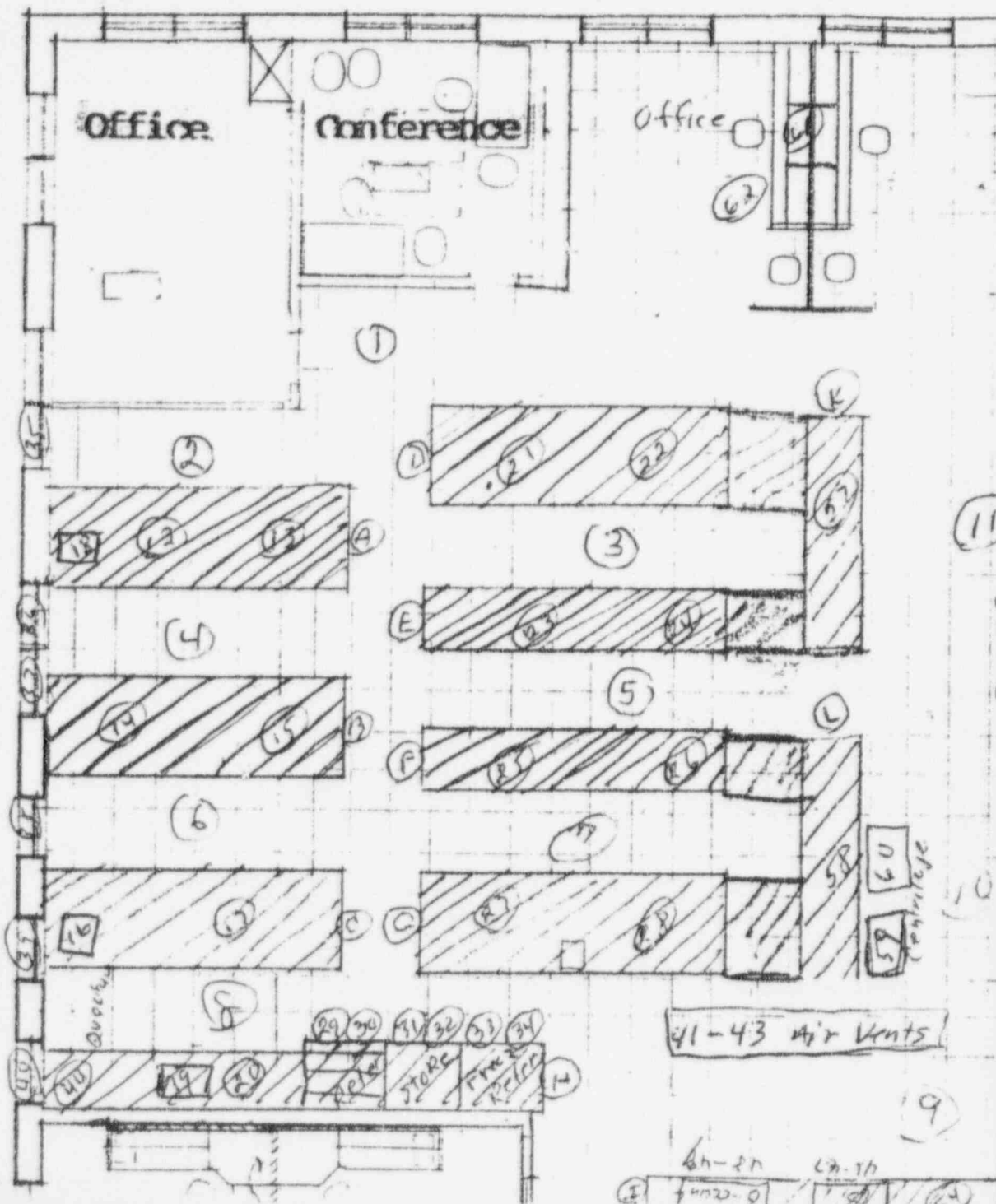
TABLE III: Survey Meter Data

SURVDATA.XLS

SITE	mRem/ hr at 1 cm
1	< 0.2
2	< 0.2
3	< 0.2
4	< 0.2
5	< 0.2
6	< 0.2
7	< 0.2
8	< 0.2
9	< 0.2
10	< 0.2
11	< 0.2
12	< 0.2
13	< 0.2
14	< 0.2
15	< 0.2
16	< 0.2
17	< 0.2
18	< 0.2
19	< 0.2
20	< 0.2
21	< 0.2
22	< 0.2
23	< 0.2
24	< 0.2
25	< 0.2
26	< 0.2
27	< 0.2
28	< 0.2
29	< 0.2
30	< 0.2
31	0.3
32	< 0.2
33	< 0.2
34	< 0.2
35	< 0.2
36	< 0.2
37	< 0.2
38	< 0.2
39	< 0.2
40	< 0.2
41	< 0.2
42	< 0.2
43	< 0.2
44	0.3
45	< 0.2
46	< 0.2

SITE	mRem/ hr at 1 cm
47	< 0.2
48	< 0.2
49	< 0.2
50	< 0.2
51	< 0.2
52	< 0.2
53	< 0.2
54	< 0.2
55	< 0.2
56	< 0.2
57	< 0.2
58	< 0.2
59	< 0.2
60	< 0.2
61	< 0.2
62	< 0.2
63	< 0.2
64	< 0.2
65	< 0.2
66	< 0.2
67	< 0.2
68	< 0.2
69	< 0.2
70	< 0.2
71	< 0.2
72	< 0.2
73	< 0.2
74	< 0.2
75	< 0.2
76	< 0.2
77	< 0.2
78	< 0.2
79	< 0.2
80	< 0.2
81	< 0.2
82	< 0.2
83	< 0.2
84	< 0.2
85	< 0.2
86	< 0.2
87	< 0.2
88	< 0.2
89	< 0.2
90	< 0.2
91	< 0.2
92	< 0.2
93	< 0.2
94	< 0.2
Average	< 0.2

FLOOR PLAN #,





Vestibule

ANSTEC  
APERTURE  
CARD

Also Available on  
Aperture Card

PROTEIN CHEM

Lab Area

50 Floor  
51 SUC

52 Floor  
53 SUC

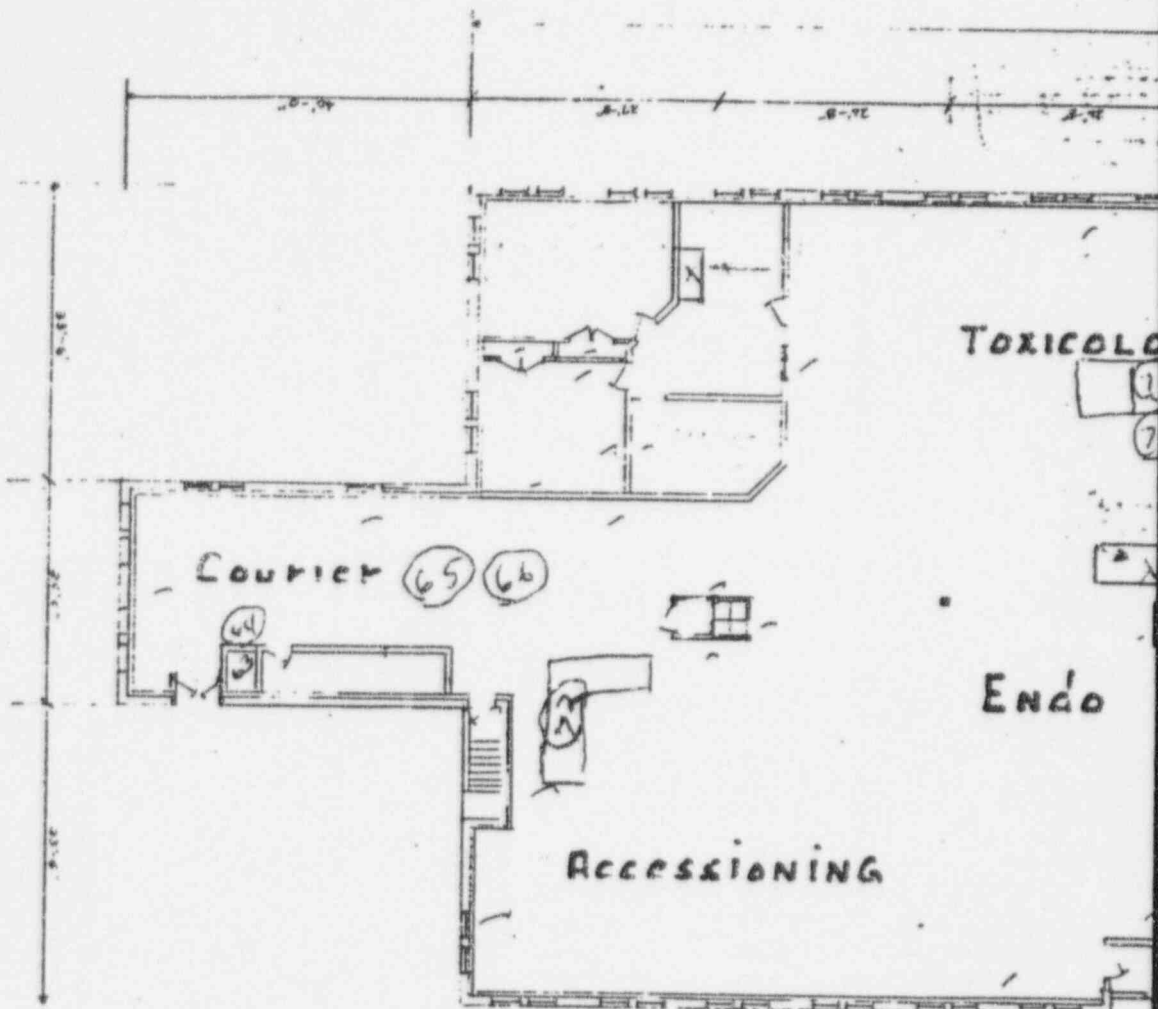
Sanitor Ladies Men

9610070380-01



# SECOND FLOOR

NE Building 1422  
Ltr 8 B  
3-28-68

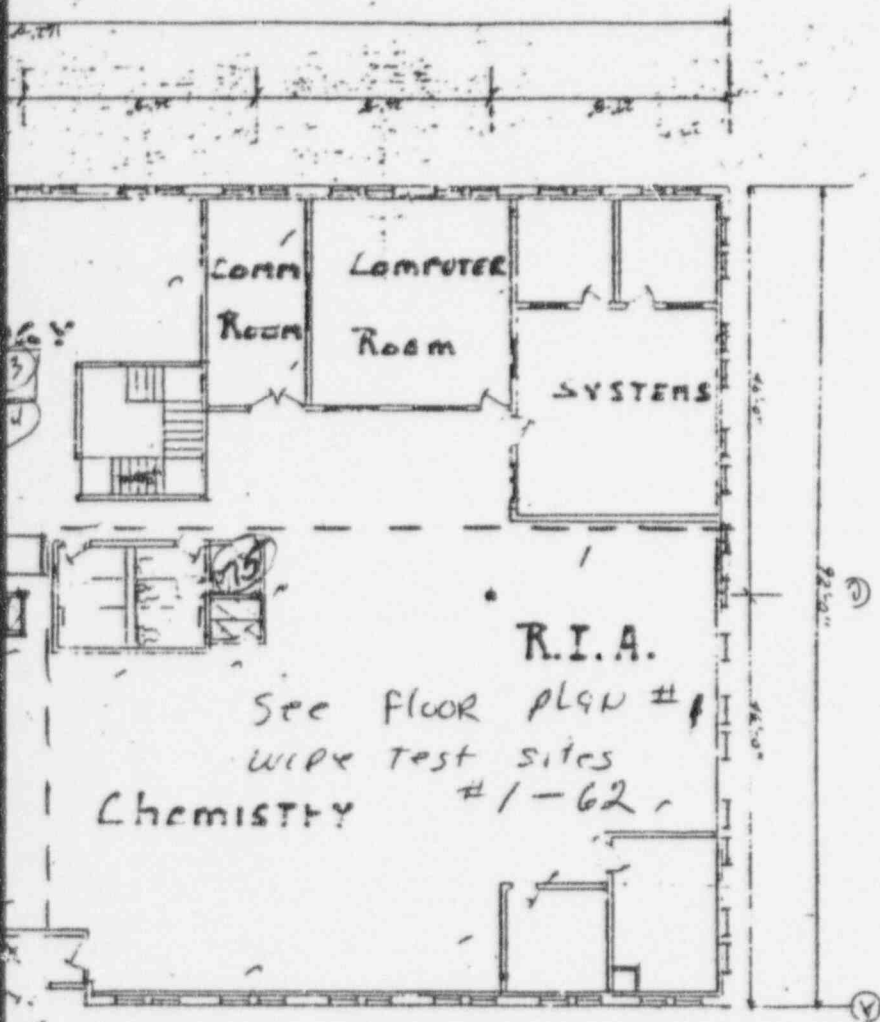


67-68 - R

69-70 - A

71 - A

# Floor Plan #2



ANSTEC  
APERTURE  
CARD

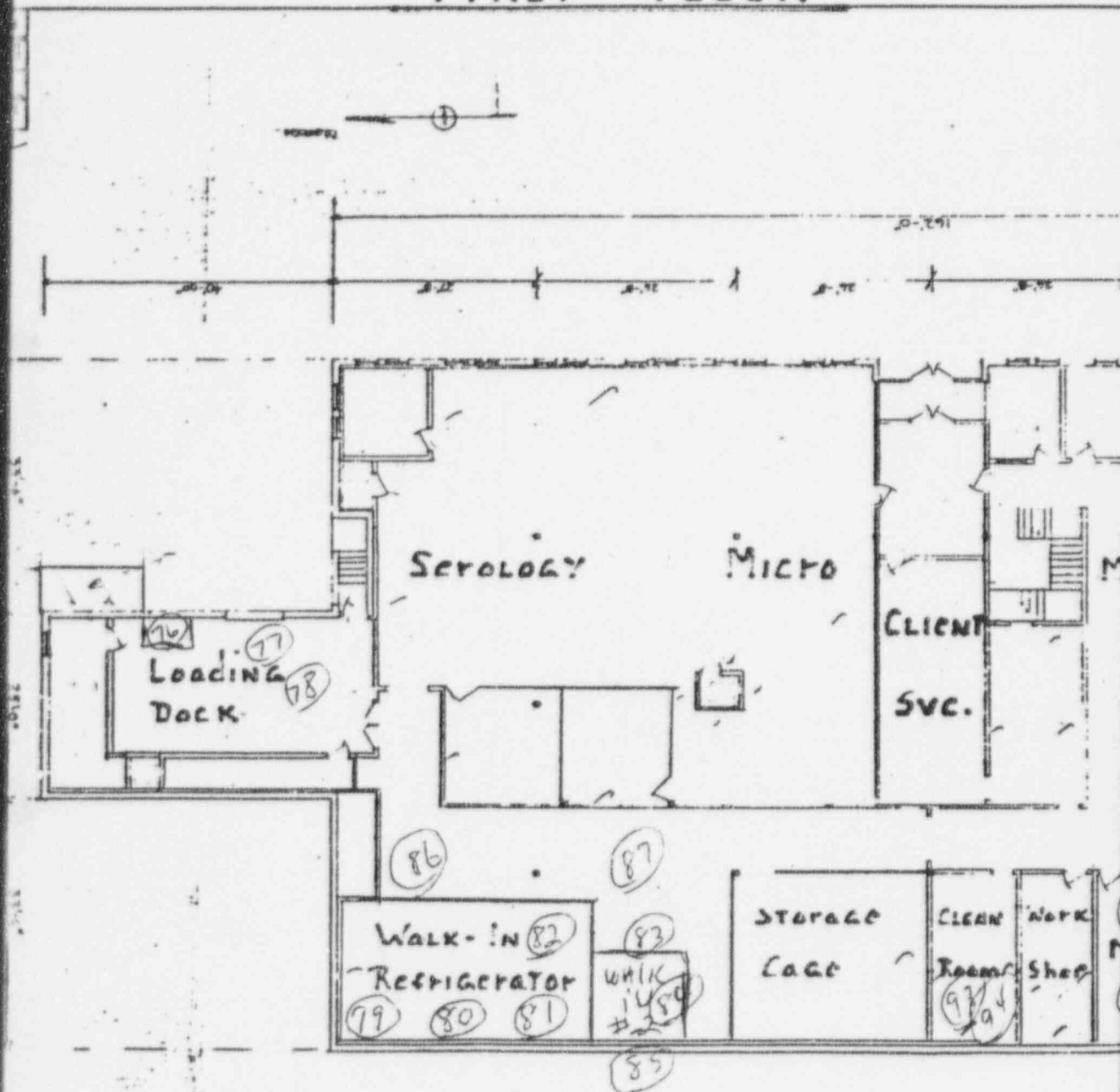
Also Available on  
Aperture Card

of  
IR card - (RIP) - Roof  
IR view - Roof

9610070380-02

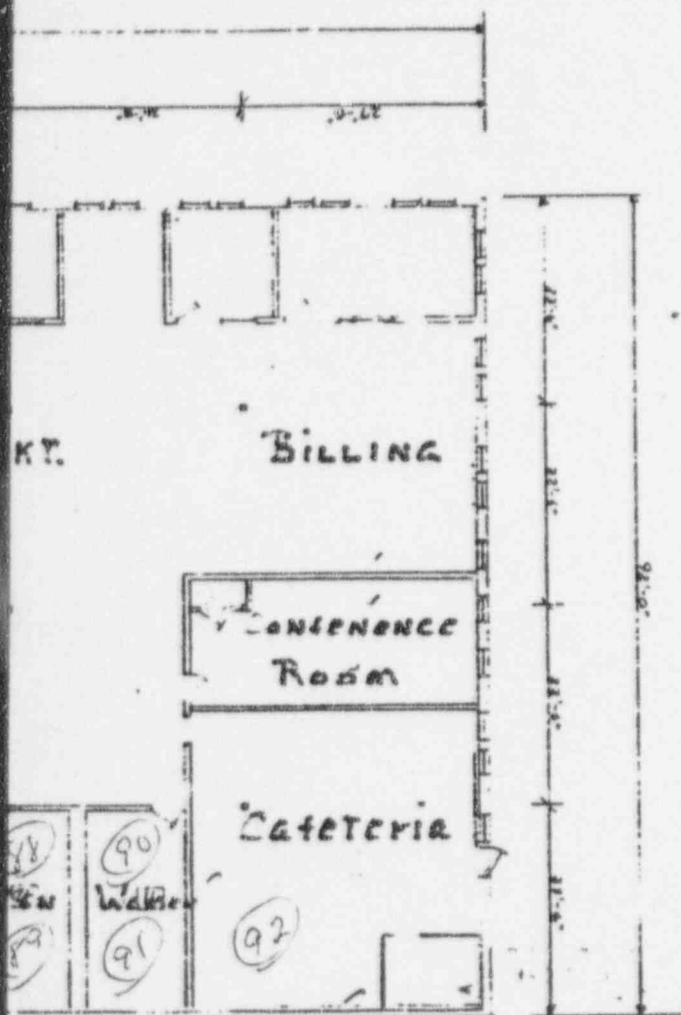
476

# FIRST FLOOR





FLOOR PLAN #3



ANSTEC  
APERTURE  
CARD

Also Available on  
Aperture Card

9610070380-03

251

26

*Bionomics,  
Inc.*

---

P.O. Box 817 — Kingston, TN 37763 — (423) 376-0053

9/5/96

Dr. Joseph Bergeron  
New England Pathology Services  
250 Andover  
Wilmington, MA

Dear Dr. Bergeron,

Following are the Licenses under which your material will be processed/disposed of.

Dry solids and aqueous liquids will be incinerated at Scientific Ecology Group, the resulting ash will be disposed at the Chem-Nuclear Barnwell Waste Management Facility.

The Cesium source will be packaged for disposal at Perma-Fix and then disposed of at Barnwell. The trash cans will be surveyed at Perma-Fix and recycled.

Scientific Ecology Group  
1560 Bear Creek Rd.  
Oak Ridge, TN. 37830

Applicable Licenses: State of Tennessee Radioactive Materials License - R-73008-H94  
South Carolina Waste Transport Permit - 0272-41-96 X

---

Perma-Fix  
1940N.W. 67th Place  
Gainesville, FL 32606

Applicable Licenses: State of Florida Radioactive Materials License - #2598-1

---

Bionomics, Inc.  
P.O. Box 817  
Kingston, TN 37763

Applicable Licenses: Tennessee License for Delivery - T-TTN006-L96  
South Carolina Waste Transport Permit - 0918-41-96 X

---

27

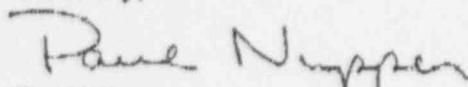
Chem-Nuclear Systems, Inc.  
P.O. Box 726  
Barnwell, SC 29812

Applicable License: State of South Carolina - #097 Amendment No. 46

---

Please do not hesitate to call if I can be of further assistance in this matter.

Sincerely,

  
Paul Nipper



28

**BURNS & LEVINSON LLP**

C o u n s e l l o r s   a t   L a w

125 Summer Street, Boston, MA 02110-1624  
Telephone 617-345-3000 Facsimile 617-345-3299

**BY TELECOPIER**

September 4, 1996

Joseph Bergeron  
New England Pathology Services,  
Inc.  
250 Andover Street  
Wilmington, MA 01887

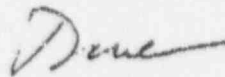
Re: Mayo - New England Pathology Services, Inc.

Dear Joe:

I have enclosed page 18 and Table 3 from GZA's Environmental Site Assessment report on the NEPS facility. These pages reference the groundwater sampling conducted on the radioactive material.

By overnight mail, I am enclosing a full copy of the GZA report for you to hold in the NEPS files and use as you see fit in the decommissioning application process.

Very truly yours,



David P. Rosenblatt

DPR/rs  
Enclosure  
cc: George E. Christodoulo, Esquire

### 8.60.2 Chemical Analyses

As discussed above, soil, groundwater, sink trap, and liquid radioactive waste drum samples were analyzed for various parameters. The methodology and results for each medium are described in the following subsections.

#### 8.60.2.1 Soils

**GZA**  
Based on the PID results, one soil sample GZ-4/S-2 (5'-7') was submitted for laboratory testing for 69 target VOCs by EPA Method 8260. The results indicated none of the target analyte VOCs were detected above method reporting limits. The lab data sheet's project narrative notes that the sample was collected in an 8-ounce glass jar with a metal lid. It should also note that the lid was teflon-lined and was packed with zero headspace, in accordance with standard GZA procedures.

#### 8.60.2.2 Groundwater

Groundwater samples from the three wells and a combination equipment/trip blank were analyzed for 69 Priority Pollutant VOCs by EPA Method 8260; 15 acid-extractable SVOCs by EPA Method 8270; dissolved metals (silver, lead, mercury and chromium) by EPA methodology; and for the radioactive isotopes, Iodine-125 and Tritium.

As shown on the laboratory data sheets and summarized on Table 2, of all the target analytes, only three VOCs were positively detected, all at very low levels. The measured concentrations of VOCs are not only well below the applicable MADEP reporting concentrations for GW-2 groundwater (refer to Table 2), but, as a base of reference, are also below both MADEP GW-1 reportable concentrations and EPA Drinking Water Standards, which are not applicable (refer to Section 3.20) to the Site.

Analysis of the groundwater for Iodine-125 and Tritium indicated Iodine-125 concentrations in the range of two to four orders of magnitude below regulatory (health protective drinking water) standards established by the NRC. Tritium levels in groundwater were at method detection limits which were in the range of four to five orders of magnitude below the same regulatory standards (see Table 3). Further, Iodine-125 and Tritium were detected at similar concentrations in the method blank, and were reported by Thermo NUtech personnel as being possibly due to cross-contamination from the co-analyzed drum sampler, in which I-125 and Tritium levels were much higher.

TABLE 3

SUMMARY OF RADIOACTIVITY LEVELS MEASURED IN  
GROUNDWATER SAMPLES

## NEW ENGLAND PATHOLOGY SERVICES - WILMINGTON, MASSACHUSETTS

ISOTOPE	REG. STD. <sup>(1)</sup> (uCi/ml)	CONCENTRATION (uCi/ml) <sup>(2)</sup>		
		GZ-1	GZ-2	GZ-4
Tritium	1.00E-03	9.02E-08	1.53E-07	7.40E-08
Iodine-125	2.00E-06	9.42E-10	2.62E-08	4.35E-08

## NOTES:

1. Samples collected on June 22, 1996.
2. Samples analyzed by Thermo NUtech-Richmond, CA.
3. Regulatory Standards are from Table 2, Column 2 (Water Effluent Concentrations) of Appendix B - Standards for Protection against Radiation (20 CFR 3 (based on ingestion).
4. Values listed are resultant values and do not include the +/- 2 sigma error.
5. Drum designations assigned by GZA on date of sampling (7/29/96); "GZ" samples are from on-site groundwater monitoring wells.
6. According to ThermoNUtech personnel, the values measured in the three GZ samples, and especially GZ-4, may be due to cross-contamination from the dr samples during the sample distillation process.

GAOBSESA031772.HDP\WILMING\TABLE-3.XLS

# BIONOMICS, INC.

# RADIOACTIVE

GENERATOR NAME NEW ENGLAND PATHOLOGY SERVICES  
 FACILITY SAME  
 ADDRESS 250 ANDOVER  
 CITY WILMINGTON STATE MA ZIP 01887  
 CONTACT DR. JOSEPH BERGERON PHONE 508 988-0505  
 EMERGENCY RESPONSE CONTACT 508 988-0505  
 DHEC PERMIT NUMBER T-TN006-L96

MANIFEST  
NEP

CARRIER:

☐ NAME                       
 ADDRESS                       
 CITY/ST/ZIP                       
 PHONE                     

## SHIPMENT TOTALS

TOTAL FOR EACH CLASS		PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172.101)	I.D. NUMBER	Reportable Quantity
NO. OF PACKAGES	WEIGHT (POUNDS)			
		Radioactive Material, excepted package-empty packaging., 7	UN 2910	
		Radioactive Material, L.S.A., n.o.s., 7	UN2912	
		Radioactive Material, S.C.O., 7	UN2913	
		Radioactive Material, excepted package-instruments or articles., 7	UN2910	
<u>54</u>	<u>4843</u>	Radioactive material, excepted package-limited quantity of material., 7	UN2910	<u>                    </u>
		Radioactive Material, n.o.s., 7	UN2982	
		Radioactive Material, special form, n.o.s., 7	UN2974	
		Waste Flammable Liquid n.o.s., (contains Toluene/Xylene), 3, PGII	UN1993	

☐ Hazardous Waste, See attached Hazardous Waste Manifest

WASTE DESCRIPTION PLASTIC, PAPER AND AQUEOUS LIQUIDS CHEMICAL FORM OXIDES

PHYSICAL FORM SOLID/LIQUID NUMBER AND TYPE OF CONTAINERS 45 X BOXES / 9 X DRUMS

FOR DETAILED INFORMATION ON EACH CONTAINER, SEE ATTACHED CONTINUATION SHEETS.

ACTIVITY (10 CFR 20.311) (Millicuries)						TOTAL S.N.M.	
ALL ISOTOPES	Tritium	C-14	Tc-99	I-129	SOURCE (pounds)	ISOTOPE	GRAMS
<u>0.6795</u>	<u>0.0630</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	U-233	<u>0</u>
						U-235	<u>0</u>
						Pu	<u>0</u>



## SHIPMENT MANIFEST

PAGE 1 OF 7

DOC. NUMBER

96-01

CONSIGNEE TO:

☒ SEG1560 Bear Creek Rd.  
Oak Ridge, TN 37831  
(423)481-0222☐ OTHER NAME:ADDRESS  
CITY/ST/ZIP  
PHONE☒ T.A.G. Transport619 West Rockwood Street  
Rockwood, TN 37854  
(423)354-6927☐ PERMA-FIX1940 NW 67TH PLACE  
GAINESVILLE, FL 32606  
(904)373-6066☐ DSSI657 GALLAHER ROAD  
KINGSTON, TN 37763  
(423)376-0084ANSTEC  
APERTURE  
CARD

## GENERATOR CERTIFICATION

"This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of transportation."

(PRESIDENT NEWLAND PATHOLOGICAL SERVICES)

DR. JOSEPH BERGERON

Printed / Typed Name

Signature

Date

9/5/96

## TRANSPORTER ACKNOWLEDGEMENT OF RECEIPT

GREG THORNTON

Printed / Typed Name

Signature

Date

9/5/96

- ☐ Yes. This vehicle is consigned "EXCLUSIVE USE". Loading and unloading must be accomplished by the consignor, consignee, or his designated agent.
- ☐ Yes. Instructions enclosed.

## BROKER

GREG THORNTON

Printed / Typed Name

Signature

Date

9/5/96

## FACILITY OWNER or OPERATOR ( Certification of Receipt)

Printed / Typed Name

Signature

Date

9610070380-04

GENERATOR NAME NEW ENGLAND PATHOLOGY SERVICES

BIONOMICS  
Continuation

PERMIT NUMBER:

(20) Item No.	(21) Radio- nuclide Each Container	(22) Percent of Activity or mci of Each Nuclide	(23) Activity Each Container (mci)	(24) Physical Form	(25) Chemical Form and Name & % of Chelating Agent	(26) DESCRIPTION	(27) Form Class	(28) Special Nuclear Material (grams)
AL1	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL2	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL3	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL4	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL5	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL6	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL7	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL8	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
AL9	I-125	0.0553	0.0555	LIQUID	OXIDE	AQUEOUS LIQUID	N/A	0
	H-3	0.002						
9			0.4985			PAGE TOTALS		0



Page 2 of 7ANSTEC  
APERTURE  
CARDAlso Available on  
Aperture Card

(29) Source Material (pounds)	DISPOSAL CONTAINER							(36) Labels / Markings Used	
	(30) Container Weight (pounds)	(31) Container Volume (cu. ft.)	(32) Container Type	(33) RADIATION LEVELS		(34) Contamination Container Surface (DPM/100cm2)			
				Container Surface [X] mr/hr [ ] R/hr	*(T1) 1 Meter (mr/hr)	Alpha	Beta- Gamma		
0	400	7.5	DRUM	0.02	—	<20	<1000	Radioactive-	LIMITED
									QUANTITY
								Radioactive-	LIMITED
0	400	7.5	DRUM	0.02	—	<20	<1000		QUANTITY
								Radioactive-	LIMITED
									QUANTITY
0	400	7.5	DRUM	0.02	—	<20	<1000	Radioactive-	LIMITED
									QUANTITY
								Radioactive-	LIMITED
0	400	7.5	DRUM	0.02	—	<20	<1000		QUANTITY
								Radioactive-	LIMITED
									QUANTITY
0	400	7.5	DRUM	0.02	—	<20	<1000	Radioactive-	LIMITED
									QUANTITY
								Radioactive-	LIMITED
0	400	7.5	DRUM	0.02	—	<20	<1000		QUANTITY
								Radioactive-	LIMITED
									QUANTITY
0	400	7.5	DRUM	0.02	—	<20	<1000	Radioactive-	LIMITED
									QUANTITY
								Radioactive-	LIMITED
0	400	7.5	DRUM	0.02	—	<20	<1000		QUANTITY
								Radioactive-	LIMITED
									QUANTITY
0	400	7.5	DRUM	0.02	—	<20	<1000	Radioactive-	LIMITED
									QUANTITY
0	67.5	67.5			N/A				

36-00

9610070380-05

304

GENERATOR NAME

NEW ENGLAND PATHOLOGY SERVICES

BIONOMIC

Continuation

PERMIT NUMBER:

(20) Item No.	(21) Radio- nuclide Each Container	(22) Percent of Activity or moi of Each Nuclide	(23) Activity Each Container (moi)	(24) Physical Form	(25) Chemical Form and Name & % of Chelating Agent	(26) WASTE DESCRIPTION	(27) Waste Form Class	(28) Special Nuclear Material (grams)
1	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
2	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
3	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
4	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
5	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
6	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
7	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
8	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
9	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
10	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
11	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
11			0.044			PAGE TOTALS		0

## DISPOSAL CONTAINER

DISPOSAL CONTAINER								ANSTEC APERTURE CARD  Also Available on Aperture Card		
(29) Source Material (pounds)	(30) Container Weight (pounds)	(31) Container Volume (cu. ft.)	(32) Container Type	(33) RADIATION LEVELS		(34) Contamination Container Surface (DPM/100cm <sup>2</sup> )				(35) Labels / Markings Used
				Container Surface [X] mR/hr [ ] R/hr	*(T1) 1 Meter (mR/hr)	Alpha	Beta- Gamma			
0	24	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	28	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	25	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	29	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	29	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	23	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	27	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	26	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	25	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	31	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	29	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.	
0	296	44			n/a					

ANSTEC  
APERTURE  
CARD  
Also Available on  
Aperture Card

9610070380-06



**BIONOMIO**  
Continuation

PERMIT NUMBER:

(20) Item No.	(21) Radio- nuclide Each Container	(22) Percent of Activity or mci of Each Nuclide	(23) Activity Each Container (mci)	(24) Physical Form	(25) Chemical Form and Name & % of Chelating Agent	(26) WASTE DESCRIPTION	(27) Waste Form Class	(28) Special Nuclear Material (grams)
12	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
13	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
14	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
15	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
16	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
17	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
18	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
19	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
20	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
21	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
22	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
11			0.044			PAGE TOTALS		0

(29) Source Material (pounds)	DISPOSAL CONTAINER								(36) Labels / Markings Used Also Available on Aperture Card
	(30) Container Weight (pounds)	(31) Container Volume (cu. ft.)	(32) Container Type	(33) RADIATION LEVELS		(34) Contamination Container Surface (DPM/100cm <sup>2</sup> )			
				Container Surface [X] mR/hr [ ] R/hr	*(T1) 1 Meter (mR/hr)	Alpha	Beta- Gamma		
0	30	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	31	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	28	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	38	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	29	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	27	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	24	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	29	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	31	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	28	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	30	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
0	325	44			n/a				

9610070380-07

34

GENERATOR NAME

NEW ENGLAND PATHOLOGY SERVICES

BIONOMIC

Continuation

PERMIT NUMBER:

(20) Item No.	(21) Radio- nuclide Each Container	(22) Percent of Activity or mci of Each Nuclide	(23) Activity Each Container (mci)	(24) Physical Form	(25) Chemical Form and Name & % of Chelating Agent	(26) WASTE DESCRIPTION	(27) Waste Form Class	(28) Specia Nuclea Material (grams)
23	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
24	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
25	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
26	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
27	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
28	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
29	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
30	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
31	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
32	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
33	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
11			0.044			PAGE TOTALS		0



(29) Source Material (pounds)	DISPOSAL CONTAINER							(36) Labels / Markings Used	
	(30) Container Weight (pounds)	(31) Container Volume (cu. ft.)	(32) Container Type	(33) RADIATION LEVELS		(34) Contamination Container Surface (DPM/100cm2)			
				Container Surface [X] mr/hr [ ] R/hr	*(T1) 1 Meter (mr/hr)	Alpha	Beta- Gamma		
0	32	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	25	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	26	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	30	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	27	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	23	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	20	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	30	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	28	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	24	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	28	4	Box	0.02	—	<220	<2000	Radioactive-	LTD. QTY.
0	29.3	44			n/a				

ANSTEC  
APERTURE  
CARD  
Also Available on  
Aperture Card

0110070380 08

ANSTEC  
APERTURE  
CARD  
Available on  
Aperture Card

9610070380-08

GENERATOR NAME NEW ENGLAND PATHOLOGY SERVICES

BIONOMIC  
Continuation

PERMIT NUMBER: \_\_\_\_\_

(20) Item No.	(21) Radio- nuclide Each Container	(22) Percent of Activity or mci of Each Nuclide	(23) Activity Each Container (mci)	(24) Physical Form	(25) Chemical Form and Name & % of Chelating Agent	(26) WASTE DESCRIPTION	(27) Waste Form Class	(28) Special Nuclear Material (grams)
34	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
35	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
36	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
37	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
38	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
39	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
40	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
41	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
42	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
43	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
44	I-125	0.003	0.004	Solid	Oxides	Lab Trash	n/a	0
	H-3	0.001						
11			0.044			PAGE TOTALS		0

NC.  
sheet

Use This Number On  
All Continuation Pages

MANIFEST DOC. NUMBER  
NEPS 96-01

Page 6 of 7

DISPOSAL CONTAINER

(29) Source Material (pounds)	(30) Container Weight (pounds)	(31) Container Volume (cu. ft.)	(32) Container Type	DISPOSAL CONTAINER						(36) Labels / Markings Used
				(33) RADIATION LEVELS			(34) Contamination			
				Container Surface [X] mR/hr [ ] R/hr	* (T1) 1 Meter ( mR/hr )	Container Surface (DPM/100cm2)				
						Alpha	Beta- Gamma			
0	30	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	27	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	26	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	25	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	31	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	25	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	25	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	29	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	25	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	36	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	26	4	Box	0.02	-	<220	<2000	Radioactive-	LTD. QTY.	
0	303	44			n/a					

9610070380-09

ANSI EC  
APERTURE  
CARD  
Also Available on  
Aperture Card

96



GENERATOR NAME 0 NEW ENGLAND PATHOLOGY SERVICES

**BIONOMICS**  
Continuation

PERMIT NUMBER: 0

[illegible]

[illegible]

9610070380-10

419



# BIONOMICS, INC.

# RADIOACTIVE

GENERATOR NAME NEW ENGLAND PATHOLOGY SERVICES  
 FACILITY SAME  
 ADDRESS 250 ANDOVER  
 CITY WILMINGTON STATE MA ZIP 01887  
 CONTACT DR. JOSEPH BERGERON PHONE 508 988-0505  
 EMERGENCY RESPONSE CONTACT 508-658-1111-3600 PHONE 508 988-0505  
 DHEC PERMIT NUMBER \_\_\_\_\_  
 TN PERMIT NUMBER T-TN006-L96

MANIFEST  
NE

CARRIER:

☐ NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/ST/ZIP \_\_\_\_\_

PHONE \_\_\_\_\_

## SHIPMENT TOTALS

TOTAL FOR EACH CLASS		PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172.101)	I.D. NUMBER	Reportable Quantity
NO. OF PACKAGES	WEIGHT (POUNDS)			
		Radioactive Material, excepted package-empty packaging., 7	UN 2910	
		Radioactive Material, L.S.A., n.o.s., 7	UN2912	
		Radioactive Material, S.C.O., 7	UN2913	
		Radioactive Material, excepted package-instruments or articles., 7	UN2910	
<u>17</u>	<u>820</u>	Radioactive material, excepted package-limited quantity of material., 7	UN2910	
		Radioactive Material, n.o.s., 7	UN2982	
		Radioactive Material, special form, n.o.s., 7	UN2974	
		Waste Flammable Liquid n.o.s., (contains:Toluene/Xylene),3, PGII	UN1993	

☐ Hazardous Waste, See attached Hazardous Waste Manifest

WASTE DESCRIPTION

SOURCE/PLASTIC

CHEMICAL

FORM OXIDES

PHYSICAL

FORM

SOLID

NUMBER AND TYPE  
OF CONTAINERS

5 GAL.  
1 X PAIL / 16 X 5.0 Cu.ft.  
PAIL

FOR DETAILED INFORMATION ON EACH CONTAINER, SEE ATTACHED CONTINUATION SHEETS.

## ACTIVITY (10 CFR 20.311) (Millicuries)

ALL ISOTOPES	Tritium	C-14	Tc-99	I-129	SOURCE (pounds)	TOTAL S.N.M.	
						ISOTOPE	GRAMS
<u>0.0481</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	U-233	<u>0</u>
						U-235	<u>0</u>
						Pu	<u>0</u>

## SHIPMENT MANIFEST

PAGE 1 OF 3

DOC. NUMBER

S-96-02

CONSIGNEE TO:

☐ SEG

1560 Bear Creek Rd.

Oak Ridge, TN 37831

(423)481-0222

☐ OTHER NAME:

ADDRESS

CITY/ST/ZIP

PHONE

☒ T.A.G. Transport

619 West Rockwood Street

Rockwood, TN 37854

(423)354-6927

☒ PERMA-FIX

1940 NW 67TH PLACE

GAINESVILLE, FL 32606

(904)373-6066

☐ DSSI

657 GALLAHER ROAD

KINGSTON, TN 37763

(423)376-0084

ANSTEC  
APERTURE  
CARDAlso Available on  
Aperture Card

## GENERATOR CERTIFICATION

"This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of transportation."

PRESIDENT NEW ENGLAND PATHOLOGY SERVICES

DR. JOSEPH BERGERON

Printed / Typed Name

Signature

Date

9/5/96

## TRANSPORTER ACKNOWLEDGEMENT OF RECEIPT

GREG THORNTON

Printed / Typed Name

Signature

Date

9/5/96

☐ Yes. This vehicle is consigned "EXCLUSIVE USE". Loading and unloading must be accomplished by the consignor, consignee, or his designated agent.

☐ Yes. Instructions enclosed.

## BROKER

GREG THORNTON

Printed / Typed Name

Signature

Date

9/5/96

## FACILITY OWNER or OPERATOR ( Certification of Receipt)

Printed / Typed Name

Signature

Date

9610070380-11

GENERATOR NAME 0 NEW ENGLAND PATHOLOGY SERVICES

BIONOMICS  
Continuation

PERMIT NUMBER: 0

(20) Item No.	(21) Radio- nuclide Each Container	(22) Percent of Activity or mci of Each Nuclide	(23) Activity Each Container (mci)	(24) Physical Form	(25) Chemical Form and Name & % of Chelating Agent	(26) WASTE DESCRIPTION	(27) Waste Form Class	(28) Special Nuclear Material (grams)
NEPI GPT ALT	CS137	0.0001	0.0001	Solid	Oxides	SEALED SOURCE	Au	0
P1	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P2	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P3	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P4	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P5	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P6	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P7	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P8	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P9	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P10	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P11	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P12	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P13	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
P14	I125	0.003	0.003	Solid	Oxides	PLASTIC	Au	0
0 15	GPT		0	GPT		PAGE TOTALS		0
			0.0421					



(29) Source Material (pounds)	DISPOSAL CONTAINER								(36) Labels / Markings Used
	(30) Container Weight (pounds)	(31) Container Volume (cu. ft.)	(32) Container Type	(33) RADIATION LEVELS			(34) Contamination		
				Container Surface [X] mr/hr [ ] R/hr	*(T1) 1 Meter (mr/hr)	Container Surface (DPM/100cm2)	Beta- Gamma		
0	20	0.68	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
								Radioactive-	
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02	-	<220	<2000	Radioactive-	LTD. QTY.
								Radioactive-	
0	50	5.0	PAIL	0.02					

GENERATOR NAME 0 NEW ENGLAND PATHOLOGY SERVICES

**BIONOMIC**  
Continuation

PERMIT NUMBER:

O

[illegible]



Page 3 of 3

[illegible]

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM  
AND  
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)  
INFORMATION FROM LTS

PROGRAM CODE: 02410  
STATUS CODE: 0  
FEE CATEGORY: 3P  
EXP. DATE: 20031130  
FEE COMMENTS:  
DECOM FIN ASSUR REQD: N

LICENSE FEE TRANSMITTAL

A. REGION

*I*

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: NEW ENGLAND PATHOLOGY SERV., INC.  
RECEIVED DATE: 960911  
DOCKET NO: 3019421  
CONTROL NO.: 123669  
LICENSE NO.: 20-20566-01  
ACTION TYPE: TERMINATION

2. FEE ATTACHED

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

3. COMMENTS

SIGNED *M. A. Perkins*  
DATE *9/14/96*

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE LOSS IS REQUIRED) *✓*

1. FEE CATEGORY AND AMOUNT: *3P*

**FEE EXEMPT**

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

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

3. OTHER -----

SIGNED  
DATE

RECEIVED BY LFDCB
<i>9/19/96</i>
<i>Aug 23</i>
<i>BB</i>
<i>9/19/96</i>