PAUL S. FRIEDMAN, M. D.
RADIOLOGY ASSOCIATES
SUITE 715
1422 CHESTNUT STREET
PHILADELPHIA, PA. 19102
LOCUST 4-2163

August 11, 1980

Mr. Michael Lamastra
Material Licensing Brandh
Division of Fuel Cycle and
Material Safety
United States Nuclear Regulatory
Commission
Washington, D. C. 20555

Re: Renewal of License
#37-00147-02

Dear Mr. Lamastra:

I am submitting copies of my license renewal. I trust it will be satisfactory.

Respectfully yours,

Paul S. Friedman

Paul S. Friedman, M. D.

PSF:eh

8512240377 851028
REG1 LIC30
37-00147-03 PDR

FORM NRC-313M (8-78) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION **APPLICATION FOR MATERIALS LICENSE – MEDICAL**	Approved: GAO R0557

INSTRUCTIONS – *Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to : Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.*

1.a. NAME AND MAILING ADDRESS OF APPLICANT *(institution, firm, clinic, physician, etc.)* INCLUDE ZIP CODE

Paul S. Friedman, M.D.
1422 Chestnut Street
Philadelphia, PA. 19102

TELEPHONE NO.: AREA CODE (215) 564 2163

1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED *(If different from 1.a.)* INCLUDE ZIP CODE

Same

RECEIVED

2. PERSON TO CONTACT REGARDING THIS APPLICATION

Paul S. Friedman, M.D.

TELEPHONE NO.: AREA CODE (215) 564 2163

3. THIS IS AN APPLICATION FOR: *(Check appropriate item)*

a. ☐ NEW LICENSE
b. ☐ AMENDMENT TO LICENSE NO.
c. ☒ RENEWAL OF LICENSE NO. 37-00147-02

4. INDIVIDUAL USERS *(Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)*

Paul S. Friedman, M.D.

5. RADIATION SAFETY OFFICER (RSO) *(Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)*

Paul S. Friedman, M.D.

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES		
10 CFR 35.100, SCHEDULE A, GROUP I		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP III		
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP VI		

ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM	X	20
PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES	X	10
PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA		
XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. *(Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)*

ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE
	DUPE 8009040098		[redacted]

INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

For Items 7 through 23, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the medical licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10.8 , Rev. _____ Date: Jan. 1979

7. MEDICAL ISOTOPES COMMITTEE N/A	**15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL** *(Check One)*
Names and Specialties Attached; and	Appendix G Rules Followed; or
Duties as in Appendix B; or *(Check One)*	X Equivalent Rules Attached
Equivalent Duties Attached	**16. EMERGENCY PROCEDURES** *(Check One)*
8. TRAINING AND EXPERIENCE	X Appendix H Procedures Followed; or
Supplements A & B Attached for Each Individual User; and Previously submitted	Equivalent Procedures Attached
Supplement A Attached for RSO.	**17. AREA SURVEY PROCEDURES** *(Check One)*
9. INSTRUMENTATION *(Check One)*	Appendix I Procedures Followed; or
Appendix C Form Attached; or	X Equivalent Procedures Attached
X List by Name and Model Number	**18. WASTE DISPOSAL** *(Check One)*
10. CALIBRATION OF INSTRUMENTS	Appendix J Form Attached; or
Appendix D Procedures Followed for Survey Instruments; or *(Check One)*	X Equivalent Information Attached
X Equivalent Procedures Attached; and	**19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS** *(Check One)*
Appendix D Procedures Followed for Dose Calibrator; or *(Check One)*	Appendix K Procedures Followed; or
X Equivalent Procedures Attached	X Equivalent Procedures Attached
11. FACILITIES AND EQUIPMENT	**20. THERAPEUTIC USE OF SEALED SOURCES** N/A
X Description and Diagram Attached	Detailed Information Attached; and
12. PERSONNEL TRAINING PROGRAM	Appendix L Procedures Followed; or *(Check One)*
X Description of Training Attached	Equivalent Procedures Attached
13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL	**21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon – 133)** N/A
X Detailed Information Attached	Detailed Information Attached
14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS *(Check One)*	**22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS** N/A
	Detailed Information Attached
X Appendix F Procedures Followed; or	**23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b**
Equivalent Procedures Attached	Detailed Information Attached

Item 8. Training and Experience

Training and experience of Dr. Paul S. Friedman, the sole individual user and radiation safety officer is on file with the Nuclear Regulatory Commission, in connection with license number 37-00147-02, renewal of which is being requested.

Item #8

Date: 3/11/80

04826

Form NRC-313M - Supplemental

Item 9. Instrumentation

A. Eon Corporation Mod. PSM-700 G-M Survey Meter (1)

Ranges: 0 to 0.5 mR/hr. to 0 to 50. mR/hr.

B. Nuclear Associates "Rad Cal II" Dose Calibrator (1)

C. Picker "Magnascanner III" rectilinear scanner, with multi-hole and flat field collimators (1)

Item #9

Date: 8/11/80

Item 10. Calibration of Instruments

A. Eon PSM-700 G-M Survey Meter

This instrument will be calibrated at minimum one year frequency, or following repairs, by our consultant physicist: Wayne A. Meyers, M.S.. Procedures followed and standard source employed during such calibrations are as described in the enclosed "consultant's statement" presented by Mr. Meyers.

Prior to each use of this instrument for survey work, and after each battery change, its response to the built-in check source will be determined. This response is determined by the consultant after each major calibration, and is listed both on the instrument and in his report.

B. Dose Calibrator

(1) Proper operation of this instrument will be checked prior to use in measuring patient doses at least once each day that studies are performed in this laboratory. Instrument response to each of the following standard sources will be determined at these times, and compared with the decay corrected activities of the standards. A record of deviation of calibrator reading at each test will be maintained. A variation greater than 5% will signal need for repair or re-calibration (by manufacturer's representative).

a. NEN Cat. 7517-7 Cobalt 57 Standard - 5.0 mCi., 3/1/'80

b. NEN Cat. NES 356 Cesium 137 Standard - 231. uCi., 2/22/'79

(2) A quarterly physical inspection for obvious damage will be made of the dose calibrator, at which time its response on all nuclide settings to the Cs-137 standard will be obtained and compared with that obtained at installation.

(3) Linearity test of the dose calibrator will be performed at quarterly intervals, using a dedicated vial or syringe containing Tc-99m in original quantity at least as great as the largest single dose measured during daily work. The procedure followed will be essentially that described in Appendix D (E), of Regulatory Guide 10.8. Assistance in performance of this test and interpretation of results will, if required, be obtained from our consultant.

(4) Tests for geometric variation of calibrator sensitivity are in progress and include measurement of variation of calibrator reading with volume of a dedicated vial (Tc-99m) and with differing volumes in all syringe sizes employed in daily work. Procedures being followed are essentially those covered in Appendix D (F) of the Regulatory Guide. This test will be repeated only following introduction of new vial sizes either for standards or for doses, or of new syringe sizes or types.

Encl: Consultant's Statement

Item #10

Date: 5/11/80

WAYNE A. MEYERS, M. S.
Radiological Physicist
J306 STENTON AVENUE
PHILADELPHIA, PA. 19118
(215) 247-0438

Re: Survey Meter Calibration

Calibration Date: _____

Dear Dr.

This report concerns calibration of radiation survey instrumentation at your facility, performed on the above date. Calibration is here defined as determination of accuracy of response as an exposure rate indicator (mR/hr.) to gamma radiation from Radium-226 standard source, under specified conditions of operation, with statements as to degree of deviation from true if such deviation cannot be corrected. The Ra-226 standard source(s) employed in this calibration are fully described in an enclosed consultant's statement, their activity content and gamma output having been certified by national laboratories as required by the Nuclear Regulatory Commission.

In general, the means by which accurately known exposure rates are achieved at centers of detectors of instruments under test (IUT) is through variation of source to chamber center distance. The mathematical relationships between distance and standard source outputs are also described in the above mentioned statement.

Determinations of instrument accuracy have been made at or near mid-scale on all ranges normally employed for survey work in your laboratory. For multi-range instruments in which a single calibration potentiometer has been provided, adjustment of this device is normally made at mid-scale of the X10 range, if required, to bring reading into agreement with the known standard source output exposure rate. On survey meters equipped with individual range potentiometers, each will be adjusted as required to achieve best accuracy at mid-scale on that range. Any such adjustments made during calibration are noted in the report.

In addition to mid-range accuracy determination, the calibration procedure also includes a minimum of two additional check points on each range. These are usually at 20 to 30% of full scale and at 70 to 80% F.S. and serve to establish linearity of response over the majority of the range. One exception to this may be made on the highest sensitivity range, where statistical variations of the meter reading at low end, combined with a background reading which is high relative to standard source output, make precise determination of accuracy impossible. It is noted that a background correction is applied to standard source output readings on these high sensitivity ranges, instrument background reading having been previously determined at site, with standard source(s) remote from the IUT and well shielded.

In accordance with NRC recommendation, deviation of your instrument readings from true exposure levels, at whatever fraction of full scale determined, will be expressed as a percentage of the full scale reading:

$$\% \text{ Deviation from True} = \frac{\text{IUT Exp. Rate - Actual Exp. Rate}}{\text{IUT Full Scale}} \times 100$$

Item # 10
Date 5/11/80

Standards Employed in Calibration of Survey Instrumentation

A. Ra-226 standard source #25-30-769, 2.6 Cm. active length, encapsulated in 1.0 mm. Pt-Ir.. Content of this source is specified as 24.5 mGm. Ra-226, ± 1% by the National Research Laboratories of Canada on Certificate #R-18791 dated May 13, 1955. Gamma output of this source, corrected for decay to February 1978 ($T_{\frac{1}{2}}$ = 1620 yrs.) is 18.97 mR/hr. at 1 meter, and is based on N.R.L. output measurement specified on Certificate #R-18791 to within ± ½%, also dated May 13, 1955.

This standard source, and others described in (B) below are tested at six month intervals for Radon leakage by the dry charcoal method. Continuing leak test results demonstrating individual source Radon leakage very much less than 0.001 uGm. Ra-226 equivalent for 24 hour seal-up are evidence of source capsule integrity and continuing validity of original source content and output evaluations.

In order to provide a wider range of exposure rates as required in calibration of lower G-M sensitivity ranges at reasonable distances from source to detector, the above standard has been provided with a cylindrical lead transport container with radial wall thickness of 4.2 Cm. plus inner brass lining. This lead thickness has been experimentally adjusted during machining to one tenth value layer (light to moderate filtration). When enclosed in this container, the standard source provides an exposure rate of 1.9 mR/hr. at 1 meter distance, with some increase in effective energy over the 820 keV effective of the bare source. Accuracy of the range resistors in the instrument employed in comparison of relative outputs during container construction is ± 1%. Estimated accuracy to which source output in lead container is known is thus ± 1.5%.

Distances from source to detector centers of instruments being calibrated are greater than 10 times major source dimension (2.6 Cm.). Under this condition, and in absence of nearby scattering objects, intensity of the gamma flux from this standard may reasonably be assumed to relate to distance as predicted by the inverse square relationship. Accordingly, distances required to achieve specific exposure rates as required for the calibration method described may be predicted from the following:

Std. Unshielded: $D = 435.545\ (E)^{-\frac{1}{2}}$ where E is desired mR/hr. and D is in Cm.

Std. Shielded: (1 T.V.L.) $D = 137.732\ (E)^{-\frac{1}{2}}$ units as above

B. Ra-226 Standard Source Array

In order to achieve exposure levels to 1000 mR/hr. as required in calibration of lower sensitivity ion chamber type and log scale G-M survey instruments, a planar array of Ra-226 sources is employed.

Calibrations requiring use of the source array are normally performed at my facility (Medical College of PA. & Hospital). Full description of sources in the array, and their certifications, are as follow:

Item #10

Date: 8/11/80

Standards Employed in Calibration of Survey Instrumentation

B. Ra-226 Standard Source Array (Cont.)

Source #21549, Cert. #20926, Content	15.02	mGm.,	corrected	to	Feb.,	1978
Source #21551, Cert. #20928, Content	14.95	mGm.,	"	"	"	"
Source #10-5 , Cert. #2878 , Content	9.45	mGm.,	"	"	"	"
Source #10-10, Cert. #2878 , Content	9.50	mGm.,	"	"	"	"
Source #10-11, Cert. #2878 , Content	9.46	mGm.,	"	"	"	"
Source #10-13, Cert. #2878 , Content	9.46	mGm.,	"	"	"	"
Total Content	67.84	mGm.				

These sources, plus the above described standard source #25-30-769, in close spaced planar array yield an exposure rate of 71.28 mR/hr. at 1 meter distance. Gamma outputs of the 10 and 15 mGm. sources are related to certified source contents through the gamma emission constant 7.71 R/mGm-hr. at 1 Cm., which corrects for absorption in the Radium salt and 1 mm. Pt-Ir. capsule walls.

Source Certificate #2878 was provided by the Canadian Radium and Uranium Corporation and is dated February 13, 1959. Certificates Nos. 20926 and 20928 were provided by the Measurement Laboratories of the Union Miniere Du Haut-Katanga and are dated March 11, 1963. Statements of source purity from the testing laboratories are also provided for all capsules.

Within the limits on source to chamber center distance imposed by presumption of inverse square validity, distances and resultant exposure levels for the planar array relate as follows:

Std. Array: $D = 844.27\ (E)^{-\frac{1}{2}}$ where E is exposure level, mR/hr. D is in Cm.

At the minimum distance to chamber center employed (26.7 Cm.) an exposure level of 1000. mR/hr. is achieved.

Wayne A. Meyers

A.B.R. Certified Radiologic Physicist

Item #10

Date: 8/4/80

NUCLEAR MEDICINE LABORATORY - PAUL [redacted]EDMAN, M.D.

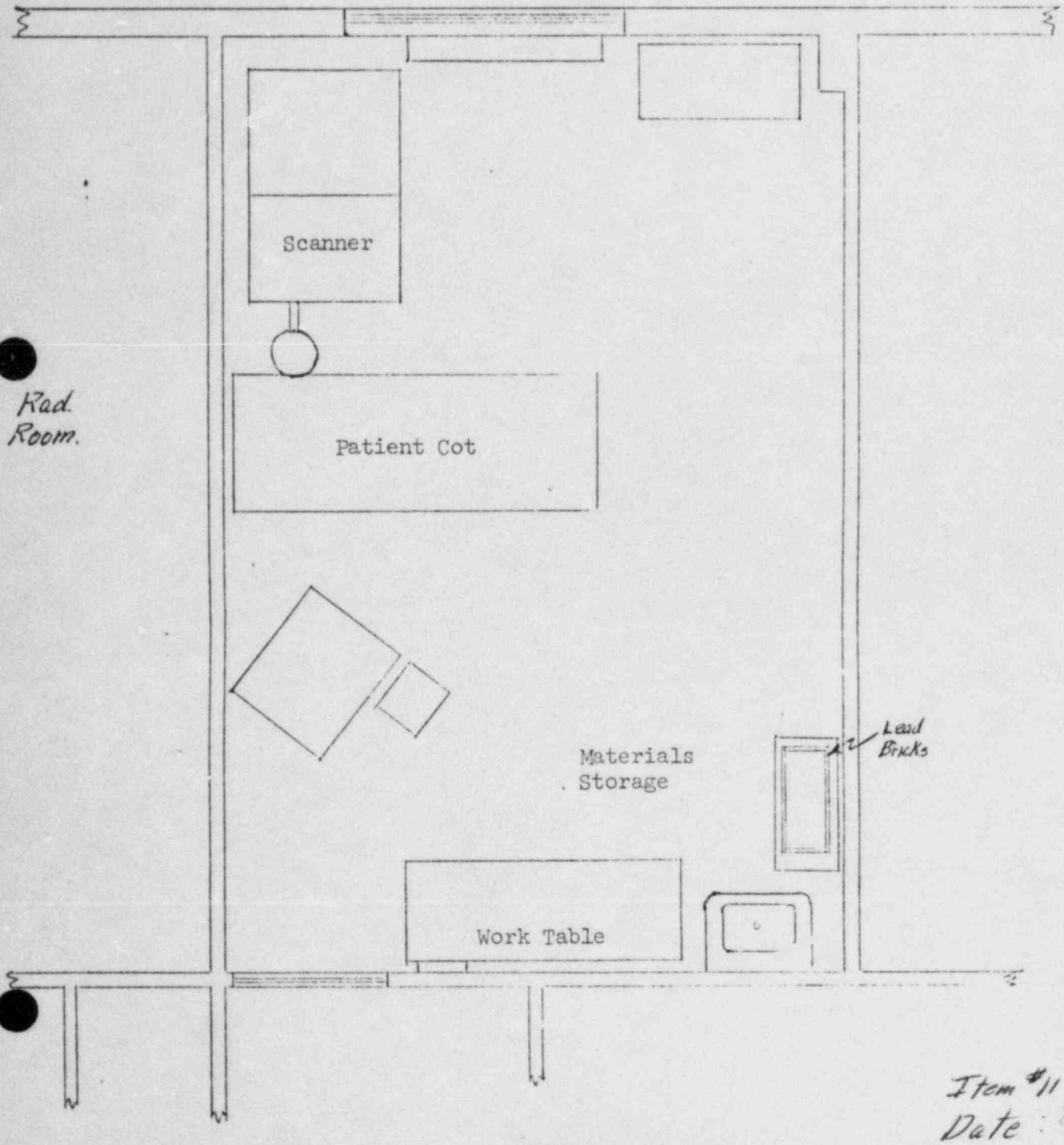
Suite 715, 1422 Chestnut St., Phila., PA.

Survey Date: _____, Survey by: _____, Survey Inst.: _____

Survey Sites (x), mR/hr. Wipe Sites (W_n) Wipe Assay Attached ___

Significant Findings:

Actions Taken:



Item #11
Date: 8/11/80

Form NRC-313M - Supplemental

Item 11. Facilities and Equipment

All storage and handling of radioactive materials takes place in one room of Radiology Suite 722, as are all imaging studies. Owing to the very limitied number of studies undertaken, and to use of single dose prepared shipments from Nuclear Pharmacy, a minimum of space and equipment is required for the program.

A plan view diagram of the nuclear medicine room is enclosed with this application. While a substantial lead brick enclosure is located within this room, it is normal practice to store single doses as shipped, within the syringe carriers provided.

Spent and unused single dose syringes are returned to Nuclear Pharmacy each time a new delivery is made. Included in this return, packed in plastic bags within the supplier's metal shipping boxes is any dry waste item (gloves, etc.) generated during the previous day. There is no discard of radioactive material to the sanitary sewer, and none is held at this site for decay and ultimate disposal in regular trash.

Syringe shields are provided and are used throughout all dose preparation and, whenever possible, during patient injections. The nuclear medicine room is restricted to occupancy by those involved in the studies done therein.

Encl: Nuclear Medicine Room Diagram

Item #11

Date: 8/11/80

Form NRC-313M - Supplemental

Item 12. Personnel Training Program

Nuclear medicine work, including ordering of materials, all handling of materials and performance of all imaging studies is done by one technologist, under direction of Dr. Friedman. This person has been instructed in proper handling techniques, use of survey instrumentation, performance of each specific procedure and in pertinant NRC regulations. He has been made aware of all conditions of the existing license and will be familiar with all conditions of this license as finally renewed. Services of a consultant radiologic physicist are available and the technologist is free to call on him as required, should there be questions regarding any aspects of the radiation safety program.

Housekeeping and janitorial personnel are restricted from entry into this section of the Radiology suite except when the nuclear medicine technologist is present. Instructions to these persons have been confined largely to explanation of the restricted nature of the region and to the importance of performing their work in that region only under the direct surveilance of the technologist.

It is anticipated there will be at least one visit annually by the consultant physicist during which internal quality control procedures, survey procedures, and general handling practices will be reviewed at site.

Item #12

Date: 5/11/80

Item 13 Procedures for Ordering and Receiving Radioactive Material

Due to the small size of this operation there are no standing orders for radioactive materials. Orders are placed only for future deliveries of specified quantities for specific studies already scheduled. All orders are placed by the nuclear medicine technologist, who is fully aware of the possession limits imposed by the license. As all unused material is returned promptly to the vendor (Nuclear Pharmacy) at their next delivery, no build-up of active materials in storage is expected, and inventory problems are virtually nonexistant.

Active materials are delivered directly to the nuclear medicine room by a representative of Nuclear Pharmacy, delivery being made only during working hours and by prior arrangement. No intermediaties, such as other employees in the building, are in any way involved with these deliveries.

Item #13

Date: 8/11/80

[redacted]

Form NRC-313M - Supplemental

Item 14. Procedures for Safely Opening Packages Containing Radioactive Materials

All materials are received pre-packaged, i.e., as specified doses of specified radiopharmaceutical, requiring a minimum of additional handling. Incoming ammo boxes employed by the vendor in transport of these materials are checked on receipt with a G-M survey meter both at surface and at 3 feet distance, with appropriate entries made on the package inspection form, a copy of which is enclosed with this application. Wipes for removable contamination on box surface are made for each delivery, and assayed with the 3" NaI probe on the scanner. There will be immediate notification of the vendor in event surface contamination exceeding 0.005 uCi. removable activity is found.

Encl: Package Opening Checklist

Item #14

Date: 8/11/80

RADIOACTIVE SHIPMENT RECEIPT REPORT

1. P.O.# _____ SURVEY DATE _____ TIME _____

   SURVEYOR _____

2. CONDITION OF PACKAGE:

   _____ O.K. _____ PUNCTURED _____ STATUS _____ WET

   _____ CRUSHED _____ OTHER _____

3. RADIATION UNITS OF LABEL: _____ UNITS (mR/hr)

4. MEASURED RADIATION LEVELS: a. Package surface _____ (mR/hr)

   b. 3' from surface _____ (mR/hr)

5. DO PACKING SLIP AND VIAL CONTENTS AGREE?

   a. Radionuclide _____ yes ,no Difference _____

   b. Amount _____ yes, no Difference _____

   c. Chem. form _____ yes, no Difference _____

6. WIPE RESULTS FROM: a. Outer _____ CPM = _____ DPM

   eff = ( )

7. b. Final source container ____ CPM = _____ DPM

   eff = ( )

8. SURVEY RESULTS OF PACKING MATERIAL AND CARTONS _____ mR/hr, CPM

9. DISPOSITION OF PACKAGE AFTER INSPECTION _____

10. IF NRC/CARRIER NOTIFICATION REQUIRED, GIVE TIME, DATE AND PERSONS NOTIFIED.

11. IF OBVIOUS PACKAGE DAMAGE OR EVIDENCE OF LEAKAGE (STAINING) NOTIFY:

Paul S. Friedman, MD

Paul S. Friedman, M.D.

Nuclear Pharmacy

Elfreth Alley Apothecary
31-33 North 2nd Street
Philadelphia, Pa. 19106

922-2226

Item #14
Date: 5/11/80

Form NRC-313M - Supplemental

Item 15. General Rules for Safe Use of Radioactive Material

Rules for safe use of radioactive materials are essentially as listed in Appendix G of Regulatory Guide 10.8. They are posted in the nuclear medicine room, and a copy is enclosed with this application.

Encl: as noted

Item #15

Date: 8/11/80

Paul S. Friedman, M.D.
Radiology Office Suite 715
1422 Chestnut Street
Philadelphia, PA. 19102

NRC License #37-00147-02

GENERAL LABORATORY RULES FOR SAFE USE OF RADIOACTIVE MATERIALS

1. Laboratory coats, or other protective clothing must be worn at all times during work in this laboratory.

2. Disposable gloves must be worn at all times during handling of radioactive materials.

3. Monitor hands and clothing for contamination after each procedure, or before leaving the room.

4. Syringe shield must be employed during preparation of patient doses and during administration of such doses, except when such use would compromise patient's well being or make such administration impossible or dangerous.

5. There must be no eating, drinking, or application of cosmetics in this nuclear medicine room.

6. Prior to administration of each patient dose, it must be assayed in the Rad Cal II dose calibrator. Do not employ any dose which differs by more than 10% from that prescribed.

7. Personnel monitoring body badge must be worn at all times you are present in this room. Badge should be worn face out, at chest or waist level.

8. A TLD finger badge must be worn during any preparation, assay, or injection of radiophramaceuticals.

9. All waste which is radioactive, or suspected of being radioactive, must be disposed of only into the Nuclear Pharmacy delivery can. Prior to placement of such waste, the can must be lined with a plastic bag.

10. Never pipette by mouth.

11. Radionuclide preparation and injection areas are to be surveyed after each procedure, or at the end of any day during which a procedure has been undertaken. Presence of surface activity in excess of G-M counter background indicates need for decontamination followed by re-survey.

12. All radioactive solutions must be confined in covered containers, plainly identified and labeled with name of compound, radionuclide, date, activity and radiation level, if applicable.

13. Transport of radioactive material within this room should be in shielded container, i.e., in Nuclear Pharmacy shipping container or with syringe shield in place.

Paul S. Friedman, M.D.
Radiation Safety Officer

Form NRC-313M - Supplemental

Item 16 Emergency Procedures

Emergency procedures currently posted in the nuclear medicine room are as set forth in Appendix H of Regulatory Guide 10.8.

Item #16

Date: 5/11/80

Item 17 Area Survey Procedures

(1) A brief survey will be made after each study, or at the end of each work day during which a study has been performed. This will be done with the PSM-700 G-M survey meter and will cover immediate work and imaging area, with particular attention to surfaces which may have been contaminated during preparation or injection. The PSM-700 will detect exposure levels as low as 0.1 mR/hr., background ranges between 0.02 and 0.05 mR/hr. with probe exposed.

Results of these surveys will not be detailed unless positive findings result (exposure levels in excess of 0.1 mR/hr. at several Cm. from suspect surfaces). Survey will be documented in a log book, indicating date and person surveying and "Negative".

(2) At least once each week during which at least one study has been performed, more complete area/stray radiation survey will be made, using the PSM-700. This will include general exposure levels within the room, at waist height, exposure levels above selected work surfaces and floor in all portions of the room where radioactive materials may have been employed and representative readings in adjacent unrestricted regions.

In addition to area survey with the G-M, this weekly survey will include wipes of selected work surfaces (approximately 100 $Cm.^2$ each) which will be assayed with the 3" NaI scintillation detector. Calibration of this instrument, for conversion of net C/Min. to microcuries removed will be made with the assistance of our physics consultant, for both I-131 and Tc-99m, the most likely contaminants for this laboratory.

This less frequent, more thorough survey will be documented directly on a plan view drawing of the room, as enclosed with this application. Exposure levels in excess of 0.1 to 0.2 mR/hr., or wipes yielding count rates indicative of presence of 0.001 uCi. or more of either Tc-99m or I-131 will be deemed significant, and actions taken to decontaminate or to improve shielding of temporarily stored radionuclides. Following decontamination, if required, additional wipes will be made as necessary to verify effectiveness of this action.

Item #17

Date: 8/11/80

1769

Item 18 Waste Disposal

All radioactive waste is returned to Nuclear Pharmacy by their authorized delivery people. At end of each work day during which any study has been performed, all contaminated materials are placed in plastic bag within the transport carrier employed by this company, as are any unused doses. These latter are contained within their shielding, as shipped. Transport box is surveyed prior to pick-up to assure radiation levels less than 10 mR/hr. at 3 feet and 200 mR/hr. at surface.

Nuclear Pharmacy, Inc.
P.O. Box 25141
Albuquerque, N.M. 87125 NRC Lic. # 37-18461-01 MD

Local supply and pick-up by:

Elfreth Alley Apothecary
31-33 North 2nd. Street
Philadelphia, PA. 19106

Item #18 04826
Date: 8/11/80

Item 19. Therapeutic Use of Radiopharmaceuticals

On rare occasions, patients may be treated for hyperthyroidism or for cardiac dysfunction with I-131 doses from 3 mCi. to 8 mCi.. Of necessity, these patients will be well enough to present at the office, and will be discharged to their homes immediately after receiving the dose and instructions.

All I-131 employed for these treatments will be obtained pre-calibrated and in capsule form. All doses will be assayed in the dose calibrator prior to administration and will not be given if 10% or more different from that prescribed and ordered.

Instructions to Patient:

(1) Avoid contact with children for at least first three days following treatment

(2) Flush toilet at least three times after each voiding

(3) When to return for further checks - whom to contact in event of difficulty.

See also Item #25.

Item #19

Date: 8/11/80

24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)			SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY		FILM	R.S. Landauer	Monthly
		TLD		
		OTHER (Specify)		
b. FINGER		FILM		
		TLD	R.S. Landauer	Monthly
		OTHER (Specify)		
c. WRIST		FILM		
		TLD		
		OTHER (Specify)		

d. OTHER (Specify)

25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL

MAILING ADDRESS

CITY | STATE | ZIP CODE

b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.

c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS

26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED *(See Section 170.31, 10 CFR 170)*

(1) LICENSE FEE CATEGORY: 7C

(2) LICENSE FEE ENCLOSED: $ Ref.: Control #97133

b. APPLICANT OR CERTIFYING OFFICIAL *(Signature)* Paul S. Friedman, M.D.

(1) NAME *(Type or Print)* Paul S. Friedman, M.D.

(2) TITLE

c. DATE 5/11/80

FORM NR[illegible]3M (8-78)