

NRC FORM 313M

(9-81)

10 CFR 35

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR MATERIALS LICENSE - MEDICAL

Approved by OMB

3150-0041

Expires 9-30-83

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 Radiation Safety Office (115) V.A. Medical Center 500 Foothill Drive Salt Lake City, UT 84148 TELEPHONE NO.: AREA CODE (801) 584 1266	1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED (If different from 1.a.) INCLUDE ZIP CODE V.A. Medical Center 500 Foothill Drive Salt Lake City, UT 84148
2. PERSON TO CONTACT REGARDING THIS APPLICATION Wesley W. Wooten, Ph.D. FTS: 588-1266 TELEPHONE NO.: AREA CODE (801) 584 1266	3. THIS IS AN APPLICATION FOR: (Check appropriate item) a. <input type="checkbox"/> NEW LICENSE b. <input checked="" type="checkbox"/> AMENDMENT TO LICENSE NO. 43-03299-01 c. <input type="checkbox"/> RENEWAL OF LICENSE NO.
4. INDIVIDUAL USERS (Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)	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.) Wesley W. Wooten, Ph.D.

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES			IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM		
10 CFR 35.100, SCHEDULE A, GROUP I		AS NEEDED	PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES		
10 CFR 35.100, SCHEDULE A, GROUP II		AS NEEDED	PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
10 CFR 35.100, SCHEDULE A, GROUP III			GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED	IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA		
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED	XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		
10 CFR 35.100, SCHEDULE A, GROUP VI					

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
8510240206 850926 REG4 LIC30 43-03299-01	PDR	FREE EXEMPT	15654

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: _____

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

24. PERSONNEL MONITORING DEVICES

	TYPE <small>(Check appropriate box)</small>	SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	FILM		
	TLD		
	OTHER <i>(Specify)</i>		
b. FINGER	FILM		
	TLD		
	OTHER <i>(Specify)</i>		
c. WRIST	FILM		
	TLD		
	OTHER <i>(Specify)</i>		

d. OTHER *(Specify)*

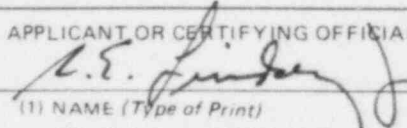
25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL			
NAME OF HOSPITAL		b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.	
MAILING ADDRESS			
CITY	STATE ZIP CODE		
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.

<p>a. LICENSE FEE REQUIRED <i>(See Section 170.31, 10 CFR 170)</i></p>	<p>b. APPLICANT OR CERTIFYING OFFICIAL <i>(Signature)</i></p> <div style="text-align: center;">  (1) NAME <i>(Type of Print)</i> R. E. LINDSEY, JR. </div>
<p>(1) LICENSE FEE CATEGORY: Exempt -- Federal Agency</p>	<p>(2) TITLE Medical Center Director</p>
<p>(2) LICENSE FEE ENCLOSED: \$ ---</p>	<p>c. DATE August 11, 1983</p>

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313M. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S)** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30-36 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES** The information may be used: (a) to provide records to State health departments for their information and use; and (b) to provide information to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for a NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you. A copy of the license issued will routinely be placed in the NRC's Public Document Room, 1717 H Street, N.W., Washington, D.C.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed.
5. **SYSTEM MANAGER(S) AND ADDRESS** Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

VETERANS ADMINISTRATION MEDICAL CENTER
Salt Lake City, Utah

MEMORANDUM 11.20

June 29, 1983

RADIATION SAFETY COMMITTEE

1. PURPOSE:

To update the duties, responsibilities and membership of the Radiation Safety Committee (formerly the Medical Isotopes/Radiation Safety Committee).

2. POLICY & PROCEDURES:

a. Responsibility -

1. Ensure that all individuals who work with or in the vicinity of radioactive material or other sources of ionizing radiation have sufficient training and experience to enable them to perform their duties safely and in accordance with regulations.
2. Ensure that all use of radioactive material or other sources of ionizing radiation is conducted in a safe manner and in accordance with NRC regulations, the conditions of the Byproduct Material License, and the Veterans Administration, Department of Medicine and Surgery Manual, M-2, Part XI, and Part XX.

b. Duties - The committee shall:

1. Be familiar with all pertinent regulations, the terms of the Byproduct Material License, and information submitted in support of the request for the license and its amendments.
2. Review the training and experience of all individuals who use radioactive material or other sources of ionizing radiation (including physicians, technologists, physicists, and pharmacists) and determine that their qualifications are sufficient to enable them to perform their duties safely and in accordance with regulations.
3. Ensure that all individuals whose duties may require them to work in the vicinity of radioactive material or other sources of ionizing radiation (e.g., nursing, security and housekeeping personnel) are properly instructed as required by section 19.12 of 10 CFR Part 19.
4. Review and approve all requests for use of radioactive material within the institution.
5. Prescribe special conditions that will be required during a proposed use of radioactive material or other sources of ionizing radiation such as requirements for bioassays, physical examination of users, and special monitoring procedures.

Item 7
Page 1
July 1983

5. REFERENCES:

M2, Part XI
M2, Part XX

6. RESCISSION:

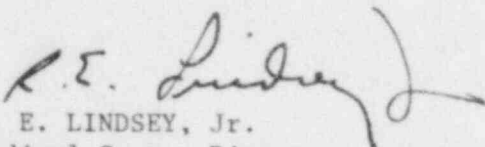
Memorandum 11.20 dated May 10, 1982

7. AUTOMATIC RESCISSION DATE:

July, 1985

8. FOLLOWUP RESPONSIBILITY:

Chief, Nuclear Medicine


R. E. LINDSEY, Jr.
Medical Center Director

DISTRIBUTION:

B-PS

PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIALS

- A. All requests for shipments of radioactive materials on Veterans Administration Form 2237 must first be submitted to the Radiation Safety Office for examination and approval.
- B. Supply will not place orders for radioactive material unless the order form has been approved by the Radiation Safety Office.
- C. The Radiation Safety Officer or his designee will verify that the user has been approved by the Radiation Safety Committee for the specific isotope and amount requested.
- D. All packages containing radioactive material will be delivered to the Radiation Safety Office. The Radiation Safety Office will survey each package as described in the attached "Procedures for Opening Packages Containing Radioactive Material."
- E. After recording the results of the survey, the Radiation Safety Office will forward the package to the user along with a "Radioactive Materials Use, Transfer and Disposal Log" for each item in the package.
- F. No packages, radioactive or otherwise, will be received by the Medical Center during off-duty hours. See attached bulletin from the Medical Center Director. Special arrangements may be made through the Chief or Assistant Chief of the Supply Service to receive packages on an individual basis during off-duty hours. If such an arrangement is made for a radioactive package, the Radiation Safety Office will arrange for a survey to be done on receipt and a copy of the survey will be kept in the Radiation Safety Office.

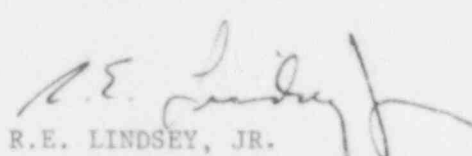
VETERANS ADMINISTRATION MEDICAL CENTER
SALT LAKE CITY, UTAH

BULLETIN (90)

August 1, 1983

RECEIPT OF SUPPLIES & EQUIPMENT

Personnel are reminded that all deliveries are to be made to the Warehouse in accordance with Medical Center Memorandum No. 90.5 dated April 1, 1983. Any vendor and/or delivery company attempting to make delivery at any locations other than the Warehouse are to be redirected there, or in the case of deliveries attempted after 4:00 p.m. on weekdays or any time on weekends, are to be directed to return the next business day. If individual situations warrant deliveries directly to using services or after hours, approval must be obtained in advance through the Chief or Assistant Chief, Supply Service.



R.E. LINDSEY, JR.
Medical Center Director

DISTRIBUTION: C



Veterans
Administration

Memorandum

To: Chief and Assistant Chief, Supply

Subj: Radioactive Packages During Off-Duty Hours

Date: August 10, 1983

Dear George and Gary:

I received a copy of Lindsey's bulletin Number 90 stating that there will be no packages received during off-duty hours except by special arrangement. Please be sure that if such a special arrangement is made for a radioactive package, my office is notified in advance. In such a case, please call at 1266 and leave a message for myself, Lee Blyle, or Ed Greenberg.

Thank you,

WESLEY W. WOOTEN,
Radiation Safety Officer

Item 13
Page 3
July 1983

VA FORM 2106
MAR 1980

Building _____
Room _____
Date Received _____

Investigator _____
Date of Order _____
Stock No. _____
Isotope & Form _____
Amount _____

Radioactive Materials Use, Transfer, and Disposal Log

Stock No.	Isotope & form	Quantity	Uses	User	Disposal Method	Disposal Date	Approved By:
Transfers			Transferee and License Number				
Date	Quantity						

PLEASE RETURN THIS FORM TO THE RADIATION SAFETY OFFICE (115) UPON DISPOSAL OF MATERIAL

Item 13
Page 4
July 1983

PROCEDURES FOR OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL

Category 1: Packages containing no more than 10 millicuries of radioactive material consisting solely of tritium, carbon-14, sulfur-35, or iodine-125.

Category 2: Packages containing only radionuclides with half lives of less than 30 days and a total quantity of no more than 100 mCi.

Category 3: All packages containing radioactive material, not included in categories 1 and 2.

The following steps must be performed in sequence, except those paragraphs marked with an * are not normally mandatory for categories 1 and 2.

1. Record the results of this survey on a "Radioactive Shipment Receipt Report".
2. Visually inspect the package for any sign of damage (e.g. wetness or crushed). If damage is noted, the wipe tests described in paragraphs 6 and 8 must be performed.
3. Measure exposure rate at 3 feet from the package surface and record.
4. Measure surface exposure rate and record.
5. Put on gloves.
- * 6. Wipe the outer package with a moistened cotton swab or filter paper held with forceps. Count the wipe in an appropriate instrument and record the results.
7. Open the outer package (following manufacturer's directions, if supplied), and remove packing slip. Open inner package to verify contents, (compare purchase order, packing slip and label on bottle. Check integrity of final source container, inspect for breakage of seals and vials, loss of liquid or discoloration of packing material. If there is any suspicion of damage, wipe outer package as described in paragraph 6, and the inner container as described in paragraph 8.
- * 8. Wipe external surface of final source container with moistened cotton swabs or filter paper held with forceps. Count the wipe with an appropriate instrument and record the results.
9. Carefully and thoroughly inspect all packing material and packages after the container has been removed.
10. Monitor the packing material and packages for contamination. If contaminated, treat as radioactive waste. If uncontaminated, obliterate radiation labels before discarding.
11. Fill in "Radioactive Material Use, Transfer and Disposal Log" for each item and deliver the log along with the item to the user.

Survey Date _____

Investigator _____

Time _____

Date of Order _____

Surveyed by _____

Stock No. _____

Received by _____

Isotope & Form _____

Amount _____

RADIOACTIVE SHIPMENT RECEIPT REPORT

1. CONDITION OF PACKAGE: O.K. _____ Wet _____ Crushed _____ Other _____

2. RADIATION LABEL: Contents _____ Activity _____

3. EXTERNAL EXPOSURE RATE

Survey instrument make _____

At 3 feet _____

model _____

At surface _____

serial no. _____

*4. WIPE TEST

Instrument make _____

efficiency _____

model _____

bkgnd (CPM) _____

serial no. _____

	wipe (CPM)	$\frac{\text{wipe} - \text{bkgnd}}{\sqrt{\text{bkgnd}}}$	(must be less than 3)
Outer package	_____	_____	
Inner container	_____	_____	

5. INSPECTION AND MONITORING OF PACKING MATERIAL (CONTENTS REMOVED):

O.K. _____

Contamination _____

Building _____

Investigator _____

Room _____

Date of Order _____

Date Received _____

Stock No. _____

Isotope & Form _____

Amount _____

Radioactive Materials Use, Transfer, and Disposal Log

Stock No.	Isotope & form	Quantity	Uses	User	Disposal Method	Disposal Date	Approved By:

Transfers

Transferee and License Number

Date

Quantity

PLEASE RETURN THIS FORM TO THE RADIATION SAFETY OFFICE (115) UPON DISPOSAL OF MATERIAL

Item 14
Page 3
July 1983

AREA SURVEY PROCEDURES

1. MONTHLY. All areas where radioactive materials are used or stored will be surveyed monthly by the radiation safety office. See attached form.
2. WEEKLY. Waste storage areas and areas where amounts greater than 200 uCi are used will be surveyed weekly by the personnel working in that area.
3. DAILY. All elution, preparation, and injection areas will be surveyed daily by the personnel working in that area. An appropriate low range survey meter will be used. The area will be decontaminated if exposure rates greater than 1 mR/hr are found. Where no abnormal exposures are found, only the date, the identification of the person performing the survey, and the survey results will be recorded.
4. The weekly and monthly surveys will consist of:
 - a. A measurement of radiation levels with a survey meter sufficiently sensitive to detect 0.1 mR/hr.
 - b. A series of wipe tests to measure removable contamination. The wipe tests will be counted by a method sufficiently sensitive to detect 200 DPM per 100 cm². Wipes from high background areas will be taken to a low background area for counting.
5. The permanent record of the weekly and monthly surveys will include
 - a. Identification of the survey meters and other detectors used, including the serial number and pertinent counting efficiencies.
 - b. Name of the person conducting the survey.
 - c. A drawing of the area surveyed showing storage areas, waste areas, work areas and other relevant features.
 - d. Measured exposure rates keyed to the drawing.
 - d. Wipe test results keyed to the drawing.
6. If the wipe test shows greater than 200 DPM per 100 cm² from an unrestricted area, or greater than 2000 DPM from a restricted area, personnel and others in the area will be notified and the area will be cleaned. A record of the corrective action, and wipe test results after the corrective action will be attached to the original survey record.

LABORATORY SURVEY RECORD

Date _____

Department _____ Building _____

Room(s) _____ Supervisor _____ Phone _____

1. Which radioisotopes are currently in use? _____
2. Are volatile radioactive compounds in use? Y / N Specify _____
3. Are radioactive liquids disposed of via the sink drain? Y / N
If yes, are authorizations and disposal records in order? Y / N
4. General radiation work procedures: Gloves? Y / N Lab Coats Y / N
Personnel Dosimeters? Y / N / NA Others _____
5. Are protective devices in use - Pipetting Devices? Y / N Trays? Y / N
Secondary Containers Y / N Absorbent Paper? Y / N Shielding? Y / N / NA
Audible Alarms? Y / N Hot Sink? Y / N / NA Fume Hoods? Y / N / NA
Other _____
6. Is radioisotope security observed - Lab Doors? Y / N Refrigerators?
Y / N / NA
7. Are eating, drinking, smoking, applying cosmetics or storage of food in any
area where radioactive material is used or stored? Y / N
8. Are required notices posted - NRC-3? Y / N Federal Document List?
Y / N Emergency Procedures Y / N
9. Are warning labels posted on - Lab Doors? Y / N Refrigerators? Y / N
Glassware? Y / N Storage Containers? Y / N Waste Containers? Y / N
10. Is an appropriate survey meter in the lab? Y / N Calibration Current?
Y / N
11. Are survey forms posted and used - Lab Survey? Y / N Personal Survey?
Y / N Weekly Surveys? Y / N / NA
12. Contamination survey results: (Designate locations on lab diagram)

<u>LOCATION</u>	<u>mR/hr</u>	<u>REMOVABLE DPM</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

13. Deficiencies or Comments: _____

Surveyed by _____



Veterans
Administration

Memorandum

To:

Date:

Subj.: Excess Removable Contamination

1. During our monthly survey conducted on _____, a dry smear was taken from the following location: Bldg. _____, Room _____, location _____.
2. The smear showed _____ CPM = _____ DPM. The background was _____ CPM.
3. Please change any absorbant paper in this area, scrub the area with water and detergent, and verify that removable contamination is no longer present.
4. Removable contamination from a restricted area must be less than 2000 DPM per 100 cm².
5. When the area has been cleaned up, please do a wipe test and fill in the results below. Return this form to the Radiation Safety Office (115). If you have questions, please phone at 1266.

Wesley W. Wooten
Radiation Safety Officer

WIPE TEST AFTER CLEANUP

instrument _____ serial no. _____
bldg. _____ room _____ location _____
date _____
smear CPM _____ background CPM _____
signature _____

Item 17
Page 3
July 1983

SURVEY OF LABORATORIES FOR
REMOVABLE CONTAMINATION

1. Date Smears counted: _____
2. Counting Instrument: _____
3. Serial No.: _____
4. Preset time: _____
5. Channel: _____
6. Low limit: _____
7. High limit: _____

8. H-3 Reference

- a) DPM _____
- b) Calibration Date _____
- c) Decay factor _____
- d) Current DPM _____
- e) CPM _____
- f) Efficiency
(CPM/Current DPM) _____

9. C-14 Reference

- a) DPM _____
- b) CPM _____
- c) Efficiency
(CPM/DPM) _____

10. Background CPM: _____

11. Dry Smears taken from an area of 100 cm²

12. Results

Date Smear Taken	Bldg.	Room	Location Within Room	CPM	CPM-Bkg	Removable DPM (CPM-Bkg) efficiency

[illegible]

WASTE DISPOSAL PROCEDURES

A. Liquid waste will be disposed of both into the sanitary sewer system, and through a commercial waste disposal service.

1. The Radiation Safety Officer must give individual users permission to dispose of radioactive waste into the sanitary sewer system. At the time that permission is given, isotopes, amounts, and frequencies will be specified. Permission will be given on a "Waste Disposal Log - Sanitary Sewer" form. Duplicates of that form, showing the authorized amounts and frequencies will be used in each lab to record each time radioactive waste is discharged to the sewer. During the monthly survey of each lab by the Radiation Safety Office, the "Waste Disposal Logs - Sanitary Sewer" will be checked. The Radiation Safety Office will keep an up-to-date summary of authorizations given to verify that daily and annual limits for the Medical Center are not exceeded.

2. In order to use the sanitary sewage system, the following conditions must also be met:

- a. The material is readily dispersible in water.

- b. The sink and P-trap are monitored after each disposal of radioactivity, and cleaned when the reading exceeds 2 mR per hour.

3. Liquid waste that is not discharged into the sanitary sewer system will be released to a commercial waste disposal service. This waste should be stored in unbreakable containers, preferably in polyethylene bottles, and absorbent material added. Liquids must be treated (e.g. with Formalin) if necessary, to prevent spontaneous production of gas in the container.

B. Mo-99/Tc-99m generators will be held in a low-level decay-in-storage area for at least ten half lives. See part C for a description of this storage area. Before any generator is released, the shielding will be removed and the generator column will be monitored in a low background area using a G-M survey meter, Eberline E-120 or equivalent. Radiation labels will be obliterated and the generator disposed of as non-radioactive, only if the radioactivity of the column cannot be distinguished from background. As an alternative to this decay-in-storage procedure, the generators may be returned to the manufacturer for disposal.

C. Solid waste with radioactive half life of less than 65 days will be held for decay or released to a commercial waste disposal service.

1. Waste that is held for decay will be stored in the low-level waste storage area in Building 2, Room G0004.

2. The location of the room is shown on the attached floor plan. It is in the basement and is bound on two sides by hallways, on the third side by stairwell #147, and the fourth side by a steam utility tunnel. The walls and ceiling are 9" reinforced concrete.

3. Radiation levels in the storage area will be monitored weekly and records of surveys will be kept in the Radiation Safety Office.

4. The waste will be separated by half life and marked with the isotope(s), total activity, and date.

5. The waste will be stored for at least 10 half lives.

6. Before release, the waste will be surveyed in a low background area with a G-M survey meter, Eberline E-120 or equivalent. If decayed to background, radiation labels will be obliterated and the waste will be released as non-radioactive.

D. Animal Carcasses containing isotopes with half lives of less than 65 days may be frozen until decayed to background and then disposed of.

1. There is a walk-in freezer dedicated to this purpose adjacent to Building 7. The freezer stands alone, separate from any building, is marked and locked, with access controlled by the Nuclear Medicine department and Hospital Police.

2. Carcasses will be kept for at least ten half lives.

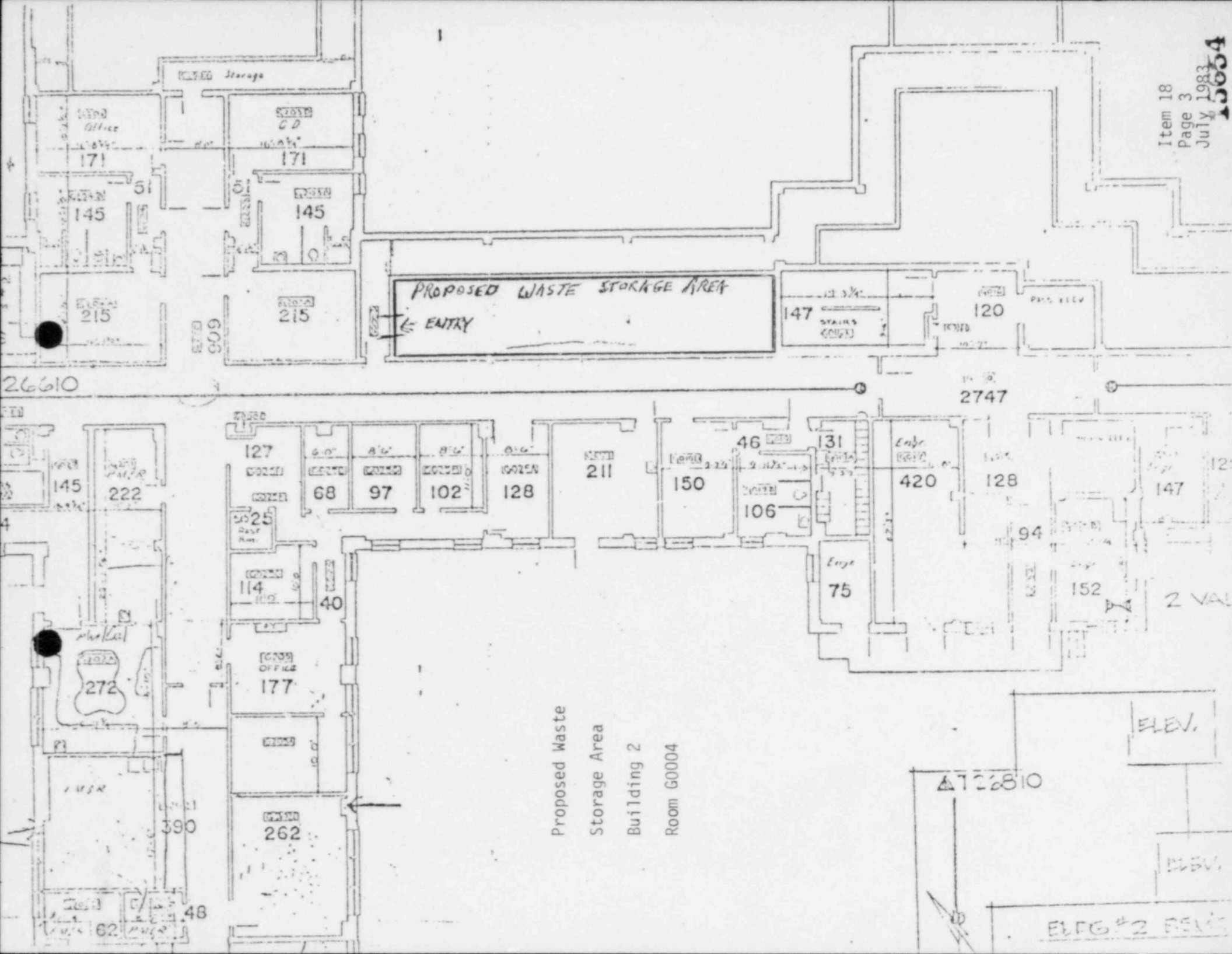
3. Radiation levels outside the freezer will be monitored weekly.

4. Carcasses will be labeled with the isotope, amount, and date.

5. Before release of any carcass, it will be monitored with a low-level G-M survey meter and must be decayed to background before release.

E. Solid waste with half lives greater than 65 days, and animal carcasses that are not frozen for decay to background will be disposed of via a commercial waste disposal service.

F. The commercial waste disposal service used will be: Nuclear Support Services, Inc., Federal Way, Washington. Agreement State License No WN-L0100-1.



SANITARY SEWER
RADIOACTIVE WASTE DISPOSAL LIMITS

1. Total water usage averaged over five years.

$$\begin{aligned} 1978 - 1982 &= 1.32 \times 10^7 \text{ ft}^3 \text{ per year} \\ &= 3.74 \times 10^{11} \text{ ml per year} \\ &= 3.11 \times 10^{10} \text{ ml per month} \\ &= 1.02 \times 10^9 \text{ ml per day} \end{aligned}$$

2. Yearly limits based on
10 CFR 20.303(d) are:

H-3 5 curies per year
C-14 1 curies per year
all others together 1 curie per year

3. Daily limits based on 10CFR 20,
appendix B, Table 1, Column 2 are:

P-32 500 mCi
I-125 40 mCi
I-131 60 mCi

Daily limits for all other radionuclides used by the VA are so high that the annual limit applies.

WASTE DISPOSAL LOG - SANITARY SEWER

1. Responsible Investigator _____
2. The following amounts are authorized:

[illegible]

Authorization _____
Radiation Safety Officer _____
date _____

- ### 3. Disposal Log

[illegible]

[illegible]