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

Charlotte Hungerford Hospital
540 New Litchfield Street
Torrington, CT 06790

TELEPHONE NO. AREA CODE (203) 496 6666

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

RECEIVED BY NRC
Date 11/2/84
Log OCT 23 I
By Brown

2. PERSON TO CONTACT REGARDING THIS APPLICATION

Gerald J. Randall, M.S.

TELEPHONE NO.: AREA CODE (203) 496 6556

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

a. ☐ NEW LICENSE
b. ☐ AMENDMENT TO LICENSE NO.
c. ☒ RENEWAL OF LICENSE NO. 06-08349-04

Action Control: Due 10/29/84

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

Reginald D. Smith, M.D.
Todd E. Anderson, M.D.
Joseph Privitera, M.D.
Marc B. d'Avignon, M.D. Peter B. Hukill, MD

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.)*

Gerald J. Randall, M.S.

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	X	3 each
10 CFR 35.100, SCHEDULE A, GROUP I	X	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP III	X	2000 each
10 CFR 35.100, SCHEDULE A, GROUP IV	X	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		
PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES		
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.	X	100

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

Application 054534
Check No. #350/70
Amount, Fee Category Renewal
Type of Fee 11/2/84
Date Check Rec'd Brown
Received By

RECEIVED
1984 NOV -2 P12:27
U.S. NRC
LIGHT BRANCH

Amount Fee Category 055301
Type of Fee #230K
Date Check Rec'd Renewal
Received By 11/23/84 Brown
03052

RECEIVED-REGION 1
1984 OCT 29 PM 2:35

NRC FORM 313M (9-81)

"OFFICIAL RECORD COPY"

OCT 29 1984

8506170423 850531
REG1 LIC30
06-08349-04 PDR

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. 1 Date: 1980

7. MEDICAL ISOTOPES COMMITTEE		15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL *(Check One)*	
X	Names and Specialties Attached; and		Appendix G Rules Followed; or
	Duties as in Appendix B; or *(Check One)*	X	Equivalent Rules Attached
X	Equivalent Duties Attached	16. EMERGENCY PROCEDURES *(Check One)*	
8. TRAINING AND EXPERIENCE See attached			Appendix H Procedures Followed; or
	Supplements A & B Attached for Each Individual User; and	X	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)	
X	Detailed Information Attached	X	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
	Appendix F Procedures Followed; or	23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b N/A	
X	Equivalent Procedures Attached		Detailed Information Attached

24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)			SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	X	FILM	Siemens, Inc.	Monthly
		TLD		
		OTHER (Specify)		
b. FINGER		FILM		
	X	TLD	Siemens, Inc.	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: 7.A. Human Use of Byproduct Material

(2) LICENSE FEE ENCLOSED: $ 350

b. APPLICANT OR CERTIFYING OFFICIAL *(Signature)* Robert Summa

(1) NAME *(Type or Print)* Robert Summa

(2) TITLE President

c. DATE 10-24-84

NRC FORM 313M (9-81)

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.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

RADIATION SAFETY COMMITTEE

MEMBERSHIP

NAME	SPECIALTY
KATHY BATTISTONI, R.T.	ASSIST. MANAGER RADIOLOGY -- CHAIRPERSON
MARC B. d'AVIGNON, M.D.	RADIOLOGIST -- INDIVIDUAL USER
CARLTON MAC DONALD, M.D.	RADIATION THERAPIST
ANDREW RADOW, M.D.	PATHOLOGIST
MICHAEL MAZAIK, R.T.	RADIOLOGY MANAGER
KRISTINE LINDAU, R.T.	NUCLEAR MEDICINE TECHNOLOGIST
RACHEL MURAWSKI, R.N.	NURSE
GERALD J. RANDALL, M.S.	PHYSICIST - R.S.O.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

RADIATION SAFETY COMMITTEE
DUTIES AND RESPONSIBILITIES

RESPONSIBILITY

1. ENSURE THAT ALL PERSONS WORKING IN OR NEAR RADIOACTIVE MATERIAL HAVE SUFFICIENT TRAINING AND EXPERIENCE TO PERFORM THEIR DUTIES SAFELY AND IN ACCORDANCE WITH NRC REGULATIONS AND CONDITIONS OF THE LICENSE.
2. ENSURE THAT ALL USE OF RADIOACTIVE MATERIAL IS CONDUCTED IN A SAFE MANNER AND IN ACCORDANCE WITH NRC REGULATIONS AND LICENSE CONDITIONS.

DUTIES

1. BE FAMILIAR WITH NRC REGULATIONS, TERMS OF LICENSE, & INFORMATION SUBMITTED IN SUPPORT OF THE REQUEST FOR LICENSES AND AMENDMENTS.
2. REVIEW THE TRAINING & EXPERIENCE OF ALL INDIVIDUALS WHO USE RADIOACTIVE MATERIAL (INCLUDING PHYSICIANS, TECHNOLOGISTS, PHYSICISTS, AND PHARMACISTS) AND DETERMINE THAT THEIR QUALIFICATIONS ARE SUFFICIENT TO PERFORM THEIR DUTIES SAFELY AND ACCORDING TO NRC REGULATIONS AND LICENSE CONDITIONS.
3. ESTABLISH A PROGRAM TO ENSURE THAT ALL INDIVIDUALS WHOSE DUTIES MAY REQUIRE THEM TO WORK IN THE VICINITY OF RADIOACTIVE MATERIAL (e.g. NURSING, SECURITY, AND HOUSEKEEPING) 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 WHICH MAY BE REQUIRED DURING A PROPOSED USE OF RADIAOACTIVE MATERIAL SUCH AS REQUIREMENT FOR BIOASSAYS, PHYSICAL EXAMS OF USERS, AND SPECIAL MONITORING.
6. REVIEW THE ENTIRE RADIATION SAFETY PROGRAM AT LEAST ANNUALLY TO DETERMINE THAT ALL ACTIVITIES ARE BEING CONDUCTED SAFELY AND IN ACCORDANCE WITH NRC REGULATIONS AND LICENSE CONDITIONS. THE REVIEW SHALL INCLUDE AN EXAMINATION OF ALL RECORDS, REPORTS FROM THE RADIATION SAFETY OFFICER, RESULTS OF NRC INSPECTIONS, WRITTEN SAFETY PROCEDURES, AND THE ADEQUACY OF THE INSTITUTION'S MANAGEMENT CONTROL SYSTEM.
7. RECOMMEND REMEDIAL ACTION TO CORRECT ANY DEFICIENCIES IDENTIFIED IN THE RADIATION SAFETY PROGRAM.
8. MAINTAIN WRITTEN RECORDS OF ALL COMMITTEE MEETINGS, ACTIONS, RECOMMENDATIONS, AND DECISIONS.
9. ENSURE THAT THE BYPRODUCT MATERIAL LICENSE IS AMENDED, WHEN NECESSARY, PRIOR TO ANY CHANGES IN FACILITIES, EQUIPMENT, POLICIES, PROCEDURES, AND PERSONNEL, AS SPECIFIED IN THE LICENSE.

MEETING FREQUENCY

THE COMMITTEE SHALL MEET AS OFTEN AS NECESSARY TO CONDUCT ITS BUSNESS BUT NOT LESS THAN ONCE IN EACH CALENDAR QUARTER.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

AUTHORIZED INDIVIDUAL USERS

THE FOLLOWING INDIVIDUALS ARE LISTED AS AUTHORIZED USERS ON THE PRESENT LICENSE:

REGINALD D. SMITH, M.D.
TODD E. ANDERSON, M.D.
JOSEPH PRIVITERA, M.D.
MARC B. d'AVIGNON, M.D.
PETER B. HUKILL, M.D.

MR. GERALD J. RANDALL, M.S., IS THE RADIATION SAFETY OFFICER ON THE PRESENT LICENSE. DR. d'AVIGNON WILL ASSUME THE R.S.O. DUTIES WHEN MR. RANDALL IS NOT AVAILABLE.

NO CHANGES OF AUTHORIZED USERS OR RADIATION SAFETY OFFICER ARE REQUESTED FOR THIS RENEWAL.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

NUCLEAR MEDICINE RADIATION DETECTION INSTRUMENTATION

SURVEY METERS

QNTY	MANUFACTURER & MODEL	MODEL NUMBER	SERIAL NO.	MIN.RANGE (mR/Hr)	MAX.RANGE (mR/Hr)
1	D.C.A. G.M. METER	G.C. 3007	4772	0 TO 0.3	0 TO 50
1	VICTOREEN IONIZATION	PANORAMIC 470A	299	0 TO 3	0 TO 1000R

DOSE CALIBRATORS

QNTY	MANUFACTURER	MODEL NO.	SERIAL NO.
1	CAPINTEC, INC.	CRC-4	41509

WELL COUNTERS

QNTY	MANUFACTURER	MODEL NO.	SERIAL NO.
1	ATOMIC DEVEL. CORP.	300 PHA & SCALAR	140282367
		330 WELL	150282001

UPTAKE COUNTERS

QNTY	MANUFACTURER	MODEL NO.	SERIAL NO.
1	ATOMIC DEVEL. CORP.	300 PHA & SCALAR	140282367
		201 PROBE	390282001

GAMMA CAMERAS

QNTY	MANUFACTURER	MODEL NO.	SERIAL NO.
1	GENERAL ELECTRIC	MAXICAMERA LFOV	A-00200
	HEAD	46-4030831P1	10130NM3

37 PM TUBE 40 CM FIELD OF VIEW WITH G.E. STAR COMPUTER

GEOMETRICAL VARIATION (AT INSTALLATION & AFTER REPAIR)

APPROX. 5 mCi OF TC-99m IN 1 ml IN A 30cc VIAL WILL BE USED.

PROCEDURE

1. THE VIAL IS ASSAYED AT THE APPROPRIATE INSTRUMENT SETTING, AND BACKGROUND SUBTRACTED TO OBTAIN THE NET ACTIVITY.
2. THE VOLUME IS THEN INCREASED IN THE VIAL IN STEPS TO VOLUMES OF 2,4,8,10,20, AND 25 ml BY ADDING THE APPROPRIATE AMOUNT OF WATER, GENTLY SHAKEN TO MIX, AND ASSAYED AS IN STEP 1.
3. THE MEAN READING IS THEN DETERMINED, AND THE RATIO OF EACH READING TO THE MEAN IS DETERMINED. ANY READING WITH A DIFFERENCE GREATER THAN 2% FROM THE MEAN WILL REQUIRE THE CONSTRUCTION AND USE OF A VOLUME CORRECTION GRAPH.

ACCURACY (AT INSTALLATION, AFTER REPAIR, AND ANNUALLY)

ACCURACY OF THE INSTRUMENT IS CHECKED USING REFERENCE VIAL STANDARDS OF CO-57, BA-133, AND CS-137 WHOSE CALIBRATION IS TRACEABLE TO N.B.S.

PROCEDURE

1. THREE READINGS ARE TAKEN FOR EACH REFERENCE STANDARD, BACKGROUND SUBTRACTED, TO OBTAIN THE AVERAGE NET ACTIVITY READING.
2. THE AVERAGE ACTIVITY OBTAINED SHOULD AGREE WITH THE CERTIFIED ACTIVITY WITHIN 5% AFTER DECAY CORRECTION. READINGS WHICH DO NOT AGREE WITHIN 5% WILL REQUIRE REPAIR OR ADJUSTMENT OF THE INSTRUMENT, OR THE USE OF A CALIBRATION FACTOR FOR ROUTINE USE.
3. THE CS-137 REFERENCE STANDARD IS PLACED IN THE INSTRUMENT, AND THE INSTRUMENT IS SET IN TURN TO THE VARIOUS RADIONUCLIDE SETTINGS NORMALLY USED, AND THE READINGS RECORDED. THESE READINGS ARE USED TO CHECK INSTRUMENT CALIBRATION CONSTANCY.

LINEARITY (AT INSTALLATION, AFTER REPAIR & QUARTERLY)

LINEARITY IS CHECKED OVER THE ENTIRE RANGE OF ACTIVITIES EMPLOYED. THIS TEST USES A STERILE VIAL OF TC-99m WHOSE ACTIVITY EQUALS THE MAXIMUM ACTIVITY TO BE ASSAYED.(e.g. FIRST ELUTION OF NEW GENERATOR).

PROCEDURE WHEN ON SITE GENERATOR IS AVAILABLE

1. USING THE FIRST ELUTION OF THE NEW GENERATOR (REFERRED TO AS THE GEN.VIAL), THE ACTIVITY IS ASSAYED AND RECORDED ALONG WITH THE TIME AND DATE.
2. A STERILE SYRINGE IS USED TO REMOVE APPROXIMATELY 10% OF THE VOLUME TO PLACE IT INTO AN IDENTICAL VIAL (REFERRED TO 10% VIAL). USING THE SAME SYRINGE, WATER IS ADDED TO THE 10% VIAL UNTIL THE VOLUME IS EQUAL TO THE GEN.VIAL, AND SHAKEN GENTLY TO MIX.
3. THE GEN.VIAL IS AGAIN ASSAYED AS IN 1.ABOVE, AND THE ACTIVITY, TIME, AND DATE RECORDED. (THIS VIAL MAY NOW BE USED FOR CLINCAL PURPOSES)
4. THE 10% VIAL IS ALSO ASSAYED AS IN 1. AND DATA RECORDED.
5. THE 10% VIAL IS THEN ASSAYED EACH AM AND PM THEREAFTER AS IN 1., RECORDING ALL DATA, UNTIL THE MEASURED ACTIVITY IS APPROX. 100 uCi.
6. ALL READINGS ARE THEN CORRECTED FOR DECAY TO THE TIME OF THE INITIAL 10% VIAL READING IN 4., USING THE VALUE OF 6.02 HOURS FOR THE HALF LIFE. THE LINEARITY IS THEN CHECKED AS FOLLOWS:
   A. THE SUM OF READINGS IN 3. AND 4. ARE DIVIDED BY THE READING IN 1. TO DETERMINE THE % DIFFERENCE. A DIFFERENCE GREATER THAN 5% INDICATE THE NEED FOR REPAIR OR ADJUSTMENT OF THE INSTRUMENT.
   B. EACH READING OBTAINED IN 5. IS DIVIDED BY THE READING IN 4. TO DETERMINE THE % DIFFERENCE. A DIFFERENCE GREATER THAN 5% IN ANY READING INDICATES THE NEED FOR REPAIR OR ADJUSTMENT OF THE INSTRUMENT.
7. IF INSTRUMENT CANNOT BE CORRECTED A CALIBRATION GRAPH WILL BE CONSTRUCTED FOR USE IN ROUTINE ASSAYS.

PROCEDURE WHEN NO ON SITE GENERATOR IS USED

1. A BULK VIAL OF TC-99M IS USED. THE ACTIVITY IS EQUAL TO OR LARGER THAN THE MAXIMUM ACTIVITY ROUTINELY MEASURED IN THE DOSE CALIBRATOR.
2. THE ACTIVITY OF THE VIAL IS ASSAYED EACH AM & PM UNTIL THE ACTIVITY IS APPROXIMATELY 100 uCi. THE ACTIVITY, TIME AND DATE OF MEASUREMENTS ARE RECORDED.
3. ALL READINGS ARE CORRECTED FOR DECAY TO ONE OF THE READINGS CLOSEST TO A TYPICAL PATIENT DOSE, USING THE VALUE OF 6.02 HOURS HALF LIFE.
4. ALL CORRECTED READINGS SHOULD BE WITHIN 5% OF THE CHOSEN STANDARD (TYPICAL PATIENT) DOSE. ERRORS GREATER THANT 5% INDICATE NEED FOR INSTRUMENT REPAIR OF ADJUSTMENT.
5. IF THE INSTRUMENT CANNOT BE CORRECTED, A CALIBRATION GRAPH IS CONSTRUCTED FOR USE IN ROUTINE ASSAYS.

INTEGRITY CHECK (QUARTERLY)

THE INSTRUMENT IS INSPECTED QUARTERLY TO ASCERTAIN THE CORRECT PLACEMENT AND INTEGRITY OF THE LINER, THE PROPER ZERO SETTING, DC BALANCE, AND BACKGROUND SUBTRACT IF APPLICABLE. (REF MFGR'S INSTRUCTIONS)

CONSTANCY (EACH DAY OF USE)

INSTRUMENT REPRODUCIBILITY IS CHECKED EACH DAY OF USE WITH THE CS-137 AND BA-133 REFERENCE VIAL SOURCES.

PROCEDURE

1. THE BA-133 STANDARD IS ASSAYED AT THE BA-133 SETTING, AND THE NET ACTIVITY RECORDED.
2. THE CS-137 STANDARD IS ASSAYED AT THE CS-137 SETTING, AND AT EACH SETTING FOR THE COMMONLY USED RADIONUCLIDES, AND RECORDED.
3. THE READINGS OBTAINED IN 1. AND 2. ARE THEN COMPARED TO THE PREDICTED DECAY CORRECTED READINGS.
4. READINGS WHICH DIFFER BY MORE THAN 5% FROM THE PREDICTED VALUES INDICATE THE NEED FOR REPAIR OR ADJUSTMENT OF THE INSTRUMENT.
5. HIGHER THAN NORMAL BACKGROUND READINGS WILL BE INVESTIGATED TO DETERMINE THEIR ORIGIN AND TO ELIMINATE THEM IF POSSIBLE.

CHARRLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

SURVEY METER CALIBRATION PROCEDURES

SURVEY METERS ARE CALIBRATED ANNUALLY AND FOLLOWING REPAIR.

CALIBRATION IS PERFORMED BY:
NDL ORGANIZATION, INC. (FORMERLY NUCLEAR DIAGNOSTIC LABORATORIES)
1000 LOWER SOUTH STREET
PEEKSKILL, N.Y.
NEW YORK STATE CALIBRATION LICENSE NUMBER: 1959-1422

SURVEY METERS ARE SENT TO NDL SEQUENTIALLY, TO ASSURE THAT THERE WILL ALWAYS BE AT LEAST ONE FUNCTIONING SURVEY METER ON HAND AT ALL TIMES.

DAILY CONSTANCY CHECKS AND BATTERY CHECKS OF SURVEY METERS ARE MADE BEFORE AND AFTER EACH USE TO ASSURE PROPER OPERATION.

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PROCEDURES FOR WELL COUNTER CALIBRATION

WELL COUNTERS ARE CHECKED ROUTINELY FOR PROPER OPERATION ANNUALLY, DAILY, AND AFTER REPAIR OR ADJUSTMENT.

ANNUAL CALIBRATION CHECKS

ANNUAL CALIBRATION TESTS ARE CONDUCTED TO DETERMINE INSTRUMENT CALIBRATION AND CHECK FOR CORRECT INSTRUMENT OPERATION.

E-DIAL CALIBRATION

THE E-DIAL CALIBRATION IS CHECKED USING CO-57, BA-133, & CS-137 REFERENCE SOURCES AND SETTINGS RECORDED.

TEST COUNT (3600 CPM)

THE TEST COUNT CIRCUITRY IS CHECKED WHERE APPLICABLE FOR ACCURACY.

BACKGROUND

BACKGROUND READINGS ARE COUNTED AND RECORDED.

COUNTING EFFICIENCY (uCi/dpm)

COUNTING EFFICIENCY IS DETERMINED FOR CO-57, BA-133, & CS-137 AT 20% WINDOWS AND OPEN WINDOW SETTINGS.

COUNTER SENSITIVITY

USING THE BACKGROUND AND COUNTING EFFICIENCIES ABOVE, THE MINIMUM DETECTABLE ACTIVITY IS CALCULATED FOR EACH OF THE ABOVE ISOTOPES.

PULSE HEIGHT RESOLUTION

THE PULSE HEIGHT RESOLUTION IS DETERMINED USING THE CS-137 SOURCE AND RECORDED.

CHI-SQUARE TEST

CHI SQUARE TESTING IS PERFORMED AND REPORTED.

DAILY CHECKS (EACH DAY OF USE)

DAILY CHECKS ARE PERFORMED TO INSURE INSTRUMENT CONSTANCY. RESULTS WHICH ARE NOT WITHIN ACCEPTABLE LIMITS INDICATE THE NEED FOR RE-CALIBRATION, REPAIR OR ADJUSTMENT.

E-DIAL CALIBRATION

PERFORMED FOR CS-137 SOURCE AND RECORDED.

BACKGROUND COUNT RATE

UNUSUALLY HIGH BACKGROUND RATES WILL BE INVESTIGATED TO ASCERTAIN THE SOURCE AND ELIMINATE IT IF POSSIBLE.

TEST COUNT (3600 CPM)

TEST COUNT CIRCUITRY COUNTS WILL BE TAKEN WHERE APPLICABLE.

CONSTANCY CHECK

THE CS-137 REFERENCE ROD SOURCE WILL BE COUNTED TO DETERMINE THE NET CPM AND COMPARED WITH THE PREDICTED DECAY CORRECTED VALUE TO DETERMINE INSTRUMENT CONSTANCY FROM THE ANNUAL CALIBRATION.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
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FACILITIES AND EQUIPMENT

THE NUCLEAR MEDICINE LABORATORY IN LOCATED ON THE FIRST FLOOR OF THE MAIN BUILDING OF THE HOSPITAL. IT CONSISTS OF ONE ROOM OF APPROXIMATELY 280 SQ. FT. (SEE DIAGRAM AS SUPPLIED IN OUR LETTER OF SEPT 26, 1979 SIGNED BY G.J.RANDALL, R.S.O.). THE LABORATORY WILL BE MOVED IN THE NEAR FUTURE AND A DESCRIPTION OF THE NEW AREA WILL BE PROVIDED IN AN AMENDMENT REQUEST PRIOR TO MOVING THE LAB.

THE LABORATORY IS AMPLY SUPPLIED WITH NECESSARY SHIELDING DEVICES FOR STORAGE, PREPARATION, AND TRANSPORT OF RADIOACTIVE MATERIALS USED. IN ADDITION TO THOSE ITEMS NOTED ON THE DIAGRAM, THE LABORATORY ALSO CONTAINS THE FOLLOWING:

A LEAD LINED DECAY/STORAGE CABINET

A LEAD L-BLOCK

SYRINGE AND VIAL SHIELDS

LONG HANDLE DEVICES FOR HANDLING

DISPOSABLE RUBBER GLOVES

LAB COATS

ABSORBENT BENCH LINERS

ASSORTED LEAD SHIELDS

CHARLOTTE [redacted]GERFORD HOSPITAL -- TORRI[redacted]TON, CT
LICENSE NO. 06-08349-04

PERSONNEL TRAINING PROGRAM

DURING NORMAL WORKING HOURS, NON-RADIATION WORKERS MAY ONLY ENTER THE NUCLEAR MEDICINE LABORATORY WHEN ACCOMPANIED BY THE NUCLEAR MEDICINE TECH., OR OTHER AUTHORIZED INDIVIDUAL. WHEN THE LABORATRORY IS CLOSED, ONLY CERTAIN INDIVIDUALS CAN ENTER (SECURITY OR HOUSEKEEPING).

TRAINING OF NON-RADIATION WORKERS

ALL NEW EMPLOYEES AS PART OF THEIR ORIENTATION PROGRAM VIEW A VIDEO TAPE ON RADIATION SAFETY PRODUCED AT THIS INSTITUTION. THE INFORMATION PROVIDED CONSISTS OF BASIC RADIATION PROTECTION (ROENTGEN, RAD, REM, M.P.D., TIME, DISTANCE, SHIELDING, CONTAMINATION, RADIATION SIGNS); N.R.C. LICENSE REQUIRMENTS & RESTRICTIONS; PARTS 19 & 20 OF 10 C.F.R.; AND INFORMATION SPECIFIC TO THIS INSTITUTION.

PRIOR TO BEING ASSIGNED DUTIES IN NUCLEAR MEDICINE LAB., HOUSEKEEPING AND SECURITY PERSONNEL RECEIVE INSTRUCTIONS IN RADIATION SAFETY WHICH INCLUDE THE FOLLOWING RULES:

1. WHEN WORKING IN THE NUCLEAR MEDICINE LAB, EMPLOYEES ARE INSTRUCTED NOT TO TOUCH ANYTHING ON THE COUNTERS, BEHIND ANY LEAD SHIELDS, OR ANY CONTAINERS LABELED WITH A CAUTION RADIOACTIVE MATERIALS SIGN. ONLY NON-RADIOACTIVE TRASH CONTAINERS WILL BE EMPTIED, AND THE FLOOR WET MOPPED.

3. THE NUCLEAR MEDICINE DEPARTMENT DOOR IS TO BE LOCKED IMMEDIATELY UPON COMPLETION.

EDUCATIONAL PROGRAMS OFFERED NUCLEAR MEDICINE PERSONNEL

EACH NUCLEAR MEDICINE TECHNOLOGIST IS GIVEN THE OPPORTUNITY TO ATTEND APPROPRIATE PROFESSIONAL SEMINARS.

ON THE JOB TRAINING IS GIVEN BY THE RADIOLOGISTS AND PHYSICIST(RSO). TO ALL NEW TECHNOLOGISTS TO FAMILIARIZE THE THEM WITH STANDARD PROCEDURES, RADIATION SAFETY, AND QUALITY CONTROL.

IN SERVICE EDUCATION IS GIVEN TO ALL PERSONNEL ON NEW EXAMS, EQUIPMENT, AND PROCEDURES.

TECHNOLOGISTS ARE ALSO SENT TO SPECIFIC SEMINARS FOR ADVANCED TRAINING ON PERTINENT SUBJECTS.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

PROCEDURES FOR ORDERING AND RECEIPT OF RADIOACTIVE MATERIAL
(NUCLEAR MEDICINE LABORATORY)

1. THE SUPERVISORY NUCLEAR MEDICINE TECHNOLOGIST WILL PLACE ALL ORDERS FOR RADIOACTIVE MATERIALS AND WILL ENSURE THAT THE REQUESTED MATERIALS AND QUANTITIES ARE AUTHORIZED BY THE LICENSE AND THAT POSSESSION LIMITS ARE NOT EXCEEDED.

2. WRITTEN RECORDS THAT IDENTIFY THE ISOTOPE, COMPOUND, ACTIVITY LEVELS, AND SUPPLIER, ETC., WILL BE USED AND MAINTAINED.

3. DURING NORMAL WORKING HOURS, CARRIERS WILL BE INSTRUCTED TO DELIVER RADIOACTIVE PACKAGES DIRECTLY TO THE NUCLEAR MEDICINE DEPARTMENT.

4. DURING OFF DUTY HOURS AND WEEKENDS AND HOLIDAYS, THE PACKAGES WILL BE DELIVERED TO THE EMERGENCY ROOM. THE EMERGENCY ROOM ADMITTING CLERK WILL IMMEDIATELY NOTIFY THE SECURITY OFFICER ON DUTY WHO WILL TRANSPORT THE PACKAGE TO THE NUCLEAR MEDICINE LAB., UNLOCK THE DOOR, PLACE THE PACKAGE ON THE COUNTER AND RELOCK THE LAB. (SEE ATTACHED MEMO)

5. THE EMERGENCY ROOM AND SECURITY PERSONNEL WILL BE INSTRUCTED TO OBSERVE THE PACKAGE CONDITION. IF THE PACKAGE IS WET OR APPEARS DAMAGED, THEY WILL IMMEDIATELY CONTACT THE RADIATION SAFETY OFFICER (OR THE RADIOLOGIST ON CALL IF THE R.S.O. CANNOT BE REACHED). THEY WILL ALSO ASK THE CARRIER TO REMAIN AT THE HOSPITAL UNTIL IT CAN BE DETERMINED THAT NEITHER HE OR THE DELIVERY VEHICLE IS CONTAMINATED.

RADIATION SAFETY OFFICER: GERALD J. RANDALL, M.S.
TELEPHONE NUMBERS -- OFFICE: EXT. 6556 HOME: 1-673-1643

MEMO TO: MR. ROBERT LANDRY, SECURITY MANAGER
MR. FLOYD DECKER, PLANT OPERATIONS MANAGER
MRS. VICKY BOOTHROYD, ADMITTING MANAGER
MR. MIKE MAZAIK, RADIOLOGY MANAGER

FROM: GERALD J. RANDALL, R.S.O. DATE 10/15/84

THIS IS TO REVIEW THE PRESENT POLICY CONCERNING THE RECEIPT OF RADIOACTIVE MATERIAL.

ANY PACKAGES CONTAINING RADIOACTIVE MATERIAL THAT ARRIVE WHEN THE NUCLEAR MEDICINE LABORATORY IS CLOSED, SHALL BE SIGNED BY THE ADMITTING CLERK ON DUTY IN THE EMERGENCY ROOM. THE ADMITTING CLERK WILL NOTIFY THE SECURITY OFFICER IMMEDIATELY, WHO WILL TRANSPORT THE PACKAGE TO THE NUCLEAR MEDICINE LABORATORY. THE PACKAGE WILL BE PLACED ON THE LAB BENCH AND THE LABORATORY RELOCKED.

GENERALLY, ALL SHIPMENTS ARE WELL PACKAGED TO AVOID DAMAGE TO THE CONTENTS; HOWEVER, IF THE PACKAGE IS WET OR APPEARS TO BE DAMAGED, IMMEDIATELY CONTACT THE HOSPITAL RADIATION SAFETY OFFICER (OR THE RADIOLOGIST ON CALL IF THE RADIATION SAFETY OFFICER CANNOT BE REACHED). ASK THE CARRIER TO REMAIN AT THE HOSPITAL UNTIL IT CAN BE DETERMINED THAT NEITHER HE NOR THE DELIVERY VEHICLE IS CONTAMINATED.

RADIATION SAFETY OFFICER: GERALD J. RANDALL, M.S.
TELEPHONE NUMBERS -- OFFICE: EXT. 6556 HOME: 1-673-1643

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LICENSE NO. 06-08349-04

PROCEDURES FOR OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL
(NUCLEAR MEDICINE LABORATORY)

1. PUT ON GLOVES TO PREVENT HAND CONTAMINATION.

2. VISUALLY INSPECT PACKAGE FOR ANY SIGN OF DAMAGE (e.g. WETNESS OR CRUSHED). IF DAMAGE IS NOTED, STOP PROCEDURE AND NOTIFY RADIATION SAFETY OFFICER.

3. MEASURE EXPOSURE RATE AT 3 FEET FROM PACKAGE SURFACE AND RECORD. IF GREATER THAN 10mR/hr, STOP PROCEDURE AND NOTIFY RADIATION SAFETY OFFICER.

4. MEASURE SURFACE EXPOSURE RATE AND RECORD. IF GREATER THAN 200 mR/hr, STOP PROCEDURE AND NOTIFY RADIATION SAFETY OFFICER.

5. OPEN THE OUTER PACKAGE (FOLLOWING THE MANUFACTURER'S DIRECTIONS IF SUPPLIED) AND REMOVE PACKING SLIP.

6. OPEN INNER PACKAGE AND VERIFY THAT CONTENTS AGREE WITH THOSE ON PACKING SLIP. COMPARE REQUISITION, PACKING SLIP AND LABEL ON BOTTLE.

7. CHECK FINAL SOURCE CONTAINER FOR BREAKAGE OF SEALS OR VIALS, LOSS OF LIQUID, OR DISCOLORATION OF PACKAGING MATERIAL.

8. VERIFY THAT SHIPMENT DOES NOT EXCEED POSSESSION LIMIT.

9. WIPE THE EXTERNAL SURFACE OF FINAL SOURCE CONTAINER AND COUNT. IF REMOVABLE ACTIVITY EXCEEDS 0.01uCi/100sq.cm., STOP PROCEDURE AND NOTIFY RADIATION SAFETY OFFICER.

10. MONITOR THE PACKING MATERIAL AND PACKAGES FOR CONTAMINATION BEFORE DISCARDING.
    IF CONTAMINATED, TREAT AS RADIOACTIVE WASTE.
    IF NOT CONTAMINATED, OBLITERATE RADIATION LABELS BEFORE DISCARDING IN REGULAR TRASH.

11. MAINTAIN RECORDS OF THE RESULTS OF CHECKING EACH PACKAGE.

IT IS THE RESPONSIBILITY OF THOSE WORKING WITH RADIOACTIVE MATERIAL TO PROTECT THEMSELVES AND OTHERS FROM RADIATION HAZARDS ARISING FROM THEIR WORK. BAD EXAMPLES AND CARELESS WORKING HABITS MAY UNNECESSARILY EXPOSE ASSOCIATES OR CONTAMINATE FACILITIES AND CANNOT BE TOLERATED. THE FOLLOWING REGULATIONS SHALL BE OBSERVED:

THE LABORATORY DIRECTOR IS RESPONSIBLE FOR ORDERING STOCK SHIPMENTS OF RADIONUCLIDES AND ASSURING THAT ALL ORDERS ARE IN COMPLIANCE WITH LICENSE LIMITATIONS AS REGARD TO NUCLIDE, COMPOUND, MAXIMUM ACTIVITY, AND USE.

ONLY AUTHORIZED PERSONNEL OVER THE AGE OF 18 YEARS OLD WILL BE ALLOWED TO HANDLE RADIOACTIVE MATERIAL. AUTHORIZATION MUST BE OBTAINED FROM THE LABORATORY DIRECTOR AND THE RADIATION SAFETY OFFICER (RSO).

EATING, DRINKING, SMOKING, AND THE APPLICATION OF COSMETICS ARE PROHIBITED IN AREAS WHERE UNSEALED RADIOACTIVE MATERIALS ARE BEING HANDLED. FOOD AND DRINK SHOULD NOT BE STORED IN THE SAME PLACE (E.G. REFRIGERATOR) WITH RADIOACTIVE MATERIALS.

WORKING WITH RADIOACTIVE MATERIALS WHEN OPEN WOUNDS ARE PRESENT ON EXPOSED SURFACES OF THE BODY IS PROHIBITED UNLESS WOUNDS ARE PROPERLY DRESSED AND PROTECTED.

DISPOSABLE RUBBER GLOVES AND LAB COATS WILL BE WORN WHENEVER WORKING WITH UNSEALED RADIOACTIVE MATERIAL, AND SHALL BE REMOVED BEFORE LEAVING THE LABORATORY.

PIPETTING OR ANY SIMILAR OPERATION BY MOUTH IS PROHIBITED. SYRINGE SHIELDS, DISPOSABLE ABSORBENT PADS, REMOTE HANDLING DEVICES, AND TRAYS SHALL BE UTILIZED WHEN POSSIBLE.

HANDS, FEET, AND CLOTHING SHALL BE MONITORED ROUTINELY FOR CONTAMINATION. HANDS SHOULD BE WASHED ROUTINELY AFTER HANDLING RADIOACTIVE MATERIALS, ESPECIALLY BEFORE EATING.

FILM BADGES FOR MONITORING TOTAL BODY EXPOSURE WILL BE WORN IN RESTRICTED AREAS. IN ADDITION, PERSONNEL WORKING WITH RADIOACTIVE MATERIAL WILL WEAR RING TYPE BADGES. BADGES WILL BE EXCHANGED MONTHLY FOR PROCESSING.
PERSONNEL WORKING ONLY IN THE IN-VITRO LABORATORY WITH MICROCURIE QUANTITIES OF MATERIALS WILL NORMALLY BE EXPOSED TO LEVELS WELL UNDER 10% OF THE PERMISSIBLE OCCUPATIONAL LIMITS OF 10 CFR PART 20. THEREFORE, FILM BADGE MONITORING OF THESE INDIVIDUALS MAY BE CONDUCTED FOR A TEST PERIOD WHEN A NEW PROGRAM IS BEGUN OR WHEN NEW PROCEDURES ARE INITIATED WHICH MAY INCREASE EXPOSURE. IF MONITORED EXPOSURES ARE LESS THAN 5% OF THE PERMISSIBLE LIMITS, FILM BADGE MONITORING MAY BE ELIMINATED.

GENERALLY, THE INDIVIDUAL PROCEDURES WITH RADIOACTIVE MATERIAL ARE WELL ESTABLISHED BY THE SUPPLIER. NEW PROCEDURES SHOULD BE TESTED, WITHOUT THE RADIONUCLIDE AT FIRST IF POSSIBLE, PRIOR TO NORMAL USE. THE RSO MUST BE CONSULTED BEFORE THE USE OF VOLATILE, GASEOUS, OR DUST-FORMING MATERIAL IS INITIATED.

RECEIPT OF STOCK SHIPMENTS SHALL BE IN ACCORDANCE WITH ESTABLISHED PROCEDURES.(SEE PROCEDURES FOR OPENING PACKAGES, AND PROCEDURES FOR RECEIPT OF PACKAGES)

RADIONUCLIDES SHALL BE HANDLED AND STORED IN THE SPECIALLY DESIGNATED LOCATIONS. VESSELS CONTAINING RADIOACTIVE MATERIALS SHALL BE LABELLED AS TO COMPOUND, RADIONUCLIDE, ACTIVITY, AND DATE OF CALIBRATION AND SHALL BE ADEQUATELY SHIELDED WHILE IN USE AND STORAGE. AREAS WHERE THESE MATERIALS ARE ROUTINELY USED OR STORED SHALL BE LABELED WITH A "CAUTION (OR DANGER) -- RADIOACTIVE MATERIAL" LABEL, AND WILL BE KEPT LOCKED WHEN UNATTENDED.

MOVEMENT OF RADIOACTIVE MATERIAL WITHIN THE HOSPITAL, IF REQUIRED, SHALL BE ACCOMPLISHED USING PROPERLY SHIELDED CONTAINERS.

CONTAMINATED WASTE AND UTENSILS SHALL BE DISPOSED OF IN THE CONTAINERS PROVIDED. ALL FORMS OF DISPOSAL MUST BE APPROVED BY THE RSO AND CONFORM TO APPROPRIATE LOCAL, STATE, AND FEDERAL REGULATIONS (SEE PROCEDURES FOR RADIOACTIVE WASTE DISPOSAL). IF LIQUID WASTE DISPOSAL INTO THE SANITARY SEWER SYSTEM IS APPROVED, A SINK WILL BE DESIGNATED AND LABELED "HOT SINK -- TO BE SURVEYED BEFORE PLUMBING WORK".

RADIATION SAFETY SURVEYS MUST BE CONDUCTED ROUTINELY AND WHENEVER A SUSPECTED HAZARD EXISTS. RESULTS SHALL BE RECORDED, AND ALL READINGS IN EXCESS OF PERMITTED LIMITS WILL BE BROUGHT TO THE ATTENTION OF THE RSO. (SEE SURVEY PROCEDURES)

"GOOD HOUSEKEEPING" SHALL BE MAINTAINED AT ALL TIMES. SPILLAGE SHOULD BE PREVENTED, BUT IN THE EVENT OF SUCH AN ACCIDENT, THE PRESCRIBED EMERGENCY PROCEDURES SHOULD BE FOLLOWED. (SEE EMERGENCY PROCEDURES FOR RADIOACTIVE SPILLS)

ALL PATIENT DOSES SHALL BE ASSAYED IN THE DOSE CALIBRATOR PRIOR TO ADMINISTRATION. DO NOT USE ANY DOSE THAT DIFFERS FROM THE PRESCRIBED DOSE BY MORE THAN 10%.

TC-99m MUST BE TESTED FOR MO-99 BREAKTHROUGH PRIOR TO ADMINISTRATION TO PATIENTS. MAXIMUM CONTAMINATION SHALL NOT EXCEED 1 uCi PER mCi OF TC-99m, OR MORE THAN A TOTAL OF 5 uCi OF MO-99 PER PATIENT DOSE. (SEE PROCEDURES FOR MOLYBDENUM BREAKTHROUGH TESTING)

ANY QUESTIONS INVOLVING SAFETY SHOULD BE DIRECTED TO THE RSO.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

PROCEDURES FOR MOLYBDENUM BREAKTHROUGH TESTING FOR MO-99/TC-99m GENERATORS

SCOPE

THE USE OF ON SITE MO-99/TC-99m GENERATORS REQUIRES TESTING TO INSURE THE PURITY OF THE TC-99m ELUATE. TC-99m RADIOPHARMACEUTICALS OBTAINED AS UNIT DOSES OR BULK DOSES WILL BE TESTED BY THE RADIOPHARMACEUTICAL SUPPLIER.

FREQUENCY

TESTING MUST BE PERFORMED IMMEDIATELY FOLLOWING EACH ELUTION OF TC-99M FROM A MO-99/TC-99M GENERATOR, PRIOR TO PATIENT ADMINISTRATION.

PROCEDURE

TEST SHALL BE IN ACCORDANCE WITH PROCEDURES SET FORTH BY THE MANUFACTURER OF THE DOSE CALIBRATOR OR TEST KIT.

MAXIMUM ALLOWABLE CONTAMINATION

MEASURED CONCENTRATIONS OF MO-99 IN TC-99m SHALL NOT EXCEED 1 uCi PER mCi (0.1%), AND SHOULD BE OF THE ORDER OF 0.1 UCI PER mCi (0.01%) OR LESS.
EACH PATIENT DOSE MAY NOT EXCEED 1 uCi OF MO-99 PER mCi OF TC-99m, OR MORE THAN A TOTAL OF 5 uCi OF MO-99 AT THE TIME OF ADMINISTRATION.

LOGGING

MEASURED CONCENTRATIONS WILL BE RECORDED AND RECORDS MAINTAINED FOR A MINIMUM OF 3 YEARS.

REPORTING

ANY MEASURED CONCENTRATION EXCEEDING THE ABOVE LIMITS WILL BE REPORTED TO THE RADIATION SAFETY OFFICER. USE OF THE ELUTED TC-99m AND THE GENERATOR WILL BE IMMEDIATELY DISCONTINUED.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

TC-99M/MO-99 ASSAY
"MOLY BREAKTHROUGH TEST"

THIS TEST SHALL BE CONDUCTED FOR EACH ELUTION OF THE GENERATOR AND RESULTS RECORDED PRIOR TO ADMINISTRATION TO PATIENTS. NO DOSES SHALL BE ADMINISTERED TO PATIENTS WHICH CONTAIN MORE THAN ONE (1) MICROCURIE OF MO-99 PER MILLICURIE OF Tc-99M OR MORE THAN FIVE (5) MICROCURIES OF MO-99 PER DOSE OF Tc-99M AT THE TIME OF ADMINISTRATION. GENERATOR ELUTIONS WILL GENERALLY HAVE A VALUE OF LESS THAN 0.1 uCI OF MO-99 PER mCi OF Tc-99M. VALUES ABOVE THIS LEVEL SHALL BE BROUGHT OT THE ATTENTION OF THE R.S.O. IF VALUES OF 1 uCi MO-99 PER mCi Tc-99M OR HIGHER ARE OBTAINED, THE GENERATOR/ELUTION WILL NOT BE USED, AND THE R.S.O. AND THE MANUFACTURER WILL BE NOTIFIED IMMEDIATELY.

THIS PROCEDURE IS CARRIED OUT BY TAKING TWO READINGS ON THE DAY'S ELUTION OF Tc-99m, ONE SHIELDED AND ONE UNSHIELDED. IF THE SHIELDED READING (x3.5) IS NOT LOWER THAN THE UNSHIELDED BY A FACTOR OF 1000, THE CONCENTRATION EXCEEDS 1 uCi MO-99 PER mCi Tc-99m AND SHALL NOT BE USED.

PROCEDURE:

1. SWITCH TO 200 uCi RANGE.

2. SET CALIBRATION KNOB TO 000 AND ADJUST TO ZERO BACKGROUND.

3. SET CALIBRATION KNOB TO 030.

4. INSERT THE GENERATOR ELUTION VIAL INTO THE Mo-99 HOLDER AND INSERT INTO THE CHAMBER. MULTIPLY THE READING OBTAINED TO 3.5 TO GET TOTAL AMOUNT OF Mo-99 PRESENT IN THE Tc-99m SAMPLE.

5. SET CALIBRATION KNOB TO 080, REMOVE THE GENERATOR ELUTION VIAL FROM THE Mo-99 HOLDER AND INSERT THE VIAL INTO THE CHAMBER AND READ THE AMOUNT OF Tc-99m ON THE PROPER RANGE.

6. THE SHIELDED READING (x3.5) MUST BE LOWER THAN THE UNSHIELDED READING BY A FACTOR OF 1000.

GERALD J. RANDALL, M.S.,R.S.O.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

EMERGENCY PROCEDURES FOR RADIOACTIVE SPILLS

MINOR SPILLS (uCi AMOUNTS)

NOTIFY: NOTIFY THE PERSONS IN THE AREA THAT A SPILL HAS OCCURRED.

PREVENT THE SPREAD: COVER THE SPILL WITH ABSORBENT PAPER.

CLEAN UP: USE DISPOSABLE GLOVES AND REMOTE HANDLING TONGS. CAREFULLY FOLD THE ABSORBENT PAPER AND PAD. INSERT INTO A PLASTIC BAG AND DISPOSE OF IN THE RADIOACTIVE WASTE CONTAINER. INCLUDE ALL OTHER CONTAMINATED MATERIALS SUCH AS DISPOSABLE GLOVES.

SURVEY: WITH A G-M SURVEY METER, CHECK THE AREA AROUND THE SPILL, YOUR HANDS AND CLOTHING FOR CONTAMINATION.

REPORT: REPORT INCIDENT TO R.S.O. & PHYSICIAN IN CHARGE.

MAJOR SPILLS:

CLEAR THE AREA: NOTIFY ALL PERSONS NOT INVOLVED IN THE SPILL TO VACATE THE ROOM.

PREVENT THE SPREAD. COVER THE SPILL WITH ABSORBENT PADS, BUT DO NOT ATTEMPT TO CLEAN IT UP. TURN OFF FAN AND/OR VENTILATION SYSTEM. CONFINE THE MOVEMENT OF ALL PERSONNEL POTENTIALLY CONTAMINATED TO PREVENT THE SPREAD.

SHIELD THE SOURCE: IF POSSIBLE, THE SPILL SHOULD BE SHIELDED, BUT ONLY IF IT CAN BE DONE WITHOUT FURTHER CONTAMINATION OR WITHOUT SIGNIFICANTLY INCREASING YOUR RADIATION EXPOSURE.

CLOSE THE ROOM: LEAVE THE ROOM AND LOCK THE DOOR(S) TO PREVENT ENTRY.

CALL FOR HELP: NOTIFY THE R.S.O. & PHYSICIAN IN CHARGE IMMEDIATELY.

PERSONNEL DECONTAMINATION: CONTAMINATED CLOTHING SHOULD BE REMOVED AND STORED FOR FURTHER EVALUATION BY THE RADIATION SAFETY OFFICER. IF THE SPILL IS ON THE SKIN, FLUSH THOROUGHLY AND THEN WASH WITH MILD SOAP AND LUKEWARM WATER.

RADIATION SAFETY OFFICER: GERALD J. RANDALL, M.S.
OFFICE PHONE:EXT 6556 HOME PHONE:1-673-1643
IF MR. RANDALL CANNOT BE REACHED, NOTIFY THE RADIOLOGIST ON CALL.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

AREA SURVEY PROCEDURES FOR LABS USING GAMMA EMITTING ISOTOPES

EACH LABORATORY UTILIZING RADIOACTIVE MATERIAL IS REQUIRED TO CONDUCT ROUTINE SURVEYS OF THE AREA. THE FOLLOWING REPRESENT THE MINIMUM SURVEY REQUIREMENTS AND SHOULD BE SUPPLEMENTED WITH ADDITIONAL SURVEYS IF A SPILL HAS OCCURRED OR A RADIATION HAZARD IS SUSPECTED:

SURVEY TYPE	NUC. MED. LAB. MINIMUM FREQUENCY	IN VITRO LAB. MINIMUM FREQUENCY	RECORD
RADIATION LEVELS	DAILY	N/A	YES
CONTAMINATION	WEEKLY	MONTHLY	YES

RECORDS OF SURVEYS

RESULTS SHALL BE RECORDED AND MAINTAINED ALONG WITH THE FOLLOWING:

A DRAWING OF THE FACILITY SHOWING FEATURES SUCH AS THE "HOT SINK", STORAGE AREAS, ACTIVE WASTE AREAS, ETC. FOR REFERENCE TO REPORT FORM.

LOCATION, DATE, TYPE OF EQUIPMENT USED, AND SURVEYOR'S INITIALS.

FOR WIPE TESTS, THE PULSE HEIGHT ANALYZER SETTINGS AND THE RADIOACTIVE STANDARD, ACTIVITY, AND DATE SHOULD BE NOTED.

IF AN UNACCEPTABLE LEVEL IS MEASURED, THE INITIAL READINGS, CORRECTIVE ACTIONS TAKEN, AND SUBSEQUENT READINGS WILL BE RECORDED.

SURVEY PROCEDURES AND MAXIMUM LIMITS

RADIATION LEVELS ---- AREA MONITORING IS CONDUCTED WITH A CALIBRATED SURVEY METER SUFFICIENTLY SENSITIVE TO DETECT 0.05 MR/HR. A MAXIMUM LIMIT OF 0.06 MR/HR. IN NON-CONTROLLED AREAS AND 2.5 MR/HR. IN CONTROLLED AREAS IS ALLOWED, BUT SHOULD BE KEPT AS LOW AS PRACTICAL.

CONTAMINATION ---- A SERIES OF WIPES IS TAKEN IN AREAS WHERE ACTIVITY IS HANDLED IN UNSEALED FORM, WITH EACH WIPE ENCOMPASSING APPROXIMATELY 10 X 10 CM. A GAMMA-SCINTILLATION WELL COUNTER IS USED, WITH THE ANALYZER THRESHHOLD SET BELOW THE LOWEST GAMMA ENERGY USED IN THE LABORATORY, AND THE UPPER LEVEL SET AT MAXIMUM. THE FOLLOWING MEASUREMENTS ARE THEN PERFORMED AND RECORDED:

TAKE A 1 MIN. BACKGROUND COUNT & RECORD BKGD COUNTS PER MIN. (CPM).

TAKE A 1 MIN. COUNT ON A LONG-LIVED STANDARD AND RECORD NET CPM (GROSS CPM - BKGD CPM). THIS IS A CONSTANCY CHECK ON THE COUNTER.

TAKE A 1 MIN. COUNT ON ALL SAMPLES AND RECORD NET CPM.

AREAS WITH A REMOVABLE ACTIVITY OF 0.001 uCi/100sq cm. OR MORE WILL REQUIRE DECONTAMINATION, AND REPEAT TESTING.

NOTIFICATION

ANY LEVELS WHICH ROUTINELY EXCEED THE PERMITTED LIMITS SHOULD BE BROUGHT TO THE ATTENTION OF THE RADIATION SAFETY OFFICER (RSO).

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RADIOACTIVE WASTE DISPOSAL

RADIOACTIVE WASTE IS DISPOSED OF AS FOLLOWS:

1. IF RADIOACTIVE MATERIAL IS SUPPLIED BY SYNCOR INTERNATIONAL CORP. (RADIOPHARMACY), ANY REMAINING AFTER USE IS RETURNED TO SYNCOR PER THEIR INSTRUCTIONS. SYNCOR IS LOCATED AT:
   53-B HURLBUT STREET
   WEST HARTFORD, CT. 06110

2. IF MO-99/TC-99M GENERATORS ARE USED, THEY WILL EITHER BE RETURNED TO THE MANUFACTURER, OR HELD FOR DECAY.(SEE PROCEDURES FOR ORDINARY WASTE DISPOSAL)

3. A SMALL AMOUNT OF LIQUID WASTE USED IN THE IN VITRO LAB. WILL BE DISPOSED INTO THE SANITARY SEWER IN ACCORDANCE WITH 20.303 OF 10 CFR PART 20.

4. ALL OTHER MATERIAL IS HELD FOR COMPLETE DECAY.(SEE PROCEDURES FOR ORDINARY WASTE DISPOSAL), RETURNED TO THE MANUFACTURER, OR TRANSFERRED TO A LICENSED AGENT FOR DISPOSAL.

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT.
LICENSE NO. 06-08349-04

PROCEDURES FOR "ORDINARY WASTE DISPOSAL"(OWD) OF RADIOACTIVE WASTE
FOR THE NUCLEAR MEDICINE LABORATORY

I. GENERAL

ALL FORMS OF DISPOSAL MUST BE APPROVED BY THE RAD. SAFETY OFFICER (RSO) & CONFORM TO APPROPRIATE LOCAL, STATE, AND FEDERAL REGULATIONS.

RADIOACTIVE MATERIAL MUST BE HELD FOR DECAY UNTIL RADIATION LEVELS, AS MEASURED WITH A LOW-LEVEL CALIBRATED G-M SURVEY METER AND WITH ALL SHIELDING REMOVED, HAVE REACHED BACKGROUND. THIS DECAY PERIOD IS USUALLY A MINIMUM OF 10 HALF LIVES BEFORE DISPOSAL AS OWD.

ALL RADIATION LABELS MUST BE REMOVED OR DEFACED AND PACKAGING MATERIAL MUST BE SURVEYED TO INSURE NO CONTAMINATION BEFORE DISPOSAL.

ANY QUESTIONS SHOULD BE DIRECTED TO THE RSO.

II. STORAGE OF WASTE MATERIAL

ALL RADIOACTIVE WASTE MATERIAL WILL BE STORED IN THE DESIGNATED SHIELDED ENCLOSURES.

RADIOACTIVE WASTE MATERIAL AND CONTAMINATED SYRINGES WILL BE SEGREGATED INTO TC-99M AND NON TC-99M CONTAINERS. THE CONTAINERS WILL BE LINED WITH POLY BAGS AND LABELED WITH AN IDENTIFYING SERIAL NUMBER.

THE DATE THE CONTAINER IS SEALED FOR FURTHER DECAY WILL ALSO BE PLACED ON THE CONTAINER AT THAT TIME.

MOLY-99 GENERATORS TO BE DISPOSED AS OWD, WILL BE STORED INTACT FOR AT LEAST 10 HALF LIVES (APPROX. 4 WEEKS) BEFORE BEING BROKEN DOWN. THE COLUMNS CAN THEN BE PLACED IN THE NON TC-99M CONTAINER.

ISOTOPES WITH HALF LIVES GREATER THAN 8 DAYS SHOULD BE STORED SEPARATELY IN INDIVIDUAL CONTAINERS.

RUBBER GLOVES, ALCOHOL SWABS, ABSORBENT BENCH TOP LINERS, ETC., WILL BE PLACED IN THE POLY-LINED STEP ON TRASH CONTAINERS PROVIDED. THESE CONTAINERS WILL BE LABELED WITH A "RADIOACTIVE MATERIAL -- DO NOT REMOVE" LABEL. WHEN THE BAG IS FULL, IT WILL BE TAPED CLOSED AND SURVEYED WITH A G-M SURVEY METER. IF NO READINGS ABOVE BACKGROUND ARE MEASURED, IT MAY BE DISPOSED OF AS OWD, OTHERWISE IT WILL BE PLACED IN STORAGE FOR FURTHER DECAY.

III. RECORDS FOR DISPOSAL

RECORDS OF DISPOSAL WILL INCLUDE THE FOLLOWING INFORMATION:

THE DATE PLACED IN STORAGE FOR DECAY AND THE CONTAINER SERIAL NUMBER IF APPLICABLE(MOLY-99 GENERATORS OR ISOTOPES WITH HALF LIVES GREATER THAN 8 DAYS CAN BE STORED SEPARATELY)

APPROXIMATE TOTAL ACTIVITY AND VOLUME (OR NUMBER OF SOURCES FOR CAPSULES, SEEDS, COLUMNS, ETC.) AT THE TIME PLACED IN STORAGE.

DATE DISPOSED AS OWD AND SURVEY METER READING (BACKGROUND).

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THERAPEUTIC USE OF RADIOPHARMACEUTICALS

THIS INSTITUTION ROUTINELY ONLY TREATS PATIENTS WITH IODINE-131 AT DOSES OF LESS THAN 30 mCi.DOSES.

IF A PATIENT TREATED WITH IODINE-131 REQUIRES HOSPITALIZATION (e.g. DOSES GREATER THAN 30 mCi), THE ATTACHED PROCEDURES AND FORMS PERTAINING TO I-131 THERAPY WILL BE FOLLOWED.

IF IN THE FUTURE ANY OTHER TREATMENT (P-32 OR GOLD-198) IS PERFORMED THE PROCEDURES LISTED IN APPENDIX K OF REGULATORY GUIDE 10.8 WILL BE UTILIZED.

CHARLOTTE [redacted]UNGERFORD HOSPITAL -- TORR[redacted]GTON, CT.
LICENSE NO. 06-08349-04

PROCEDURES FOR "ORDINARY WASTE DISPOSAL"(OWD) OF RADIOACTIVE WASTE
FOR THE NUCLEAR MEDICINE LABORATORY

I. GENERAL

ALL FORMS OF DISPOSAL MUST BE APPROVED BY THE RAD. SAFETY OFFICER (RSO) & CONFORM TO APPROPRIATE LOCAL, STATE, AND FEDERAL REGULATIONS.

RADIOACTIVE MATERIAL MUST BE HELD FOR DECAY UNTIL RADIATION LEVELS, AS MEASURED WITH A LOW-LEVEL CALIBRATED G-M SURVEY METER AND WITH ALL SHIELDING REMOVED, HAVE REACHED BACKGROUND. THIS DECAY PERIOD IS USUALLY A MINIMUM OF 10 HALF LIVES BEFORE DISPOSAL AS OWD.

ALL RADIATION LABELS MUST BE REMOVED OR DEFACED AND PACKAGING MATERIAL MUST BE SURVEYED TO INSURE NO CONTAMINATION BEFORE DISPOSAL.

ANY QUESTIONS SHOULD BE DIRECTED TO THE RSO.

II. STORAGE OF WASTE MATERIAL

ALL RADIOACTIVE WASTE MATERIAL WILL BE STORED IN THE DESIGNATED SHIELDED ENCLOSURES.

RADIOACTIVE WASTE MATERIAL AND CONTAMINATED SYRINGES WILL BE SEGREGATED INTO TC-99M AND NON TC-99M CONTAINERS. THE CONTAINERS WILL BE LINED WITH POLY BAGS AND LABELED WITH AN IDENTIFYING SERIAL NUMBER.

THE DATE THE CONTAINER IS SEALED FOR FURTHER DECAY WILL ALSO BE PLACED ON THE CONTAINER AT THAT TIME.

MOLY-99 GENERATORS TO BE DISPOSED AS OWD, WILL BE STORED INTACT FOR AT LEAST 10 HALF LIVES (APPROX. 4 WEEKS) BEFORE BEING BROKEN DOWN. THE COLUMNS CAN THEN BE PLACED IN THE NON TC-99M CONTAINER.

ISOTOPES WITH HALF LIVES GREATER THAN 8 DAYS SHOULD BE STORED SEPARATELY IN INDIVIDUAL CONTAINERS.

RUBBER GLOVES, ALCOHOL SWABS, ABSORBENT BENCH TOP LINERS, ETC., WILL BE PLACED IN THE POLY-LINED STEP ON TRASH CONTAINERS PROVIDED. THESE CONTAINERS WILL BE LABELED WITH A "RADIOACTIVE MATERIAL -- DO NOT REMOVE" LABEL. WHEN THE BAG IS FULL, IT WILL BE TAPED CLOSED AND SURVEYED WITH A G-M SURVEY METER. IF NO READINGS ABOVE BACKGROUND ARE MEASURED, IT MAY BE DISPOSED OF AS OWD, OTHERWISE IT WILL BE PLACED IN STORAGE FOR FURTHER DECAY.

III. RECORDS FOR DISPOSAL

RECORDS OF DISPOSAL WILL INCLUDE THE FOLLOWING INFORMATION:

THE DATE PLACED IN STORAGE FOR DECAY AND THE CONTAINER SERIAL NUMBER IF APPLICABLE(MOLY-99 GENERATORS OR ISOTOPES WITH HALF LIVES GREATER THAN 8 DAYS CAN BE STORED SEPARATELY)

APPROXIMATE TOTAL ACTIVITY AND VOLUME (OR NUMBER OF SOURCES FOR CAPSULES, SEEDS, COLUMNS, ETC.) AT THE TIME PLACED IN STORAGE.

DATE DISPOSED AS OWD AND SURVEY METER READING (BACKGROUND).

CHARLOTTE HUNGERFORD HOSPITAL -- TORRINGTON, CT
LICENSE NO. 06-08349-04

PROCEDURES FOR USE OF IODINE-131 FOR TREATMENT OF PATIENTS

1. ALL PATIENTS RECEIVING A DOSE OF 30 mCi IODINE-131 OR MORE MUST BE HOSPITALIZED UNTIL THE ACTIVITY REMAINING IN THE PATIENT IS BELOW 30 mCi AND PREFERABLY BELOW 8 mCi.

2. ALL PATIENTS WHO MUST BE HOSPITALIZED, MUST BE SCHEDULED BY THE NUCLEAR MEDICINE DEPARTMENT.

3. IODINE-131 WILL BE ADMINISTERED IN CAPSULE FORM ONLY, BY THE RESPONSIBLE LICENSED PHYSICIAN IN THE PATIENT'S ROOM.

4. ALL PATIENTS TREATED WITH RADIOACTIVE MATERIAL WILL BE PLACED IN A CORNER PRIVATE ROOM WITH A TOILET.

5. FOR PATIENTS WITH IODINE-131, THE LARGE SURFACES IN THE ROOM AND TOILET AREAS THAT ARE MORE LIKELY TO BE CONTAMINATED WILL BE COVERED WITH ABSORBENT PADS OR PROTECTIVE MATERIAL AS APPROPRIATE TO THE AMOUNTS OF CONTAMINATION TO BE EXPECTED. ATTENTION SHOULD BE GIVEN TO OBJECTS LIKELY TO BE TOUCHED BY THE PATIENT, E.G., TELEPHONES, DOORKNOBS AND OTHER ITEMS THAT WOULD BE DIFFICULT TO DECONTAMINATE. PLASTIC BAGS OR WRAPPINGS THAT ARE DISPOSABLE SHOULD BE USED ON SMALLER ITEMS.

6. RADIOACTIVE PRECAUTION TAGS SHALL BE ATTACHED TO THE BED, DOOR, AND THE PATIENT'S WRIST BAND AND CHART. REMOVAL OF TAGS SHALL ONLY BE AUTHORIZED BY THE RESPONSIBLE PHYSICIAN OR NUCLEAR MEDICINE DEPARTMENT.

7. THE BED WILL BE ARRANGED SO AS TO MINIMIZE THE EXPOSURE RATE IN THE HALL AND ANY ADJACENT ROOM.

8. RADIATION MEASUREMENTS IN AND SURROUNDING THE PATIENT'S ROOM WILL BE RECORDED ON THE "RADIATION SURVEY RECORD" FORM (SEE ATTACHED). RADIATION LEVELS IN ALL AREAS SURROUNDING THE PATIENT'S ROOM WILL BE MAINTAINED LESS THAN LIMITS SPECIFIED IN SECTION 20.105(B), 10 CFR PART 20.(i.e. THESE LEVELS SHALL NOT EXCEED EITHER A RATE OF 2 mR/hr OR A CUMULATIVE OF 100 mR IN ANY WEEK).

9. THE FORM, "NURSING INSTRUCTIONS FOR PATIENTS TREATED WITH IODINE-131", WILL BE COMPLETED IMMEDIATELY AFTER ADMINISTRATION OF THE TREATMENT DOSE. A COPY WILL BE POSTED IN THE PATIENT'S CHART.

10. VISITORS WILL NORMALLY BE RESTRICTED AS FOLLOWS, UNLESS THE MEASUREMENTS INDICATE ADDITIONAL RESTRICTIONS ARE REQUIRED:
    A. NO PREGNANT VISITORS OR CHILDREN UNDER 18 YEARS OLD ALLOWED.
    B. VISITORS MUST REMAIN AT LEAST 6 FEET FROM THE PATIENT.
    C. EACH VISITOR MAY REMAIN NO LONGER THAN 30 MINUTES PER DAY.

11. THE FORM, "RADIATION SURVEY RECORD" WILL BE COMPLETED AT THE DESIGNATED TIMES. THIS WILL BE KEPT IN THE NUCLEAR MEDICINE DEPT.

12. NURSES CARING FOR THESE PATIENTS WILL BE ASSIGNED FILM OR TLD BADGES.

13. THESE RADIATION PRECAUTIONS WILL NO LONGER BE REQUIRED FOR ANY OF THE FOLLOWING REASONS:
    A. PATIENT DISCHARGE
       NO PATIENT CONTAINING IODINE-131 MAY DISCHARGED UNLESS THE REMAINING ACTIVITY IS LESS THAN 30 mCi (APPROX. 7 mR/hr AT 1 METER), AND PREFERABLY LESS THAN 8 mCi (APPROX. 2 mR/hr AT 1 METER).
    B. IF THE PATIENT REMAINS HOSPITALIZED AND THE EXPOSURE RATE AT 1 METER IS 0.5 mR/hr OR LESS.

14. WHEN RADIATION PRECAUTIONS ARE NO LONGER REQUIRED:
    A. ALL PLASTIC BAGS AND COVERS WILL BE REMOVED TO THE NUCLEAR MEDICINE DEPT FOR MONITORING AND/OR DECAY WHERE NECESSARY.
    B. THE ROOM MUST BE SURVEYED TO ASSURE NO RADIATION LEVELS ABOVE BACKGROUND EXIST IN THE ROOM.
    C. THE RADIATION PRECAUTIONS TAGS AND NURSING INSTRUCTIONS ARE REMOVED.
    D. THE NURSING STATION IS NOTIFIED THAT RADIATION PRECAUTIONS ARE NO LONGER IN EFFECT.

INSTRUCTIONS TO PATIENT UPON RELEASE FROM HOSPITAL

THE PATIENT MAY NOT BE RELEASED UNLESS THE REMAINING ACTIVITY IS LESS THAN 30 mCi AND PREFERABLY LESS THAN 8 mCi.

A. IF THE REMAINING ACTIVITY IS LESS THAN 8 mCi:
   FEMALE PATIENTS SHOULD BE INSTRUCTED TO AVOID BECOMING PREGNANT FOR AT LEAST 2 MONTHS AFTER THE ACTIVITY HAS REACHED BACKGROUND.

B. IF THE REMAINING ACTIVITY IS BETWEEN 8 AND 30 mCi:
   PREGNANT WOMEN, CHILDREN, AND PERSONS UNDER 45 YEARS OF AGE SHALL NOT BE ALLOWED IN THE SAME ROOM, NOR AT A DISTANCE OF LESS THAN 9 FEET FROM THE PATIENT FOR MORE THAN 15 MINUTES PER DAY. PERSONS OLDER THAN 45 YEARS OF AGE SHOULD REMAIN AT A DISTANCE OF AT LEAST 3 FEET FROM THE PATIENT EXCEPT FOR BRIEF PERIODS OF CLOSER CONTACT SUCH AS SHAKING HANDS OR KISSING.
   THESE PRECAUTIONS WILL NO LONGER BE REQUIRED WHEN THE REMAINING ACTIVITY IS LESS THAN 8 mCi. HOWEVER FEMALE PATIENTS SHOULD BE INSTRUCTED TO AVOID BECOMING PREGNANT FOR AT LEAST 2 MONTHS AFTER THE ACTIVITY HAS REACHED BACKGROUND.

NURSING INSTRUCTIONS FOR PATIENTS TREATED WITH IODINE-131

PATIENT NAME ..... DATE.....
ROOM NO. ..... PHYSICIAN'S NAME.....
ACTIVITY ADMINISTERED .....
DATE & TIME ADMINISTERED .....

EXPOSURE RATES IN mR/hr.

DATE	3 FEET FROM PATIENT	10 FEET FROM PATIENT
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

COMPLY WITH ALL CHECKED ITEMS

..... 1. VISITING TIME PERMITTED -- 30 MINUTES PER DAY.

..... 2. VISITORS MUST REMAIN 6 FEET FROM PATIENT.

..... 3. PATIENT MAY NOT LEAVE ROOM.

..... 4. VISITORS UNDER 18 OR PREGNANT VISITORS NOT PERMITTED.

..... 5. PERSONNEL MUST WEAR FILM OR TLD BADGES.

.....6. NO PREGNANT PERSONNEL ALLOWED.

..... 7. SUPPLEMENTARY POCKET CHAMBERS TO BE WORN.

..... 8. DOOR, BED, CHART AND PATIENT'S WRIST TAGGED.

..... 9. DISPOSABLE GLOVES MUST BE WORN WHILE ATTENDING PATIENT.

..... 10. PATIENT MUST USE DISPOSABLE UTENSILS.

..... 11. ALL ITEMS MUST REMAIN IN ROOM UNTIL CLEARED BY R.S.O.

..... 12. SMOKING IS NOT PERMITTED.

..... 13. ROOM IS NOT TO BE RELEASED UNTIL CLEARED BY R.S.O.

..... 14. OTHER INSTRUCTIONS .....

.....

.....

IN CASE OF EMERGENCY CONTACT THE NUCLEAR MEDICINE DEPARTMENT AND/OR THE RADIATION SAFETY OFFICER (R.S.O.).

R.S.O.: GERALD J RANDALL, M.S.
PHONE -- OFFICE: 6556 HOME: 1-673-1643
IF MR. RANDALL CANNOT BE REACHED, NOTIFY THE RADIOLOGIST ON CALL

G.J.R. 1/23/84 SEC 19 ITEM 19 REV 10/15/84

RADIATION SURVEY RECORD -- IODINE-131 THERAPY PATIENT ROOM SURVEY

PATIENT NAME ..... NUMBER .....
ROOM NUMBER. ..... PHYSICIAN'S NAME .....
ACTIVITY ADMINISTERED .....
TIME AND DATE ADMINISTERED .....

PATIENT MONITORING (EXPOSURE RATE IN mR/hr. AT 1 METER FROM PATIENT)

NOTE: PATIENT INSTRUCTED NOT TO URINATE FROM TIME OF ADMINISTRATION UNTIL THE MEASUREMENT MADE AT 1 HOUR POST ADMINISTRATION.

INITIAL EXPOSURE RATE	.....
1 HOUR POST ADMINISTRATION	.....
1 DAY POST ADMINISTRATION	.....
2 DAYS POST ADMINISTRATION	.....
3 DAYS POST ADMINISTRATION	.....
4 DAYS POST ADMINISTRATION	.....
5 DAYS POST ADMINISTRATION	.....
.....	.....

DATE OF DISCHARGE ..... EXPOSURE RATE AT 1 METER .....
ESTIMATED ACTIVITY REMAINING AT TIME OF DISCHARGE (mCi) .....

AREA SURVEY (PERFORMED IMMEDIATELY POST ADMINISTRATION)

CORRIDOR OUTSIDE PATIENT'S ROOM	.....	mR/hr MAXIMUM
ADJACENT ROOM	.....	mR/hr MAXIMUM
OTHER	.....	mR/hr MAXIMUM
.....	.....	mR/hr MAXIMUM
.....	.....	mR/hr MAXIMUM

ROOM SURVEYED AND CLEARED FROM RADIOACTIVE PRECAUTIONS CATEGORY

SURVEY TIME & DATE .....

MAXIMUM EXPOSURE RATES IN ROOM (mR/hr)

BATHROOM	.....
TELEPHONE	.....
BED	.....
TABLE	.....
OTHER	.....
.....	.....

LINEN BAGS, UTENSIL BAGS, ETC REMOVED AS REQUIRED? .....

COMMENTS .....
.....
.....

SIGNATURE .....

SCOPE

This set of instructions provides procedures to be followed by nursing personnel, in the CARE OF PATIENTS WHO HAVE RECEIVED THERAPEUTIC AMOUNTS OF IODINE-131.

THIS DOES NOT REFER TO THOSE PATIENTS WHO HAVE RECEIVED DIAGNOSTIC AMOUNTS OF RADIOISOTPES (TRACERS). Tracer quantities are small so that no significant hazard exists, and ordinary nursing care should be given to these patients.

Any special instructions may be included in the patient's chart for a particular patient. They will be in addition to those in this handbook.

NOTE:

(1) Patients are NOT radioactive unless they have radioactive isotopes in or on their bodies. Patients are, therefore, NOT radioactive after they have had diagnostic xrays or C.A.T. scans.

(2) Check the instructions in the chart and in this handbook if you want information, before resorting to the emergency call procedure.

EMERGENCY CALL PROCEDURE

IF ANY QUESTION ARISES, OR IN THE CASE OF AN EMERGENCY, CALL THE RADIATION SAFETY OFFICER (R.S.O.) IN RADIOLOGY AND THE NUCLEAR MEDICINE DEPARTMENT. THE TELEPHONE OPERATOR HAS A CALL LIST FOR USE WHEN THE DEPARTMENT IS NOT OPEN.

ALWAYS NOTIFY THE NURSING SUPERVISOR WHEN THERE IS A NEED TO CONTACT THE R.S.O. OR NUCLEAR MEDICINE DEPARTMENT.

A. GENERAL INFORMATION

1. INTRODUCTION

Ionizing radiations are used extensively in a modern hospital. The sources of radiation most frequently encountered are diagnostic X-ray machines, computerized axial tomography (C.A.T.), and pharmaceuticals of radioactive isotopes. The rooms which house the diagnostic xray machines and C.A.T. scanner are designed to protect the medical staff by suitable lead barriers. Diagnostic radiopharmaceuticals are given in relatively low doses and disappear quickly from the patient's body and therefore offer little radiation risk. THIS MANUAL CONCERNS THE USE OF RADIOACTIVE IODINE-131 USED FOR THERAPY ONLY.

2. IONIZING RADIATIONS

There are several different ionizing radiations; all have the ability to ionize gases. If they enter living tissues some of their energy may be absorbed in the tissue, and the tissue is then said to have received a "dose" of radiation. Many objects (including the human body) contain trace quantities of naturally occurring radioactive materials. The human body therefore receives radiation from these materials within it, and also receives radiation from surrounding objects and from outer space (as cosmic rays). Small doses of radiation have therefore been administered continually to man by nature throughout his existence.

3. HAZARDS OF IONIZING RADIATION

There is considerable fear of the effects of ionizing radiation. Large doses of radiation do cause a variety of biological effects (one of which is to destroy malignant tissues). Very small doses of radiation, comparable to the doses accumulated from natural sources throughout our lives, or those received during typical radiographic examinations, are believed to be without significant hazard to the individual. Evidence for this view has been obtained from studies of humans who have received radiation doses for therapeutic and diagnostic purposes in the past; those who have been irradiated in accidents; those who live, or work, where the natural 'background' radiation level is unusually high; and a vast number of studies on animals irradiated for experimental purposes.

4. LEGAL CONTROL OF RADIATION DOSE

Various iternational, national, and state agencies have assessed the hazards of ionizing radiations and have set legal limits for the dose any individual working with ionizing radiations may receive. Furthermore, limits have been laid down for doses which individual members of the public, not actively working with ionizing radiations, may receive. These doses are ten times smaller than for occupational workers. Nursing staff are treated as members of the public for radiation control purposes in this hospital, and hence provides a very wide safety margin. In order to ensure that this maximum dose is not exceeded, the Radiation Safety Officer (R.S.O.) will arrange that a radiation survey is performed around the patient receiving radiation treatment, and may issue special nursing instructions. Nursing staff may also be required to wear special film badges to ensure that the dose they receive is within the legal limits.

5. PROTECTION FROM IONIZING RADIATIONS

There are three ways in which personnel may be protected from ionizing radiations.

(a) Distance
(b) Time
(c) Shielding

(a) DISTANCE: The farther an individual is away from a source of radiation, the smaller is the dose of radiation received by the individual in a given time. If the distance is doubled, the dose received in a given time falls by a factor of 4. Taking a practical case of a patient containing a source of radiation, the dose rate is highest at the bedside but outside the room the dose is usually quite small. (If a patient is very near to one wall, however, it may be necessary to place restrictions on the use of the next room.)

(b) TIME: The shorter the time an individual spends in the vicinity of a source of radiation, the smaller the dose of radiation accumulated. This means that it may be quite safe to carry out normal nursing duties quite close to the patient, including handling the patient, but that it is not advisable to spend long periods of time sitting alongside the patient. If constant attendance is necessary, the chair should be placed at a reasonable distance from the bedside (usually 6 feet).

(c) SHIELDING: Sources of radiation are usually handled behind shielding barriers of lead or concrete, since the individual may have to spend a long time near the source. Sources are also transported in a special lead container for similar reasons. THESE CONTAINERS ARE NOT IN THEMSELVES RADIOACTIVE, and markings on them apply only to the contents.

IN SUMMARY

The same dose of radiation could be accumulated by spending a long time some distance from a radiation source or a shorter time close to the source. Nursing duties close to the patient should be completed with reasonable speed; if long periods of attendance are necessary the nurse should sit at a reasonable distance (such as 6 feet) from the patient. Special instructions will be issued if necessary.

B. GENERAL INSTRUCTIONS

1. INTRODUCTION

Nurses should spend only that amount of time near the patient required for ordinary nursing care. Special restrictions may be noted on the precaution sheet in the patient's chart. Nurses should read these instructions before administering to the patients. If you have any questions about the care of these patients, call the Nuclear Medicine Department.

With the observance of these procedures, nurses and other personnel will ordinarily receive less radiation annually than is recommended as the maximum permissible dose for the general public. In no case is the annual radiation dose received by a nurse allowed to reach the maximum permissible dose for individuals who work with radiation. These maximum permissible dose levels have been recommended by the National Committee on Radiation Protection and have been set low for the protection of anyone exposed to radiation.

2. PATIENT ISOLATION AND ROOM ASSIGNMENT

a. Patient will be assigned to a corner private room with a bathroom.
b. Patient will be confined to this room except for special medical or nursing purposes approved by the Nuclear Medicine Department or R.S.O.
c. Patient must remain in bed while visitors are in the room.

3. RADIATION PRECAUTION TAGS

These must be posted on the front of the patient's chart, on the door to the patient's room, and on the bed. The patient will wear a radiation precaution wristband. The Nuclear Medicine Department will monitor the patient to determine when the level of radioactivity is low enough to release the patient from the hospital or when radioactive precautions are no longer needed. At this time the radiation warning signs will be removed and the patient may be moved to a multiple-bed room or discharged.

4. PREGNANCY

NO NURSE, VISITOR OR ATTENDANT WHO IS PREGNANT SHOULD BE PERMITTED IN THE ROOM of a patient who has received a therapeutic amount of radioactivity until the patient no longer presents a radiation hazard.

5. ROOM PREPARATION

Arrange to have the usual services (linen changes, cleaning, T.V. installation, etc.) completed before the radioactive material is administered to the patient. Remove all soiled and excess linen from the room.

SET UP A PLASTIC LINEN BAG IN THE ROOM TO STORE ALL SUBSEQUENT SOILED LINEN.

ARRANGE FOR DISPOSABLE DISHES AND UTENSILS. THESE WILL BE PLACED IN A SEPARATE PLASTIC BAG IN THE PATIENT'S ROOM AFTER USE.

Finally, set up a table or cupboard outside the room with ISOLATION GOWNS AND A SUPPLY OF DISPOSABLE RUBBER GLOVES. These gloves need not be sterile or surgical in type.

DO NOT REMOVE THE ARTICLES PLACED IN THE PLASTIC BAGS UNLESS INSTRUCTED TO DO SO BY THE PHYSICIAN WHO ADMINISTERED THE RADIOACTIVE MATERIAL, THE R.S.O., OR THE NUCLEAR MEDICINE DEPARTMENT.

6. CLEANING OF ROOM DURING THERAPY

CLEANING AND SERVICE STAFF SHOULD BE EXCLUDED FROM THE ROOM UNLESS THEY HAVE PERMISSION FROM THE R.S.O.

All USED LINEN AND DISPOSABLE EATING ACCESSORIES will be placed in the plastic bags provided and KEPT IN THE ROOM until released by the R.S.O. or the Nuclear Medicine department.

7. ANCILLARY PERSONNEL

HOUSEKEEPING, MAINTENANCE, DIETARY PERSONNEL ETC. SHOULD BE EXCLUDED FROM THE ROOM until the radioactive precautions have been removed.

8. VISITORS

A. NO PREGNANT VISITORS OR CHILDREN UNDER 18 YEARS OLD are allowed. Female visitors should be asked whether they are pregnant.
B. VISITORS MUST REMAIN AT LEAST 6 FEET FROM THE PATIENT.
C. Each visitor may remain NO LONGER THAN 1/2 HOUR PER DAY.
D. PATIENT MUST REMAIN IN BED WHILE VISITORS ARE IN ROOM.
E. NO VISITORS ALLOWED FOR THE THE FIRST 24 HOURS following administration of the treatment dose.

9. PERSONNEL MONITORING

FILM BADGES MUST BE WORN BY ALL NURSING PERSONNEL CARING FOR THE PATIENT. Obtain from the X-ray Department film badges for two staff members scheduled for each shift. EACH STAFF MEMBER IS ASSIGNED ONE BADGE WHICH MUST BE WORN BY THAT INDIVIDUAL ONLY. The badge is to be left at the Nursing Desk when off-duty. DO NOT LEAVE IT IN PATIENT'S ROOM OR WEAR IT OUTSIDE OF HOSPITAL.

10. EMERGENCIES

a. FIRE

Follow the established procedures but try to separate radioactive patients from other personnel by a few feet wherever possible. Advise the R.S.O. when the main emergency is over.

b. DEATH OF PATIENT

Notify the R.S.O. in addition to normal notification procedures. The BODY MAY NOT BE RELEASED without written permission of the R.S.O. who may also issue special instructions as to precautions to be taken for autopsy, embalming, etc.

c. EMERGENCY SURGERY

If a therapy patient should need emergency surgery, immediately notify the Nuclear Medicine Department.

d. CONTAMINATION FROM IODINE-131 RADIOPHARMACEUTICAL THERAPY

VOMITING WITHIN 24 HOURS AFTER ORAL ADMINISTRATION, URINARY INCONTINENCE, OR EXCESSIVE SWEATING WITHIN THE FIRST 48 HOURS MAY RESULT IN CONTAMINATION OF LINEN AND FLOOR. In any situation where the patient's room may be contaminated or if radioactive urine and/or feces is spilled, CALL THE NUCLEAR MEDICINE DEPARTMENT OR THE R.S.O. Meanwhile, handle all contaminated material with disposable gloves and avoid spreading contamination. Afterward, hands should be washed with the gloves on and again after the gloves are removed. The gloves should be placed in the eating utensil waste disposal bag in patient's room.

If a nurse, attendant or anyone else knows or suspects that his or her skin or clothing, including shoes, is contaminated, notify the Nuclear Medicine Department and R.S.O. immemediately. This person should remain in an area adjacent to the patient's room and should not walk about the hospital. If the hands become contaminated, wash them immediately with soap and water.

11. DISCHARGE/REMOVAL OF PATIENT FROM RADIATION PRECAUTION CATEGORY

When the level of radiation around the patient has fallen below the legal limit, the Radioactive Precaution Tags will be removed by the R.S.O. or Nuclear Medicine delpartment staff. At this time, the patient will be removed from any radiation precaution category and instructions will be given as to the disposition of the plastic bags and their contents. The use of the room will also be returned to normal, allowing for routine cleaning and maintenance.

The patient may not be discharged until he is removed from the radiation precaution category, or until approved by the Nuclear Medicine Department. After the therapy patient is discharged, THE ROOM IS TO REMAIN CLOSED TO CLEANING PERSONNEL AND NEW PATIENTS UNTIL THE ROOM HAS BEEN REMOVED FROM RADIATION PRECAUTION CATEGORY.

C. SPECIFIC NURSING INSTRUCTIONS FOR IODINE-131 THERAPY PATIENTS

1. Attending personnel MUST WEAR RUBBER OR DISPOSABLE PLASTIC GLOVES WHEN HANDLING URINALS, BEDPANS, EMESIS BASINS OR CONTAINERS HAVING ANY MATERIAL OBTAINED FROM THE BODY OF THE PATIENT. Wash gloves before removing and then wash hands. The gloves must be disposed of in the eating utensil disposal bag in the patient's room. IF CONTAMINATION OF THE ROOM OR PERSONNEL IS SUSPECTED FOLLOW THE INSTRUCTIONS UNDER THE EMERGENCIES SECTION OF THE GENERAL INSTRUCTIONS.

2. DISPOSABLE EATING UTENSILS (PLATES, CUPS, AND SILVERWARE) should be used in the care of these patients. These items should be PLACED IN THE SEPARATE BAG PROVIDED. Contact the Nuclear Medicine Department for proper disposal.

3. ALL CLOTHES AND BED LINENS USED BY THE PATIENT SHOULD BE PLACED IN THE SEPARATE BAG PROVIDED and left in the patient's room to be checked by the Nuclear Medicine Department.

4. ALL NON-DISPOSABLE ITEMS SHOULD BE PLACED IN A PLASTIC BAG AND LEFT IN THE PATIENT'S ROOM to be checked by a member of the Nuclear Medicine Department.

5. URINE AND FECES ARE NOT ROUTINELY SAVED unless specific orders are written, then special containers will be provided. These containers will be labelled with radiation tags and handled with rubber gloves.
   Otherwise, THE PATIENT SHOULD BE INSTRUCTED TO USE THE BATHROOM AS USUAL AND TO FLUSH 3 TIMES.

6. IF THE PATIENT IS BEDRIDDEN, A SEPARATE URINAL OR BEDPAN SHOULD BE PROVIDED. The urinal or bedpan should be flushed several times with warm soapy water after use. If the nurse helps to collect the excreta, disposable gloves will be worn.

7. IF THE PATIENT VOMITS OR IS INCONTINENT, FOLLOW THE INSTRUCTIONS IN THE EMERGENCIES SECTION OF THE GENERAL INSTRUCTIONS. THE VOMITUS SHOULD BE SAVED IN A PLASTIC BAG FOR DISPOSAL BY THE NUCLEAR MEDICINE DEPARTMENT.

8. NO SMOKING ALLOWED IN ROOM.

CHARLOTTE [redacted]GERFORD HOSPITAL -- TORRI[redacted]TON, CT
LICENSE NO. 06-08349-04

XENON DOCUMENTATION

PRESENTLY THE INFORMATION SUPPLIED IN OUR LETTERS OF SEPT 26,1979 SIGNED BY G. J. RANDALL, R.S.O.; AND NOVEMBER 7, 1980 SIGNED BY MR. JOHN NICKLAS, PRESIDENT, ARE STILL VALID.

WE ARE PLANNING TO MOVE THE NUCLEAR MEDICINE LABORATORY IN THE NEAR FUTURE TO A NEW AREA IN THE HOSPITAL WHICH WILL SUPPLY MORE SPACE AND BE DESIGNED SPECIFICALLY FOR THIS PURPOSE.

WE WILL INCLUDE ALL THE INFORMATION PERTAINING TO THE LAYOUT AND VENTILATION IN AN AMENDMENT REQUEST PRIOR TO MOVING THE LABORATORY.