NRC FORM 374
(7-94)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 34

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Veterans Administration Hospital	In accordance with application dated March 24, 1994 3. License Number 34-00799-03 is renewed in its entirety to read as follows:
2. 3200 Vine Street Cincinnati, OH 45220	4. Expiration Date May 31, 2002
	5. Docket or Reference No. 030-02658

6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License
A. Any byproduct material identified in 10 CFR 35.100	A. Any radiopharmaceutical identified in 10 CFR 35.100	A. As needed
B. Any byproduct material identified in 10 CFR 35.200	B. Any radiopharmaceutical identified in 10 CFR 35.200	B. As needed
C. Any byproduct material identified in 10 CFR 35.300	C. Any radiopharmaceutical identified in 10 CFR 35.300	C. 500 millicuries
D. Any byproduct material identified in 10 CFR 35.400	D. Any brachytherapy sources identified in 10 CFR 35.400	D. 500 millicuries
E. Any byproduct material identified in 10 CFR 31.11	E. Prepackaged Kits	E. As needed
F. Hydrogen-3	F. Any	F. 250 millicuries
G. Carbon-14	G. Any	G. 100 millicuries
H. Iodine-125	H. Any	H. 100 millicuries
I. Iodine-131	I. Any	I. 100 millicuries
J. Phosphorus-32	J. Any	J. 100 millicuries

180263

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
34-00799-03

Docket or Reference Number
030-02658

Amendment No. 34

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
K. Iron-55	K. Any	K. 50 millicuries
L. Technetium-99m	L. Any	L. 50 millicuries
M. Sulfur-35	M. Any	M. 100 millicuries
N. Calcium-45	N. Any	N. 100 millicuries
O. Chromium-51	O. Any	O. 100 millicuries
P. Phosphorus-33	P. Any	P. 20 millicuries
Q. Nickel-63	Q. Foil sources in detector cells	Q. 10 millicuries

9. Authorized Use:

A. Medical use described in 10 CFR 35.100.

B. Medical use described in 10 CFR 35.200.

C. Medical use described in 10 CFR 35.300.

D. Medical use described in 10 CFR 35.400.

E. In vitro studies.

F. through P. To be used for research and development as defined in 10 CFR Part 30, Section 30.4.

Q. To be used in gas chromatographs for sample analysis.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at 3200 Vine Street, Cincinnati, Ohio.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
34-00799-03

Docket or Reference Number
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Amendment No. 34

11. A. Licensed material shall be used by, or under the supervision of, individuals designated by Radiation Safety Committee, Hiroshi Nishiyama, M.D., Chairman.

B. Physicians designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Sections 35.910 through 35.940, inclusive.

C. The Radiation Protection Officer for the activities authorized by this license is Kenneth Fritz, M.S.

12. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Sealed sources need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

E. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Safety Branch, 801 Warrenville Road, Lisle, Illinois 60532-4351. The report shall specify the source involved, the test results, and corrective action taken.

F. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

13. Sealed sources containing licensed material shall not be opened or removed from their source holders by the licensee.

14. A. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

B. Detector cells containing Scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

15. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days for decay-in-storage before disposal in ordinary trash provided:

A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate survey meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

C. A record of each disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
34-00799-03

Docket or Reference Number
030-02658

Amendment No. 34

16. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated March 24, 1994, and;

B. Letters dated January 28, 1997, and April 28, 1997.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date JUN 04 1997

By William P. Kreuscher
Nuclear Materials Licensing Branch, Region III

COPY

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 02120
STATUS CODE: 2
FEE CATEGORY: EX 7C
EXP. DATE: 19940430
FEE COMMENTS: V
DECOM FIN ASSUR REQD: Y

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
   APPLICANT/LICENSEE: VETERAN AFFAIRS, DEPARTMENT OF
   RECEIVED DATE: 940412
   DOCKET NO: 3002658
   CONTROL NO.: 396801
   LICENSE NO.: 34-00799-03
   ACTION TYPE: RENEWAL

2. FEE ATTACHED
   AMOUNT: ---
   CHECK NO.: ---

3. COMMENTS

SIGNED P. Kellogg
DATE 4-13-94

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED /__/)

1. FEE CATEGORY AND AMOUNT: ---

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:
   AMENDMENT ---
   RENEWAL ---
   LICENSE ---

3. OTHER ---

SIGNED ---
DATE ---

170.11(A)(4)
FEE EXEMPT

DEPARTMENT OF VETERANS AFFAIRS
Medical Center
3200 Vine Street
Cincinnati OH 45220

In Reply Refer To: 539/115

March 23, 1994

Materials Licensing Section
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Subject: NRC License Renewal No. 34-00799-03

Enclosed is the NRC form 313 and other required information to renew our NRC license.

If you have any questions, please contact Kenneth M. Fritz, Radiation Safety Officer, at (513) 559-5632.

Thank you for your cooperation in this matter.

John T. Carson
for Medical Center Director

170.11(A)(4)
FEE EXEMPT

RECEIVED
APR 12 1994
REGION III

CONTROL NO. 396801

NRC FORM 313 U. S. NUCLEAR REGULATORY COMMISSION

(6-93)
10 CFR 30, 32, 33
34, 35, 36, 39 and 40

APPLICATION FOR MATERIAL LICENSE

APPROVED BY OMB: NO. 3150-0120
EXPIRES 6-30-96

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 9 HOURS. SUBMITTAL OF THE APPLICATION IS NECESSARY TO DETERMINE THAT THE APPLICANT IS QUALIFIED AND THAT ADEQUATE PROCEDURES EXIST TO PROTECT THE PUBLIC HEALTH AND SAFETY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0199

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137-5927

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

RADIOACTIVE MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION V
1450 MARIA LANE
WALNUT CREEK, CA 94596-5368

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S.NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

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

- [ ] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [X] C. RENEWAL OF LICENSE NUMBER 34-00799-03

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip code)*

Department of Veteran Affairs
Medical Center
3200 Vine Street
Cincinnati, Ohio 45220

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

3200 Vine Street
Cincinnati, Ohio 45220

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Kenneth M. Fritz

TELEPHONE NUMBER
(513) 559-5632

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5.	RADIOACTIVE MATERIAL a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.	6.	PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.
7.	INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.	8.	TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.
9.	FACILITIES AND EQUIPMENT.	10.	RADIATION SAFETY PROGRAM.
11.	WASTE MANAGEMENT.	12.	LICENSEE FEES *(See 10 CFR 170 and Section 170.31)* FEE CATEGORY / AMOUNT ENCLOSED $

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
John T. Carson Medical Center Director		3/24/94

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			$		
APPROVED BY				DATE	

RECEIVED
APR 12 1994

NRC FORM 313 (6-93) PRINTED ON RECYCLED PAPER

CONTROL NO. 396801

Byproduct, source an/or special nuclear material	Chemical and/or physical form	Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material identified in 10 CFR 35.100	A. Any radiopharmaceutical identified in 10 CFR 35.100	A. As needed
B. Any byproduct material identified in 10 CFR 35.200	B. Any radiopharmaceutical identified in 10 CFR 35.200	B. As needed
C. Any byproduct material identified in 10 CFR 35.300	C. Any radiopharmaceutical identified in 10 CFR 35.300	C. As needed
D. Any byproduct material identified in 10 CFR 35.400	D. Any radiopharmaceutical identified in 10 CFR 35.400	D. As needed
E. Any byproduct material identified in 10 CFR 31.11	E. Prepackaged Kits	E. As needed
F. Hydrogen-3	F. Any	F. 250 mCi
G. Carbon-14	G. Any	G. 100 mCi
H. Iodine-125	H. Any	H. 100 mCi
I. Iodine-131	I. Any	I. 100 mCi
J. Phosphorus-32	J. Any	J. 100 mCi
K. Iron-55	K. Any	K. 50 mCi
L. Technetium-99m	L. Any	L. 50 mCi
M. Sulfur-35	M. Any	M. 100 mCi
N. Calcium-45	N. Any	N. 100 mCi
O. Chromium-51	O. Any	O. 100 mCi
P. Nickel-63	P. Foil sources in detector cells	P. 10 mCi
Q. Phosphorus-33	Q. Any	Q. 20 mCi

6. Items F. through O. and Q. to be used for research and development as defined in 10 CFR Part 30, Section 30.4(q).
Item P to be used in gas chromatographs for sample analysis.

7. Individual(s) responsible for Radiation Safety Program and their training experience.

A. Licensed material shall be used by, or under the supervision of, individuals designated by the Radiation Safety Committee, Hiroshi Nishiyama, M.D., Chairman. Dr. Nishiyama has been the Radiation Safety Committee Chairman since February 1989, and he is certified in Nuclear Medicine by the American Board of Nuclear Medicine.

Kenneth Fritz has been a Radiation Safety Officer since 1970 on byproduct material licenses of broad scope. He possesses a M.S. degree in Nuclear Engineering and has experience with multicurie amounts of radionuclides from atomic numbers 3 through 83. Pursuant to 10 CFR 35.901, Mr. Fritz is a qualified Radiation Safety Officer.

Authorized users for non medical use shall be approved by the Radiation Safety Committee. Those who do not, in the opinions of the Radiation Safety Committee, have sufficient training and experience will be required to take the Radiatior Safety Course.

Physicians designated to use licensed mate .al in or on humans shall meet the training criteria established in 10 CFR Part 35, Sections 35.910 through 35.940, inclusive and shall be approved by the Radiation Safety Committee.

8. Training for individuals working in or frequenting restricted areas.

Training will consist of lectures, video-taped presentations, and demonstrations.

8.1 Training Program

A Ancillary personnel whose duties may require them to work in the vicinity of radioactive material are informed about radiation hazards and appropriate precautions on an annual basis pursuant to the requirements of 10 CFR 19.12.

ATT 8.2 Other Training Program

Each new researcher will be evaluated as to the need for training. A test may be given to these who claim past training and experience in order to verify radiation safety competence. A discussion will be held between the new researchers and the Radiation Safety Officer to include those subjects listed in Appendix A, Regulatory Guide 10.8, Revision 2.

Those lacking sufficient training will be required to complete a radiation safety course given by the Radiation Safety Officer of approximately 6 hours duration. It will be necessary

to pass a written test given at the end of the course before approval to use radioactive materials is given. Subjects listed in Appendix A, Regulatory Guide 10.8, Revision 2 will be covered.

9. Facilities and Equipment

9.1 Drawings - Hot Lab, Xenon and Scanning Room. (ATT 9.1)

9.2 Survey Instrument Calibration

The survey meters will be calibrated at least annually and after servicing by a licensed commercial firm (but not limited to) Victoreen (Cleveland, OH) and/or Dosimeter Corp. (Cincinnati, OH) using their NRC licensed procedures.

9.3 Dose Calibrator Calibration

We will establish and implement the model procedure for calibrating our dose calibrator that was published in Appendix C, Regulatory Guide 10.8, Revision 2.

9.4 Personnel Monitoring Program

We have implemented the model personnel external exposure monitoring program published in Appendix D to Regulatory Guide 10.8, Revision 2 except item 4 when there is little chance for exposure to nurses from a low energy source such as iodine 125 seeds.

9.5 Imaging Equipment - N/A

ATT 9.6 Other Equipment and Facilities

We have approximately 10 survey meters available for use by both Nuclear Medicine and Research Department personnel. There are chemical hoods available for use in the Research Department and portable lead shields available for patients receiving radiation therapy.

Several NaI and liquid scintillation counters are available for counting wipe tests.

Some radioactive waste material from Research is stored for decay in a room with a chemical hood. Its size is approximately 10 ft x 10 ft (See item 11 below)

10 Radiation Safety Program

10.1 Radiation Safety Committee/Radiation Safety Officer

We will issue the Radiation Safety Committee Charter and Radiation Safety Officer Delegation of authority that are appended as ATT 10.1

10.2 ALARA Program

We have developed an ALARA program for your review that is appended as ATT 10.2.

10.3 Leak Test - We will implement the model procedure for leak testing sealed sources that was published in Appendix H to Regulatory Guide 10.8, Revision 2.

10.4 Safe Use of Radiopharmaceuticals

We will implement the model safety rules published in Appendix I to Regulatory Guide 10.8, Revision 2 with a revision to model rule number 3.

Hands will be monitored daily as needed for contamination with a suitable survey meter.

10.5 Spill Procedure

We have developed spill procedures for your review that are appended as ATT 10.5.

10.6 Ordering and Receiving

We will implement the model guidance for ordering and receiving radioactive material that was published in Appendix K to Regulatory Guide 10.8, Revision 2.

Our off duty hour memo for delivery of packages is attached for your review.

10.7 Opening Packages

We have developed a package opening procedure for review that is appended as ATT 10.7. See attachment.

10.8 Unit Dosage Records

We will implement the model procedure for a unit dosage record system that was published in Appendix X M.1 to Regulatory Guide 10.8, Revision 2.

10.9 Multidose Vial Record

We will establish and implement the model procedure for a multidose records system that was published in Appendix M.2, Regulatory Guide 10.8, Revision 2.

10.10 Molybdenum Concentration Records

We will establish and implement the model procedure for measuring and recording molybdenum concentration that was published in Appendix M.3 to Regulatory Guide 10.8, Revision 2.

10.11 Implant Source Use Records

No implant sources are permanently stored at this facility. All sources are stored in a secure area. Forms used for implant therapy are attached (ATT 10.11).

10.12 Area Survey Procedures

We will establish and implement the model procedure for area surveys that was published in Appendix N to the Regulatory Guide 10.8, Revision 2 for the Nuclear Medicine Service. Research will be surveyed according to their approved protocols, i.e., at least monthly during active periods of use.

10.13 Air Concentration Control

1.0 We will follow the model procedures for calculating worker dose from noble gases that was published in Appendix 0.1 to Regulatory Guide 10.8, Revision 2.

2.0 We will collect spent aerosol in a shielded bag which is a single use device.

3.0 We will follow the model procedure for calculating airborne effluent concentration that was published in Appendix 0.2 to Regulatory Guide 10.8, Revision 2.

4.0 We will calculate spilled gas clearance times according to procedure that was published in Appendix 0.4 to Regulatory Guide 10.8, Revision 2.

10.14 Radiopharmaceutical Therapy

We will implement the model procedure for radiation safety during radiopharmaceutical therapy published in Appendix P to Regulatory Guide 10.8, Revision 2.

10.15 Implant Therapy

We will implement the model procedure for radiation safety during radiopharmaceutical therapy published in Appendix Q to Regulatory Guide 10.8, Revision 2.

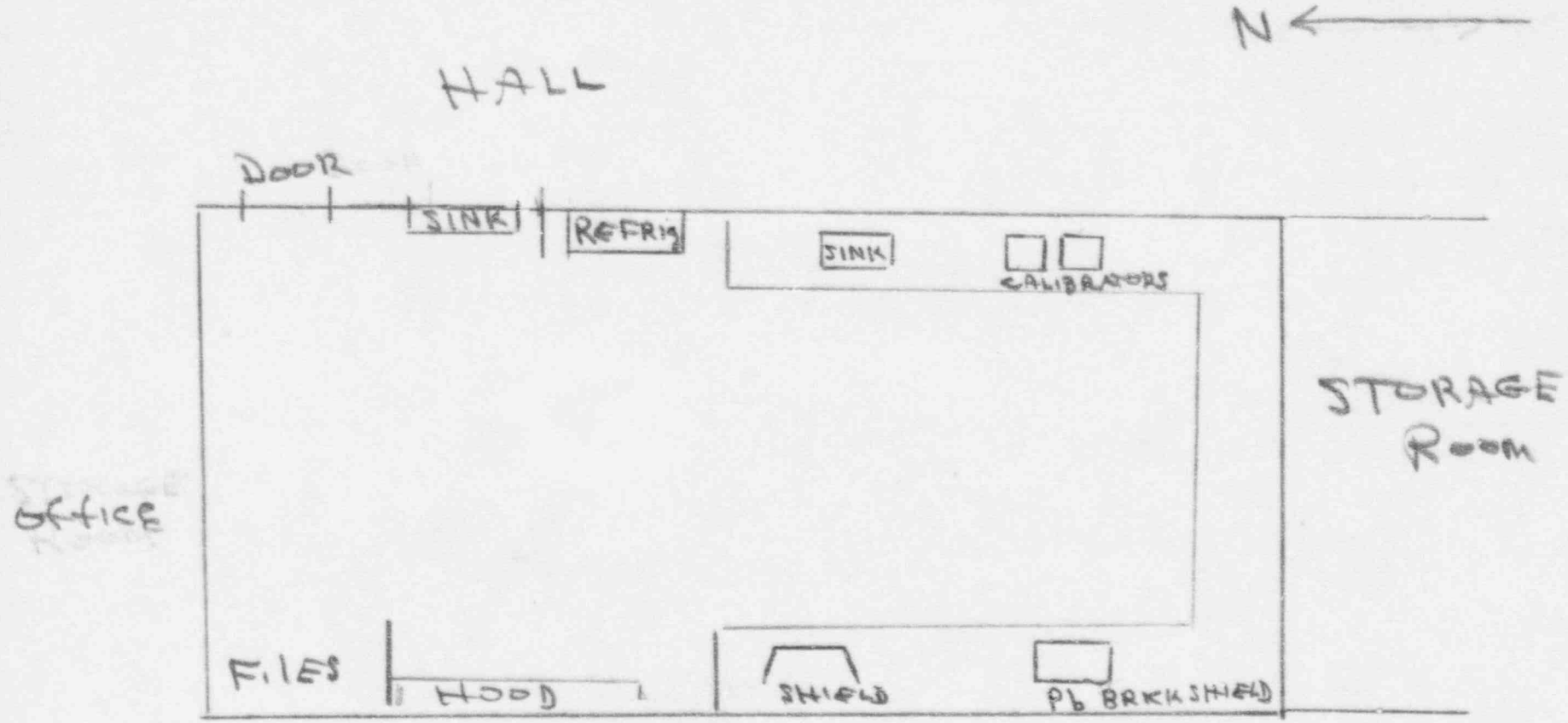
10.16 Other Safety Procedures (See ATT 10.16 for research personnel).

11.1 Waste Disposal

We will implement the general guidance and model procedures for waste disposal published in Appendix R to Regulatory Guide 10.8, Revision 2.

11.2 Other Waste Disposal (See item 11.1)

ATT 9.1



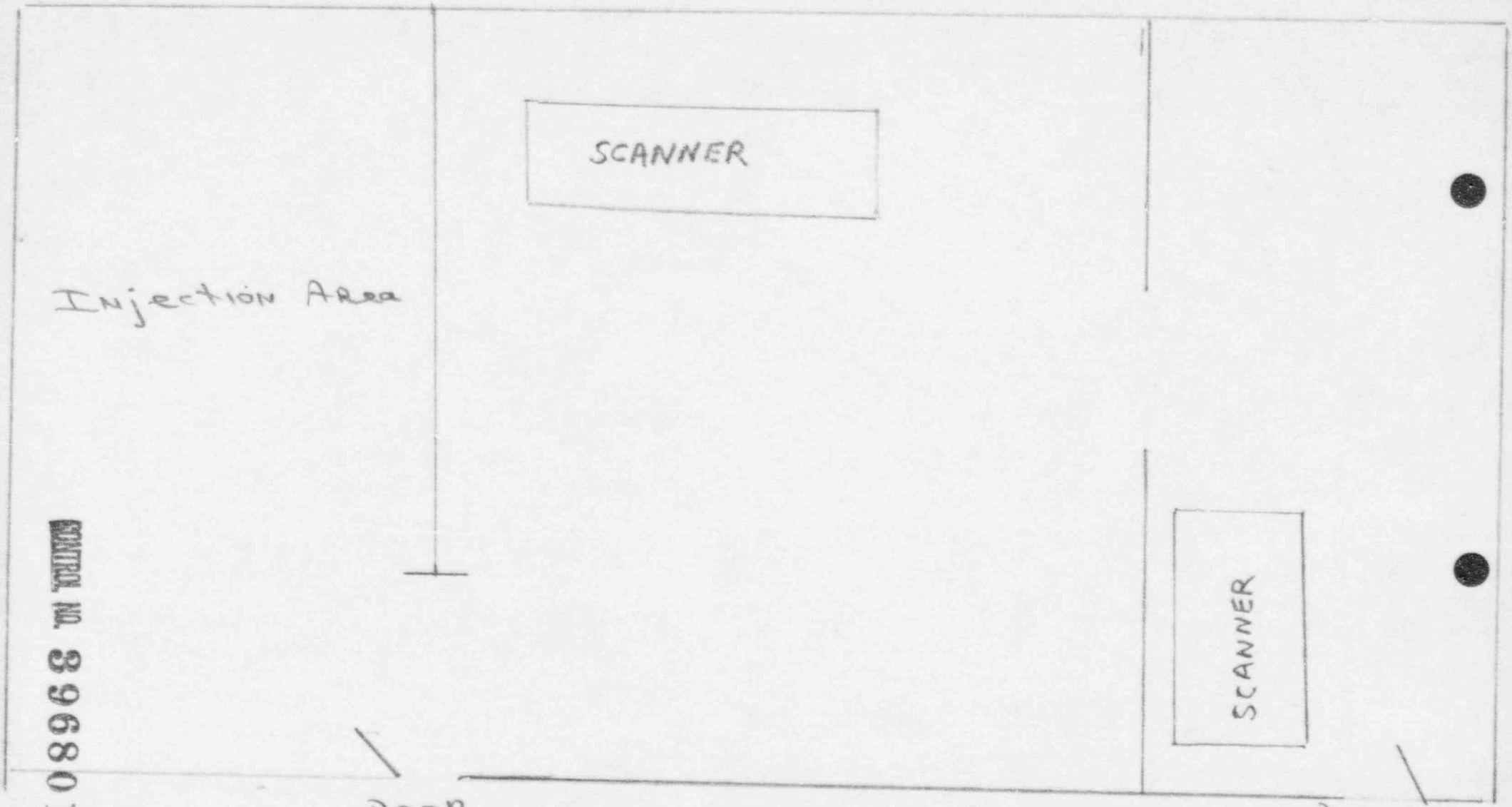
Rm C227
HOT LAB

1/4" ~ 1ft

ATT 9.1

N

SCANNING ROOMS



1/4" = 1ft.

I. Responsibility

A. Radiation Safety Committee (RSC)

The Radiation Safety Committee is responsible for the administration of the License for the use of source and byproduct materials from the U.S. Nuclear Regulatory Commission (NRC) and for all other radioactive materials and devices which emit ionizing radiation. Current members of the Radiation Safety Committee are listed in Appendix A.

Meetings of the Radiation Safety Committee are held four times yearly. Other meetings may be held on petition of any member of the Committee. To establish a quorum and to conduct business, at least one-half of the Committee membership must be present, including the Chairperson, Radiation Safety Officer and management representative, who is not an authorized user. Business of the Radiation Safety Committee shall be conducted by the Chairman or Radiation Safety Officer, and shall be subject to the subsequent approval of the Committee. Written minutes of all Committee meetings will be taken to include attendance, discussions, actions taken, and numerical results of votes. Membership includes one authorized user for each type of authorized use, the Radiation Safety Officer, and a representative of Nursing and Management.

The Radiation Safety Committee will:

1. Review and approve or disapprove applications for the use of ionizing radiation and keep permanent records of such actions.

2. Prescribe special conditions that may be necessary for the safe handling of radionuclides and sources of ionizing radiation including additional training. Limitation of radiation exposure in humans, designation of limited areas of use, proper disposal methods, and procedures to be followed for spills or other radiation accidents.

3. Receive and review reports of the Radiation Safety Officer regarding:

   a. Results of monitoring
   b. Personnel exposures as measured by suitable dosimeters
   c. Accidents in handling, storage, or use of radionuclides
   d. Records of radionuclides procurement and disposal

4. Take remedial action if safe procedures are not being observed when an ionizing radiation hazard exists or if these procedures are not in compliance with governmental regulations.

5. Keep department directors and other radionuclides users advised of current rules and recommendations of the various governmental agencies concerned with radiation protection and the

safe use of ionizing radiation.

6. Assume ALARA

7. The Committee will review annually the Radiation Safety Officer's summary report of the entire radiation safety program.

B. Radiation Safety Officer (RSO)

The responsibility of the Radiation Safety Officer to the Radiation Safety Committee is to:

1. Compile and disseminate information on radiation safety and health physics to physicians, researchers, technologists, nurses and other allied health care professionals involved in handling radioactive materials or caring for patients receiving ionizing radiation.

2. Consult with users of ionizing radiation and give advice concerning radiological safety.

3. Prepare NRC license applications, state and municipal registrations.

4. Review all proposals for uses of ionizing radiation including radionuclides and external sources of radiation, e.g., xray sources, accelerators and other devices.

5. Supervise the ordering, receipt and recording the receipt, wipe testing and surveying of radionuclides, and maintenance of pertinent records.

6. Supervise the maintenance of personnel exposure records and provide personnel and area monitoring, including film badge service.

7. Suspend immediately any operation causing radiation hazard.

8. Perform routine and special radiation surveys as deemed necessary for radiation safety.

9. Approve construction and remodeling of facilities intended for radionuclide or ionizing radiation apparatus use.

10. Supervise disposal of all radioactive wastes.

11. Administer the radiation safety program.

12. Make available courses for training persons in the safe use of radionuclides and ionizing radiation producing devices.

13. Supervise decontamination and prevent the spread of contamination in the case of radiation accidents.

14. Notify NRC and other agencies as required.

ATT 10.2

ALARA - As Low As Reasonably Achievable

Program for Maintaining Occupational Radiation Exposures at the Veterans Affairs Medical Center

I. Management Commitment

A. We, the management of this Hospital, are committed to the program described here for keeping exposures (individual and collective) as low as reasonably achievable (ALARA). In accord with this commitment, we hereby describe an administrative organization for radiation safety and will develop necessary written policy, procedures, and instructions to foster the ALARA concept within our institution. The organization includes a Radiation Safety (RSC) and a Radiation Safety Officer (RSO).

B. We will perform a formal annual review of the radiation safety program including ALARA considerations. This shall include reviews of operating procedures and past exposure records, inspections, etc., and consultations with the radiation protection staff or outside consultants.

C. Modification to operating and maintenance procedures and to equipment and facilities will be made where they will reduce exposures unless the cost, in our judgement, exceeds the anticipated benefit. Where modifications have been recommended but not implemented, we will be prepared to describe the reasons for not implementing them.

II. Radiation Safety Committee

A. Review of Proposed Users and Uses

1. The RSC will review the qualifications of each applicant with respect to the types and quantities of materials and uses for which he/she has applied to assure that the applicant will be able to take appropriate measures to maintain exposure ALARA.

2. When considering a new use of by product material, it may be necessary for the RSC to reveiw past efforts of the applicant to maintain exposure ALARA. The user should have systematized procedures to ensure ALARA, and shall have incorporated the use of special equipment such as syringe shields, rubber gloves, etc., in his/her proposed use.

3. The RSC will assure that the user justifies his/her procedures and that the dose will be ALARA.

B. Delegation of Authority

(The judicious delegation of RSC authority is essential to the enforcement of an ALARA program.)

1. The Radiation Safety Committee will delegate authority to the Radiation Safety Officer for enforcement of the ALARA concept.

2. The RSC will support the RSO in those instances where it is necessary for the RSO to assert his/her authority. Where the RSO has been overruled, the Committee will record the basis for its action in the minutes of the Committee's quarterly meeting.

C. Review of ALARA Program

1. The RSC will encourage users to review current procedures and develop new procedures as appropriate to implement the ALARA concept.

2. The RSC will perform a quarterly review of occupational radiation exposure with particular attention to instances where Investigational Levels are exceeded. The principal purpose of this review is to assess trends in occupational exposure as an index of the ALARA program quality and to decide if action is warranted when Investigational Levels are exceeded.

3. The RSC will evaluate our institution's overall efforts for maintaining exposures ALARA on an annual basis. This review will include the efforts of the RSO, authorized users, and workers as well as those of management.

III. Radiation Safety Office

A. Annual and Quarterly Review

1. An annual review of the Radiation Safety Program will be performed for adherence to ALARA concepts. Reviews of specific procedures may be conducted on a more frequent basis.

2. The Radiation Safety Office will review at least quarterly the external radiation exposures of authorized users and workers to determine that their exposures are in accordance with the provisions of the ALARA program.

3. There will be quarterly review of records of Radiation Level Surveys. The office will review radiation levels in unrestricted and restricted areas to determine that they were ALARA levels during the previous quarter.

B. Educational Responsibilities for an ALARA Program

1. The Radiation Safety Office will schedule briefings

and educational sessions to inform workers of ALARA program efforts.

2. The Radiation Safety Office will assure that authorized users, workers and ancillary personnel who may be exposed to radiation will be instructed in the ALARA philosophy and informed that management, the RSC and the RSO are committed to implementing the ALARA.

C. Cooperative Efforts for Development of ALARA Procedures

Radiation workers will be given opportunities to participate in formulation of procedures that they will be required to follow.

1. The Radiation Safety Office will be in close contact with all users and workers in order to develop ALARA procedures for working with radioactive materials.

2. The Radiation Safety Office will receive and evaluate the suggestions of individual workers for improving health physics practices and encourage the use of those procedures.

D. Reviewing Instances of Deviation from Good ALARA Practices

The Radiation Safety Office will investigate known instances of deviation from good ALARA practices, and, if possible, determine the causes. When the cause is known, the Radiation Safety Office will require changes in the program to maintain exposures ALARA.

IV. Authorized Users

A. New Procedures Involving Potential Radiation Exposures

1. The authorized user will consult with, and receive the approval of, the RSO and/or RSC during the planning stage before using radioactive materials for a new procedure.

2. The authorized user will evaluate all procedures before using materials to ensure that exposures will be kept ALARA. This may be enhanced through the application of trial runs.

B. Responsibility of the Authorized User to Those He/She Supervises

1. The authorized user will explain the ALARA concept and his/her commitment to reduce exposures ALARA to those he/she supervises.

2. The authorized user will assure that those under

his/her supervision who are subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

V. Persons Who Receive Occupational Radiation Exposure

A. The worker will be instructed in the ALARA concept and its relationship to his/her working procedures and work conditions.

B. The worker will know what recourses are available if he/she feels that ALARA is not being promoted on the job.

VI. Establishment of Investigational Levels in Order to Monitor Individual Occupational External Radiation Exposures

This institution hereby establishes Investigational Levels for occupational external radiation exposure which, when exceeded, will initiate review or investigation by the Radiation Safety Committee and/or the Radiation Safety Officer. The Investigational Levels that we have adopted are listed in Table I below. These levels apply to the exposure of individual workers.

TABLE I

Investigational Levels - mrems per calendar quarter

	Level I	Level II
1. Total Effective Dose Equivalent (TEDE)	125	375
2. Deep Dose Equivalent (Hd) Plus Committed Dose Equivalent (Ht, 50)	1250	3750
3. Eye Dose Equivalent	375	1125
4. Shallow Dose Equivalent (Hg)	1250	3750

The Radiation Safety Officer will review the dosimeter processor's report for results of personnel monitoring, not less than once in any calendar quarter, as is required by 10 CFR Part 20. The following actions will be taken at the Investigational Levels as stated in Table I.

A. Quarterly exposure of individuals to less than Investigational Level I.

Except when deemed appropriate by the RSO, no further action

will be taken in those cases where an individual's exposure is less than Table I values for the Investigational Level I.

B. Personnel exposures equal to or greater than Investigational Level I, but less than Investigational Level II.

The RSO will review the exposure of each individual whose quarterly exposures equal or exceed Investigational Level I. He will report the results of his reviews at the first RSC meeting following the quarter when the exposure was recorded. If the exposure does not equal or exceed Investigational Level II, no action related specifically to the exposure is required unless deemed appropriate by the RSC. The RSC will, however, consider each such exposure in comparison with those of others performing similar tasks as an index of ALARA program quality and will record the review in the RSC minutes.

C. Exposure equal to or greater than Investigational Level II

The RSO will investigate in a timely manner the cause(s) of personnel exposures equaling or exceeding Investigational Level II and, if warranted, take action. A report of the investigation, actions taken, if any, and a copy of the individual's exposure record or its equivalent will be presented to the RSC at the first meeting following completion of the investigation. The details of these reports will be recorded in the RSC minutes of this Institution for review. The minutes, containing details of the investigation, will be made available to the NRC inspectors for review at the time of the next inspection.

D. Re-establishment of individual occupational workers Investigational Level II above that listed in Table I.

In cases where a worker's or group of workers' exposures need to exceed Investigational Level II, a new, higher Investigational Level II may be established on the basis that is consistent with ALARA practices for that individual or group. Justification for a new Investigational Level II will be documented.

A. Minor Spills Involving No Radiation Hazard to Personnel

1. Notify other persons in the room at once and confine them nearby until monitoring can be completed.

2. Confine the spill immediately.

Liquid Spills
Don protective gloves and foot covers.
Drop absorbent paper on spill

Dry Spills
Don protective gloves and foot covers.
Dampen the spilled material with water, taking care not to spread the contamination or create an airborne hazard. Scoop the material into an appropriate container.

3. If possible, turn off room ventilation system and secure the area.

4. Permit access only to the minimum number of persons necessary to decontaminate the area.

5. Decontaminate

6. Monitor all persons involved in the spill and cleanup.

7. Do not permit anyone to resume work in the area until a monitoring survey is performed.

B. Major Spills Involving Radiation Hazard to Personnel

1. Notify other persons in the room at once and confine them nearby until monitoring can be completed.

2. Confine the spill to as small an area as practical.

3. If the spill is on the skin, flush thoroughly with water.

4. If the spill is on the clothing, discard outer or protective clothing at once and place in a plastic bag.

5. If possible, turn off all fans and air conditioners. Where high levels of radioactivity are to be handled, these controls or auxilary controls should be outside of the work room.

6. Vacate the roo...

7. Notify the Radiation Safety Office immediately.

8. Take immediate steps to decontaminate involved personnel.

9. Decontaminate the area under the supervision of the Radiation Safety Office (personnel involved in decontamination must be adequately protected).

10. Monitor all persons involved in the spill and cleanup operation determine adequacy of decontamination.

11. Do not permit anyone to resume work in the area until a survey is made and approval of the Radiation Safety Officer is obtained.

12. Prepare a complete history of the accident and subsequent activity related thereto for the Radiation Safety Officer and the Radiation Safety Committee.

ATT 10.7
December 1993

PROCEDURES FOR RECEIVING AND OPENING PACKAGES

Monitor the external surfaces of a package known to contain radioactive material for radioactive contamination and radiation levels if the package:

1. Is labeled as containing radioactive material; or

2. Has evidence of potential contamination, such as packages that are crushed, wet, or damaged.

3. Perform the monitoring as soon as practicable after receipt of the package, but not later that 3 hours after the package is received at the licensee's facility if it's received during the licensee's normal working hours, or not later than 3 hours from the beginning of the next working day if it is received after the working hours.

4. Immediately notify the final delivery carrier and by telephone, telegram, mailgram, or facsimile, the Administrator of the appropriate NRC Regional Office listed in appendix D to 20.1001-20.2401 when:

a. Removable radioactive surface contamination exceeds the limits of 10 CFR 71.87.

b. External radiation levels exceed the limits of 10 CFR 71.47.

The following procedure for opening each package will be followed:

a. Put on gloves to prevent hand contamination.

b. Visually inspect the package for any sign of damage (e.g., wet or crushed). If damage is noted, stop the procedure and notify the Radiation Safety Officer (RSO).

c. Measure the exposure rate from the package at 1 meter and at the package surface. If it is higher than expected, stop and notify the RSO. (The "transport index" noted on the packages with "Yellow II" or "Yellow III labels is the approximate dose rate, in millirem per hour, at 1 meter from the package surface (see 71.4 of 10 CFR Part 71); the surface dose rate for such packages should not exceed 200 millirem per hour. The dose rate from the packages with "White I" levels should be less than 0.5 millirem per hour at the package surface.

d. Open the package with the following precautionary steps:

1. Remove the packing slip.

2. Open the outer package following the supplier's instructions if provided.

3. Open the inner package and verify that the contents agree with the packing slip.

4. Check the integrity of the final source container. Look for broken seals or vials, loss of liquid, condensation, or discoloration of the packing material.

5. If anything is other than expected, stop and notify the RSO.

e. If there is any reason to suspect contamination, wipe the external surface of the innermost source container and remove the wipe sample to a low-background area. Assay the wipe sample to determine if there is any removable radioactivity. If the package contains a beta emitter such as 3H, 14C, 35S, 32P, or 33P and a wipe test is required, it must be counted in the Research Department liquid scintillation counter. Be sure that all wipe test results are in dpm or microcuries.

70 M7
90 ACE
90 S

DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER
Cincinnati - Fort Thomas Divisions
3200 Vine Street
Cincinnati, Ohio 45220

MEMORANDUM 90-2
March 10, 1993

AFTER HOURS DELIVERY OF SUPPLIES AND EQUIPMENT

1. PURPOSE: The purpose of this memorandum is to establish the policy regarding the handling of goods received at the Cincinnati Division after normal working hours. The procedures described will apply to all deliveries received after normal working hours except those addressed to indicate that they are personal items for a specifically named individual.

2. POLICY: It is the policy that the procedures described be followed so that property received after normal working hours can be efficiently and promptly accounted for and delivered to the proper location.

3. DELEGATION OF AUTHORITY: The Storage and Distribution Section of Acquisition and Materiel Management Service is responsible for the receipt and delivery of supplies and equipment purchased or requisitioned for official use of this facility and delivered during normal working hours.

4. PROCEDURES:

a. All packages arriving at this Medical Center from 4:30 PM to 8:00 AM and on weekends and holidays will be received and receipted for by the Telephone Operator at the Information Desk in the Main Lobby. (If any delivery person requests instructions or if packages are delivered to other locations, they should be redirected to the Operator on duty.)

b. When the Operator on duty receives a package, she/he will store it at the Information Desk and make an appropriate entry in the log book.

(1) If the label indicates the package should be refrigerated, the Operator will contact the VA Police Watch Supervisor and request that the package be placed in the refrigerator in the Patient Evaluation Nurses Station, Room A-148. The Operator's log book entry should reflect the disposition as well as the arrival time of the package.

(2) If, because of size or any other reason, the Operator cannot store the item at the Information Desk, she/he will contact the Chief, Storage and Distribution Section at his/her home. If the Chief cannot be reached, they will contact the Assistant Chief, Acquisition and Materiel Management Service. (The home telephone numbers may be obtained from the Key Personnel List.) As above, the Operator should note the disposition as well as the arrival of the package in his/her log book entry.

(3) Any packages containing radioactive materiel that arrives between 4:30 PM and 8:00 AM or on weekends shall be signed for by the VA Police Watch Supervisor and taken immediately to the Nuclear Medicine Service. If the package arrives between 4:30 PM and 8:00 AM or on weekends and appears wet or dammaged, contact the Medical Center Radiation Officer, Ken Fritz, at 825-9110. Request the carrier to remain at the Medical Center until a determination has been made that neither she/he or the delivery vehicle has been contaminated. During working hours, all packages containing radioactive materiels must be delivered to Nuclear Medicine Service (C-200) immediately.

c. If an item must be used prior to the normal delivery by the Storage and Distribution Section the following workday, special arrangements can be made by Acquisition and Materiel Management personnel with the Information Desk in order that a designated person can be authorized to pick-up the package. The Operator's log book entry will reflect the disposition as well as the arrival time of the package.

d. In extreme emergency situations where drugs are delivered after duty hours, the Operator will contact the Inpatient Pharmacy Service (ext. 4458). Pharmacy Service personnel on duty will then pick up the drugs for use. However, releasing the drugs to the Pharmacy will not replace any steps described herein to be performed by the Operator on duty.

5. RESCISSION: Medical Center Memorandum 90-2 dated March 31, 1991

6. REISSUE DATE: The reissue date will be March, 1995.

JOHN T. CARSON
Medical Center Director

Distribution: Service Chiefs

ATT 10.11

The Barrett Cancer Center

Radiation Oncology

Brachytherapy Request Form

Patient Name_____

Staff / Resident_____

Date & Time of Procedure_____

Diagnosis / Site_____

Hospital UH CHMC VA (circle one)

Instrument Requisition
(circle)

Fletcher Regular	Fletcher Mini	Delclos Regular	Delclos Domes
Simon Applicators	R/V Template	Syed Template	Henschke Applicator
Prostate Template	Mick Gun	Royal Marsden Gun	Breast Needle Set
Wang Applicator	Needle Instruments		Single Seed Applicator

Isotope
(circle)

Cesium/ Cs-137(tube)	Iridium/ Ir-192	Iodine(high)/ I-125/6702
Cesium/ Cs-137(needle)	Iodine(low)/ I-125/6711	Palladium/ P-103
Phosphorus/ P-32 (colloid / intravenous)	Gold/ Au-198	Stontium/ Sr-90

btrequest/mva/12/93

CONTROL NO. 396801

UNIVERSITY OF CINCINNATI
THE BARRETT CENTER RADIATION ONCOLOGY
BRACHYTHERAPY WRITTEN DIRECTIVE

Patient Name:_____ Bldg/Room#_____

Medical Record #/D.O.B. _____

PLANNED ACTIVITY

(Prior to implantation)

Authorized User _____ Date:_____

Radioisotope(1)_____ # of sources_____ Source strengths_____

Radioisotope(2)_____ # of sources_____ Source strengths_____

PATIENT IDENTIFICATION CONFIRMATION

Positive identification by two employees___ or check ≥ two below.

a. Positive identification by an employee (do not use with b.)		b. Requesting and confirming name from patient (do not use with a.)	
c. Requesting from patient and confirming from record, DOB, SSN, address, or signature		d. Requesting from patient and confirming name with a companion	
e. Confirming name using ID bracelet, hospital card, or medical insurance card		f. Confirming with photograph of patient's face	

Patient confirmed by _____ Date:_____ Time:_____

PRESCRIBED DOSE

(After implant, but prior to completion of procedure)

Authorized User _____ Date:_____ Time:_____

Radioisotope_____ Treatment site_____ Total dose_____

Radiograph or other imaging technique used to verify implant location. Date:_____ Time:_____

DELIVERED DOSE

(After completion of procedure and normally within two weeks)

Authorized User _____ Date:_____

Radioisotope_____ Treatment site_____ Total dose_____

Prior to release with permanent implant, patient provided with radiation safety guidance to help keep dose rate to household members and public ALARA.

Physician signature:_____ Date:_____

QUALITY CONTROL REVIEW

Performed by _____ Date:_____

1. Correct patient? Yes___ No___
2. Correct radioisotope delivered? Yes___ No___
3. Dose delivered to correct treatment site? Yes___ No___
4. Delivered dose differs from prescribed dose by ≤20 percent? Yes___ No___
5. Delivered dose differs from prescribed dose by ≤10 percent? Yes___ No___
6. Are all deviations from this directive explained? Yes___ No___N/A___

(Notify RSO and AU if the answer to any question is "No")

(Orig. 8/93, Rev.9/93)

UNIVERSITY OF CINCINNATI
THE BARRETT CENTER RADIATION ONCOLOGY
BRACHYTHERAPY PATIENT SURVEY RECORDS

Patient Name:_____ Bldg/Room#_____

Medical Record #/D.O.B._____

IMMEDIATELY AFTER IMPLANT "PATIENT AND AREA OF USE"

Date:_____ Time:_____ Instrument used:_____

Surveyor initials:_____ Bldg/Room#:_____

Misplaced seeds found: Yes___ No___

PROMPTLY AFTER IMPLANT "CONTIGUOUS AREA RADIATION DOSE RATES"

Time survey completed:_____ AM PM Surveyor Initials:_____

Instrument used(if different from above):_____

1. Draw a plan of the patient's room and all immediate adjacent areas.
2. List dose rate readings in mR/hr for several points in each area. Use the table below to key the locations on the map.

1._____	11._____
2._____	12._____
3._____	13._____
4._____	14._____
5._____	15._____
6._____	16._____
7._____	17._____
8._____	18._____
9._____	19._____
10._____	20._____

IMMEDIATELY AFTER REMOVAL "SOURCE REMOVAL CONFIRMATION"

Date:_____ Time:_____ Instrument used:_____

Surveyor initials:_____ Bldg/Room#:_____

Dose rate at one meter from patient_____mR/hr.

PERMANENT IMPLANT PATIENT "PRIOR TO RELEASE"

Date:_____ Time:_____ Instrument used:_____

Surveyor initials:_____ Bldg/Room#:_____

Dose rate at one meter from patient_____mR/hr.
(must be <5 mR/hr to release patient)

(Orig. 8/93, Rev.9/93)

UNIVERSITY OF CINCINNATI
THE BARRETT CENTER RADIATION ONCOLOGY
BRACHYTHERAPY RECORD OF SOURCE USE

Patient Name:_____ Bldg/Room#_____

Medical Record #/D.O.B. _____

1. Sources received from Radiation Safety Date:_____

Number of sources:_____ Activity of sources:_____

2. Sources removed from storage location:_____

Date:_____ Time:_____ Initials:_____

# sources in storage (start)	Activity of sources (start)	# sources (removed)	Activity of sources (removed)	# sources in storage (remaining)	Activity of sources (remaining)

3. Sources implanted Date:_____ Time:_____ # of sources:_____

4. # of sources NOT implanted/returned to storage:_____ Act.:_____

Date:_____ Time:_____ Initials:_____(mark with an * in record)

5. Sources removed from patient Date:_____ Time:_____

6. Sources returned to storage location:_____

Date:_____ Time:_____ Initials:_____

# sources in storage (remaining)	Activity of sources (remaining)	# sources (returned)	Activity of sources (returned)	# sources in storage (final)	Act. of sources (final)

# of sources(final) - # of sources(start) Yes___ No___
(If "No", immediately notify Authorized User and Radiation Safety, unless difference is due to permanent implant)

7. Sources returned to Radiation Safety for disposal

Date:_____ # of sources:_____ Activity:_____

Items which are not applicable will be marked "N/A"

(Orig. 8/93, Rev.9/93)

RADCHK

UNIVERSITY OF CINCINNATI HOSPITAL

RADIATION ONCOLOGY

RADIATION PRECAUTIONS CHECKLIST

UMC-685, 10/92

Patient Name _____

Room Number _____

Radionuclide _____

_____ Sealed Source

_____ Liquid Colloid

Activity _____ mCi

Location of implant _____

Source externally accessable?

_____ Yes

_____ No

1. Visitors
   - _____ No restrictions on visitors
   - _____ No pregnant women or children under age 18

2. Stay times
   - _____ Unlimited
   - _____ Unlimited when patient's shielding apparel is on. Otherwise see stay times below
   - _____ Restricted
     - _____ minutes daily at bedside
     - _____ minutes daily at 3 feet from patient

3. Patient activity
   - _____ No limitations. May be out of room
   - _____ No limitations. May be out of room with protective gear
   - _____ Patient restricted to room
   - _____ Patient restricted to bed

4. Linen, food, trash, and dressing change precautions
   - _____ No precautions (Use normal dietary utensiles)
   - _____ Hold for check by Radiation Safety (Use disposable dietary utensiles)
   - _____ Inspect all dressing changes for foreign objects

5. Shielding
   - _____ Bedside shielding must be in place around patient
   - _____ Patient's shielding apparel to be worn when visitors are present
   - _____ Shielding not required

6. Other instructions: _____

Radiation Oncologist _____ Date
558-4775 or 558-PAGE

Radiation Safety Officer _____ Date
558-4110 or 558-PAGE

WHITE—MEDICAL RECORD YELLOW—DOOR POSTING PINK—RSOF GOLDENROD—RADIATION ONCOLOGY

UNIVERSITY OF CINCINNATI
THE BARRETT CENTER RADIATION ONCOLOGY
BRACHYTHERAPY CHECKLIST

Patient Name:_____ Bldg/Room#_____

Medical Record#/D.O.B. _____ Dx:_____

Date/time of procedure:_____ Est. duration of implant:_____

Implant site:_____

1. Radiation Oncology Radiation Precautions Checklist completed. Date:_____

2. Brachytherapy Written Directive initiated. Date:_____

3. List of individuals permitted to handle sources attached. Date:_____

4. Patient quartered alone or with another patient receiving radiation therapy? Yes___ No___

If No, RSO approval required. Dose rate ≤.5mR/hr at one meter. RSO_____
Date:_____ Time:_____ Dose rate at one meter_____mR/hr.

5. Visits authorized for under age 18 individuals for this patient.

Yes___ No___ (If yes, sig.) AU_____ RSO_____

6. Radiation Safety Officer notified immediately of patient death or medical emergency. Date:_____ Time:_____ N/A

7. Patient's door posted with "Radioactive Materials" sign and note for where and how long visitors may stay in the room. Date:_____ Time:_____*

8. Survey completed of implantation room and equipment after patient removed. (attached) Date:_____ Time:_____*

9. Surveys of linen, trash, bedding performed prior to removal from room. (attached) Yes___ No___ N/A*

10. Surveys of Foley and Drainage bags performed. (attached) Yes___ No___ N/A*

11. Final release survey of room performed. (attached) Date:_____ Time:_____*

12. Personnel who cared for the patient are verified to have received instructions required by 10 CFR 35.410. RSO_____ Date:_____*

13. Comments:

* Items performed by Radiation Safety, all others by Radiation Oncology

(Orig. 8/93, Rev.9/93)

ATTACHMENT 10.16

Each person who has contact with any source of ionizing radiation has the responsibility to:

1. Complete the "Certification for Use of Radiation" form.

2. Know the contents of the approved protocol involving ionizing radiation, and comply with the conditions of the approval.

3. Keep his/her exposure to radiation as low as reasonably achievable (ALARA - see Appendix C) and specifically below the maximum permissible limit listed in the Radiation Safety Manual.

4. Wear the recommended radiation detectors such as the current film badges, pocket dosimeters, and/or thermoluminescent (TLD) dosimeters.

5. Survey hands, shoes, body, and clothing for radioactivity in excess of background levels. The Radiation Safety Office should be consulted if necessary.

6. Use all appropriate protective measures such as protective clothing, respiratory protection, ventilated and shielded glove boxes and hoods as directed by the Radiation Safety Office and principal investigator.

7. Assure that pipetting radioactive materials by mouth never occurs.

8. Assure that eating, applying cosmetics, drinking, smoking, or storing food and beverages in areas designated as rooms containing radioactive materials do not occur.

9. Maintain good personal hygiene such as hand washing, etc.

10. Check work areas as required by protocol for contamination.

11. Maintain good house keeping practices in the laboratory.

12. Label radioactive material containers and areas appropriately, and segregate radioactive wastes and equipment to avoid cross contamination.

13. Report immediately to the Radiation Safety Office the details of any radioactive spills or other accidents involving ionizing radiation.

14. Conduct decontamination procedures as supervised by the Radiation Safety Office personnel.

JUN 0 4 1997

Gary N. Nugent
Medical Center Director
Veterans Administration Hospital
3200 Vine Street
Cincinnati, OH 45220

Dear Mr. Nugent:

Enclosed is Amendment No. 34 renewing your NRC Material License No. 34-00799-03 in accordance with your request.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

Please note, we have removed the license condition requiring decommissioning records, however, be advised that the regulations still require you to keep records of decommissioning. Also, as discussed with Ken Fritz on June 3, 1997, we have also removed License Condition 14, because it is no longer applicable.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.

2. Notify NRC, in writing, within 30 days:

   a. When an authorized user or Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or

   b. When the mailing address listed on the license changes. (No fee is required if the location of byproduct material remains the same.)

396801

3. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license when you decide to terminate all activities involving materials authorized under the license.

4. Request and obtain a license amendment before you:

   a. Receive or use byproduct material for a clinical procedure permitted under Part 35 but not permitted by your license issued pursuant to this Part;

   b. Permit anyone, except individuals described in 10 CFR 35.13(b), to work as an authorized user under the license;

   c. Change Radiation Safety Officers;

   d. Order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;

   e. Add or change the areas of use or address or addresses of use identified in the license application or on the license; or

   f. Change ownership of your organization.

5. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or imposition of a civil penalty, or an order suspending, modifying or revoking your license as specified in the General Statement of Policy and Procedure for NRC Enforcement Actions. Since serious consequences to employees and the public can result from failure to comply with NRC

requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Sincerely,

Original Signed By
W. P. Reichhold
Nuclear Materials Licensing Branch

License No.: 34-00799-03
Docket No.: 030-02658

Enclosure: Amendment No. 34

cc w/encl: Francis K. Herbig
Health Physics Programs
Department of Veterans Affairs
Health Physics Programs (HSHP)
915 North Grand Blvd.
St. Louis, MO 63106

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NAME	WREICHHOLD:jaw		KNULL							
DATE	06/4/97		06/ /97							

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DEPARTMENT OF VETERANS AFFAIRS
Medical Center
3200 Vine Street
Cincinnati OH 45220

In Reply Refer To: 539/115

April 28, 1997

Mr. Bill Reichhold
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Subject: Additional Information for License Renewal
NRC License Number 34-00799-03
Control Number 396801

The enclosed information is submitted pursuant to your letter of April 15, 1997 to Kenneth Fritz, our Radiation Safety Officer, requesting additional information needed to complete our renewal application.

Please contact Mr. Fritz at (513) 475-6319 if you have any further questions.

Thank you for your cooperation in this matter.

Gary N. Nugent
Medical Center Director

DEPARTMENT OF VETERANS AFFAIRS
Medical Center
3200 Vine Street
Cincinnati OH 45220

In Reply Refer To: 539/115

April 28, 1997

Francis Herbig, Ph.D
Health Physics Program, 115HP
Department of Veteran Affairs
915 North Grand Blvd.
St. Louis, MO 63106

Subject: NRC License Renewal

We have enclosed the additional information requested by the NRC to complete their review of our license renewal application. Please forward the original to Bill Reichhold at the NRC Region III.

An additional copy is enclosed for your files.

Please contact Kenneth M. Fritz, Radiation Safety Officer, at (513) 475-6319 if you have any questions.

Thank you for your cooperation in this matter.

Gary N. Nugent
Medical Center Director

cc: Joesph Wissing 115HP

pm: 5-7-97

DEPARTMENT OF VETERANS AFFAIRS
Medical Center
St. Louis MO 63125

In Reply Refer To:

May 7, 1997

U.S. Nuclear Regulatory Commission
Region III
Attn: Bill Reichhold
801 Warrenville Road
Lisle, IL 60532-4351

SUBJECT: NRC License No. 34-00799-03

The enclosed correspondence from the Cincinnati, Ohio VA Medical Center has been received and is forwarded to your office for processing. If there are questions, please contact the facility.

Please provide a copy of any correspondence relative to licensing actions for this Medical Center to:

Department of Veterans Affairs
Health Physics Programs (115HP)
915 North Grand Blvd.
St. Louis, MO 63106

Sincerely,

Cindy Bukowsky

for Francis K. Herbig
Health Physics Programs

License #34-00799-03
Control #396801

We are responding to your questions in the order they were asked.

1. A. We will provide initial training and retraining for those individuals who will use, or come in contact with radioactive material, including nuclear medicine technologists, nurses, waste handlers, janitorial staff, housekeeping, and security pursuant to the conditions of 10CFR 19.12.

B. Retraining for those described in A. above will be every 12 months.

C. All radiation workers must receive instruction in accordance with 10CFR 19.12 prior to beginning work with radioactive material.

D. Training and retraining will be provided by the Radiation Safety Officer (RSO) or qualified staff member under the RSO's direction.

E. Initial and retraining will include the following topics:

1. Applicable regulations and license conditions.

2. Areas where radioactive material is used and stored.

3. Potential hazards associated with radioactive material.

4. Appropriate radiation safety procedures.

5. Special in-hours rules.

6. Individual's obligation to report unsafe conditions to the RSO or applicable authorities.

7. Appropriate response to emergencies or unsafe conditions.

8. Worker's right to be informed of occupational radiation exposure and bioassay results and

9. Locations of pertinent regulations, licenses, and other material required by regulations.

F. Non Medical Radiation Workers (under the supervision of an approved user)

A. Each non medical radiation worker supervised by a user will receive specific written instructions from the authorized user and the RSO.

B. The written instructions will include the following topics:

1. Wear laboratory coats or other protective clothing at all times in area where radioactive materials are used.

2. Wear disposable gloves at all times while handling radioactive materials.

3. Either after each procedure or before leaving the area, monitor your hands fcr contamination in a low-background area with appropriate radiation detection survey meter, if the radiation is of sufficient energy to be detected by a g-m survey meter.

4. Confine radioactive materials in appropriately shielded containers that are clearly labeled.

5. Do not eat, drink, smoke, or apply cosmetics in any area where radioactive is stored or used.

6. Do not store food, drinks, or personal effects in areas where radioactive material is stored or used.

7. Wear personnel monitoring devices as prescribed by the RSO while in areas where radioactive materials are used or stored. When not being worn to monitor occupational exposures, personnel monitoring devices should be stored in the work place in a designated low-background area.

8. Wear a finger exposure monitor (if required) when handling radioactive materials.

9. Dispose of radioactive waste only in designated, labeled, and properly shielded receptacles.

10. Never pipette by mouth.

11. If using millicuries quantities of radioactive materials, wipe test the storage, preparation, and use areas at least weekly for contamination. If using microcurie quantities wipe test at least monthly (a greater frequency may be prescribed by the RSO). If necessary, decontaminate, or secure the area for decay.

12. With a radiation detection survey meter, survey all areas of storage and use each day radioactive materials are used if the materials are of sufficient energy to the detected with a g-m survey meter.

C. The authorized user will work directly with new staff members until the user is confident in the worker's abilities and understanding of NRC regulations, license provisions, and "in-house" safety instructions.

D. The user will document the staff member's completion of the

instruction and certify that the worker can use radioactive material with limited supervision (not in the presence of the user).

Facility - The temporary storage area for the brachytherapy sources will be in the Nuclear Medicine "Hot Lab", room C227, specifically in a cabinet beneath the fume hood. The area is accessible only through a combination locked door. It is bordered by the CT Scan room on the north, a Nuclear Medicine locked storage room on the south, a corridor on the east, and a windowless outside wall on the west (See enclosed drawing). The "Hot Lab" is accessible only to those with the room combination, i.e. Nuclear Medicine personnel, security, and the RSO.

Bioassay - We commit to follow Regulatory Guide 8.9 Revision 1.

Area Surveys for Non Medical Users

1. Weekly g-m surveys (if radionuclide is detectable) and wipe tests will be performed in laboratories where 200 microcuries or greater amounts of radionuclides are used during this period.

2. Monthly g-m surveys (if radionuclide is detectable) and wipe tests will be performed in laboratories where less than 200 microcuries of radionuclides are used at any one time.

3. Areas where 200 uCi or greater amounts of radionuclides are stored for use or as waste will be surveyed on a weekly basis for ambient radiation levels (g-m surveys) and removable contamination if radioactive materials are actively used during this time. Inactive use areas will be surveyed at least semiannually. The Decay-in-Storage facility (DIS) controlled by the RSO will be surveyed and wiped at least semiannually.

4. Action levels for removable surface contamination will be as described in Regulatory Guide 8.23, Table 2.

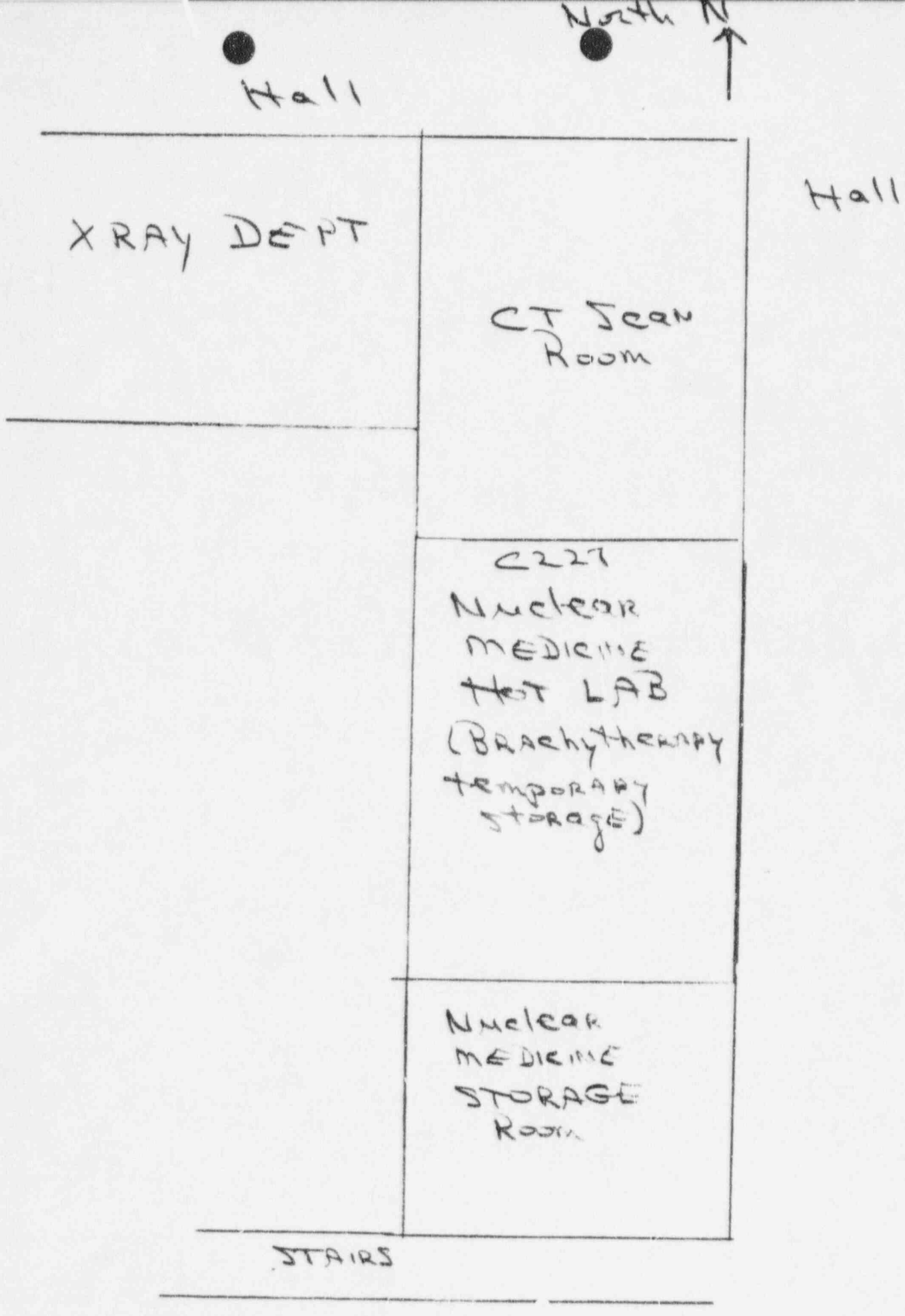
5. The ambient radiation levels will be performed with a survey meter sufficiently sensitive to detect 0.1 mr/hr.

6. Wipe tests will be sufficiently sensitive to detect the limits in Table 2 of Regulatory Guide 8.23 to one significant digit.

Decay-In-Storage of Radioactive Materials with Half-Lives Greater than 65 Days.

1. Sulfur-35 contaminated waste will be held for 10 half-lives.

2. We do not choose to compact waste at this time.



CONTROL # 396801

DEPARTMENT OF VETERANS AFFAIRS
Medical Center
3200 Vine Street
Cincinnati OH 45220

In Reply Refer To: 539/115

January 28, 1997

Mr. Bill Reichhold
Materials Licensing Section
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Subject: Additional Information for License Renewal
NRC License Number 34-00799-03
Control Number 396801

Pursuant to your communications with Kenneth M. Fritz, our Radiation Safety Officer, we are enclosing additional information regarding our NRC license renewal.

We are responding to your questions in your November 8, 1996 correspondence in the order they were asked.

Please contact Mr. Fritz at (513) 475-6319 if you have any questions.

Thank you for your cooperation in this matter.

Gary N. Nugent
Medical Center Director

Use of Radionuclides

In regard to radiopharmaceutical therapy use described in 10CFR35.300, we wish to use a maximum of 500 millicuries. For sealed source therapy in 35.400, we also wish to use up to 500 millicuries.

Training - Pursuant to 10CFR19.12(a), all individuals likely to receive in a year an occupational dose in excess of 100 millirem will be kept informed of use, transfer and storage of radioactive material. They will also be instructed and advised of possible health problems associated with radiation exposure, applicable regulations, responsibilities, etc., as given in 19.12.

Due to the infrequency of brachytherapy cases, an instructional review will be given each time to the nursing staff caring for the patient.

Training of other ancillary personnel such as housekeeping, maintenance, etc, will be done on an as needed basis. Initial training session for new employees will be coordinated with the appropriate department, i.e., Housekeeping.

New Nuclear Medicine technologists will be informed of pertinent license conditions, such as the Quality Management Program (QMP) and other safety related items unique to our institution.

All radioactive material users, medical and non medical, will be advised of changes in pertinent NRC regulations, advisory notices, and other safety items of interest as this information becomes available.

Survey Meter Calibrations - We will calibrate our survey meters every 12 months.

Facilities - Our non-medical use (research) laboratories are very low level tracer laboratories. All current approved users are authorized to purchase 10 millicuries or less of any label and use only low millicurie amounts (10mCi or less) each month. There are no experiments using alpha emitters. In general, approval or disapproval by the Radiation Safety Committee of proposed facilities of radioactive material use will depend on the adequacy of facilities and equipment to be provided by the user to insure ALARA exposures and compliance with regulatory requirements.

Each laboratory is evaluated on a case-by-case basis.

Benches, sinks, walls, and floors should have smooth, nonporous, and readily decontaminated surfaces.

The laboratories use absorbent, plastic-backed (or

equivalent), and easily discarded bench paper surfaces to catch and contain small contamination spills.

Protective laboratory coats and rubber or disposable plastic gloves are provided to prevent direct contact of radioactive material with skin.

Specially labeled containers for radioactive contaminated laboratory wastes are used. These containers are shielded as necessary and placed near the waste-generating area.

Special sinks to receive only small amounts of radioactive washing or effluents are designated and records are kept of the estimated amount of radioactive disposal in these sinks to ensure compliance with 10CFR20.2003. Researchers are informed of the disposal limit of each radioisotope used in the laboratory by the Radiation Safety Officer.

Adequate ventilation is provided for processing of radioactive materials.

Fume hood airflow should be at least 100 feet per minute.

Personnel are instructed to store radiation badges in a normal background area when leaving the radiation area.

Radiation Safety Committee consists of the following members:

H. Nishiyama, M.D. - Chairman, Board Certified in Nuclear Medicine

T. Mize, Administrative Assistant to the Chief of Staff, Representative of Administration

Chris Rauf, B.S. - Chief Technologist Nuclear Medicine

C. Grossman, Ph.D - Research Representative - Over twenty years experience with radioactive materials

K. Redmond, M.D. - Oncology Representative - Consultant, Board Certified

J. Kereiakes, Ph.D - Medical Physicist - Consultant, Board Certified-Americal Board of Radiology-Radiologic Physics

J. Pflaumer, R.N. - Nursing Representative

K. Fritz, M.S Nuclear Engineering - Radiation Safety Officer for over twenty-five years.

Radiation Safety Committee meetings will be held at least quarterly.

Radiation Safety Officer - We confirm that the Radiation Safety Officer's duties will include the duties described in 10CFR35.21.

ALARA Program - The Radiation Safety Officer (rather than the Radiation Safety Office) will perform the duties described in our ALARA program, appended as ATT 10.2 in our March 1994 renewal application.

Emergency Procedures

Minor spills are to be reported to the Radiation Safety Officer. The Radiation Safety Officer will follow up on the decontamination of minor spills and ensure a record of the final survey results are kept.

Major spills - We wish to revise (underlined) our major spill procedure (ATT 10.5, B) as follows:

2. Confine the spill to as small an area as practical and shield the source of radiation if possible.

6. Vacate the room and secure the area

Information pertaining to your major spill item 3 (RSO Supervision and Survey Records) is contained in our major spill steps 9 and 12.

Opening Packages

1. External surfaces of packages will be wiped for contamination pursuant to 10CFR20.1906.

2. GM surveys of empty packages (and packing materials) will be performed to confirm that there is no radioactive contamination on the packages before they are discarded as normal trash.

Research Program

Users - By product material will only be used under the supervision of those whose training and experiences comply with 10CFR33.15(b).

Administrative controls, procurement, record keeping, accounting, and management review have been established pursuant to 33.15(c).

All who use byproduct materials must be approved by the Radiation Safety Committee. If, in the opinion of the Radiation Safety Committee or the Radiation Safety Officer, additional training is needed, it will be provided by the Radiation Safety Officer. Training will consist of lectures, video presentation,

and demonstrations pursuant to subjects listed in appendix A, Regulatory Guide 10.8 Revision 2.

Very limited amounts (microcuries or less) may be approved for use under the direct supervision of an authorized user while undergoing training.

Instruments - Research laboratories currently have 8 G.M type survey meters that they may use to perform ambient radiation surveys.

Personnel Monitoring - We do not plan to use pocket dosimeters.

Bioassay Program

Since none of our researchers have current approval to purchase more than 5 millicuries of tritium at one time, and since our total possession limit of tritium is 250 millicuries, it is doubtful we will need to perform tritium in urine bioassays pursuant to NRC Regulatory Guide 8.32. However, if our use increases dramatically to 100 mCi or more of tritium, a bioassay will be performed pursuant to Regulatory Guide 8.32. If anyone suspects they have inhaled, ingested, or absorbed tritium, then a urine sample will be submitted for bioassay. If any concentrations exceed 5 uCi/L, an investigation will be conducted to determine the cause, and a repeat sample will be taken.

Individuals handling 30 millicuries or more of radioiodine for therapeutic use pursuant to 10CFR35.300 will have a thyroid bioassay (neck count) between 6 and 72 hours after handling.

Researchers using more than 100 microcuries of radioiodine which may be volative or dispersible will use a fume hood. All radioiodine greater than 1 mCi should be processed in a fume hood unless encapsulated or otherwise known to be stable. Researchers handling more than 2 millicuries of I-125 or I-131 uncontained will require a thyroid neck count between 6 and 72 hours after handling the radioiodine. Action points and corresponding actions pursuant to Regulatory Guide 8.20 item 5 will be followed.

Area Surveys - Non medical users of radioactive materials are required for active protocols to take wipe tests and keep records of the results. Survey frequency required depends upon the amount of radioactive material used per experiment and the potential for contamination. Required frequencies range from a minimum of monthly to a per experiment basis.

The Radiation Safety Officer surveys each active use lab at least twice a year and more often if significant contamination is detected.

Radiation surveys for airborne radioactive materials are not anticipated since our research labs use only trace amounts of

radioactive material. However, if conditions were such that someone were likely to receive 10 percent of an ALI (Annual Limit on Intake) listed in appendix B 10CFR20, then airborne surveys pursuant to 20.1502 would be considered.

Laboratory Facilities - Each laboratory will be evaluated case-by-case by the Radiation Safety Committee. We do not anticipate any use greater than very low tracer amounts (10 millicuries or less). Criteria generally acceptable for facilities and equipment area as follows:

1. Benches, sinks, walls, and floors will have smooth nonporous, and readily decontaminated surfaces. OK

2. Absorbent, plastic-backed (or equivalent), and easily discarded bench paper will be used on surfaces to catch and contain small contamination spills.

3. Protective laboratory coats and rubber or disposable plastic gloves will be provided to prevent direct contact of radioactive material with skin.

4. Specially labeled containers for radioactive contaminated laboratory wastes will be used. These containers may be shielded as necessary and placed near the waste-generating area.

5. Special sinks to receive only small amounts of radioactive washing or effluents will be designated and records kept of estimated amount of radioactive disposal in these sinks. These sinks should be connected to main pipes only and should not be connected to open channels or devices which could result in the accumulation of radioactivity.

6. Laboratories will have a minimum of sharp corners, cracks, or porous surfaces where radioactive material can lodge.

7. Adequate ventilation will be provided for processing of radioactive materials that may lead to airborne contamination.

Airflow should be at least 100 feet per minute for fume hoods.

Provisions should be made for shutting down the ventilation system in the event of accidents for contain radioactivity.

8. Laboratory coats and film badges will be stored in a normal background radiation area.

9. Adequate lighting will be provided for laboratory areas to avoid spills and other accidents resulting in contamination build-up.

10. Radioiodine Use - In order to prevent thyroid uptake by

personnel, special safety measure are required for handling iodine-125 and iodine-131.

In addition, to the minimum criteria required for low level tracer laboratories, the following criteria should be satisfied.

a. Adequate ventilation should be provided so that handling of radioiodine is limited to the areas with airflow of at least 100 feet per minute. Fume hoods may be required for iodination procedures.

b. Take appropriate steps to ensure exhaust air does not exceed applicable limits for radionuclides.

c. Ensure stored radioiodine waste is not volatile or becomes airborne.

Training

Qualifications required for supervisors (Principal Investigators) has been addressed in preceeding pages under the heading Research Program Users, i.e., we will comply with requirements of 10CFR33.15(b).

Other non-medical users will be evaluated initially by the Radiation Safety Officer with regard to the user's training and past experience handling radioactive material. A test may be given to verify radiation safety competence.

Those lacking sufficient training will be required to sucessfully complete a radiation safety course given by the Radiation Safety Officer of approximately 6 hours duration. Subjects listed in Appendix A, Regulatory Guide 10.8, Revision 2 will be addressed.

The credentials of those deemed qualified in the opinion of the Radiation Safety Officer will be submitted to the Radiation Safety Committee for their approval.

Receipt of Packages Containing Radioactive Materials - Packages containing non-medical radionuclides are received in the Nuclear Medicine Department.

General Laboratory Safety Instructions

1. Each laboratory will have a copy of their approved protocol(s) containing laboratory safety instruction. Additional instructions can be found in the Radiation Safety manual given to each laboratory.

2. All investigators must have an approved protocol on file in Nuclear Medicine before ordering any radioactive materials. A purchase order listing the radionuclide, name, and telephone number of the investigator must be sent to the Research office for purchasing. They have an approved list of investigators and radionuclides they may purchase. The investigator is notified by Nuclear Medicine when the package is received. The package is signed out by the investigator or his representative in the Nuclear Medicine Service.

3. Principal Investigators, whose qualifications are described in 10CFR33.15(b) will supervise other individuals listed on the protocol and approved by the Radiation Safety Committee. Supervision will be given by the P.I. during the initial worker orientation and before each new experiment using radionuclides. They will also provide guidance and supervision to their staff at any time if requested or needed by a staff member.

At times, the P.I may directly supervise a new employee before the employee has completed all requirements for radioactive material use. In this case, the individual will be strictly supervised and limited to only handling extremely small amounts (approximately 1 microcurie or less) of radioactive material.

4. When using radioactive material, individuals will use lab coats or other protective clothing.

5. Laboratory surveys will be performed by laboratory personnel when contamination is suspected or at other times as prescribed in their approved protocol. The minimum wipe test frequency approved is monthly - when very little activity (microcurie amounts) is used during the month. Generally, when millicurie amounts are used per experiment, wipe tests are required at the end of the experiment.

Wipe tests are always required for laboratory surveys. Survey meter use may also be required if the experiment requires frequent surveys, such as per experiment, and the radiation is detectable with a geiger counter type meter.

Surveys normally are taken in the laboratory radioactive use and storage area. If significant contamination is detected, the survey areas may be expanded to include general use laboratory areas and unrestricted areas.

Records are kept of laboratory surveys (in dpm or microcuries.

Surveys are not required when no radioactive material is used during the month.

The radiation safety officer surveys each active laboratory at least twice a year, normally every 6 months.

6. Most liquid radioactive waste will be handled pursuant to 10CFR20.2001. Specifically, by release into sanitary sewerage liquids readily soluable or dispersable biological material in concentrations not to exceed table 3, Appendix B.

Waste which cannot be disposed in this manner will be held for decay in properly marked containers in the laboratory or in our Decay-in-Storage (DIS) facility pursuant to our correspondence of April 16, 1996 (license amendment 33). We are allowed DIS for radionuclides with half lives up to 90 days.

Records will be kept of all disposals.

Phosphorus 32 use involving millicurie amounts will be done with low density shielding (plexiglass) to limit Bremsstrahling.

A radiation survey and wipe tests will be taken after each use.

Ring dosimeters will be initially required for procedures involving 1 millicurie or more. They may be cancelled, however, for use below 5 millicuries if data indicate exposures are below ALARA level I.

A dry run will be advised prior to performance of unfamiliar procedures.

Eye protectors will be for procedures that involve 10 millicuries or more.

Decay-in-Storage - Because sulfur-35 has a maximum beta energy of 0.167 mev and no gamma radiation (neglecting Bremsstrahling) it is very easily shielded by less than 0.1 inch of most laboratory materials. The maximum range of sulfur-35 in lucite, water, glass, or aluminum is less than 0.02 inches.

When storing sulfur-35 for decay, a calculation will be made of its initial activity, and a survey will be made with a thin window G-M survey meter. The storage bag used will be as small as practical. As shown by the above characteristic data, sulfur-35 is very easily shielded. After holding for 10 half lives, or until a calculation shows the activity present is at background levels, the package will again be monitored with a suitable G-M survey meter and disposed as trash if the G-M reading is not above background levels.

DEPARTMENT OF VETERANS AFFAIRS
Medical Center
3200 Vine Street
Cincinnati OH 45220

In Reply Refer To: 539/115

January 28, 1997

Francis Herbig, Ph.D
Health Physics Program, 115HP
Department of Veteran Affairs
915 North Grand Blvd.
St. Louis, MO 63106

Subject: NRC License Renewal

We have enclosed the additional information requested by the NRC to complete their review of our license renewal application. Please forward the original to Bill Reichhold at the NRC Region III.

An additional copy is enclosed for your files.

Please contact Kenneth M. Fritz, Radiation Safety Officer, at (513) 475-6319 if you have any questions.

Thank you for your cooperation in this matter.

Gary N. Nugent
Medical Center Director

cc: Joesph Wissing 115HP

FEB 13 1997

TO: D. Piskura

FROM: K. Fritz

RE: License 34-00799-03
Control 396801

Any packages except from the local radiopharmacy, containing radioactive material that arrives between 4:30 PM and 8:00 AM or on weekends shall be signed for by the VA Police Watch Supervisor and taken immediately to the Nuclear Medicine Service. Packages delivered by drivers from the radiopharmacy will be placed on the counter area marked for delivery in the Nuclear Medicine Hot Lab. The door will be properly secured by the driver before leaving the area. If the package arrives between 4:30 PM and 8:00 AM or on weekends and appears wet or damaged, contact the Medical Center Radiation Safety Officer, Ken Fritz, at 825-9110. Request the carrier to remain at the Medical Center until a determination has been made that neither she/he or the delivery vehicle has been contaminated. During the working hours, all packages containing radioactive materials must be delivered to Nuclear Medicine Service (C-200) immediately.

DEPARTMENT OF VETERANS AFFAIRS
Medical Center
3200 Vine Street
Cincinnati OH 45220

In Reply Refer To: 539/115

June 29, 1994

Francis Herbig, Ph.D
Health Physics Program, 115HP
Department of Veteran Affairs
915 North Grand Blvd.
St. Louis, MO 63106

Subject: Decay-in-Storage (DIS) Information Requested by the NRC.

We have enclosed information we wish to be submitted to the NRC in support of our request to store for decay radioactive material with half-lives up to 90 days. Please forward the original and one copy to Debbie Piskura at the NRC.

Two additional copies are enclosed for your files.

Please contact Kenneth M. Fritz, Radiation Safety Officer at (513) 559-5632 if you have any questions.

Thank you for you cooperation in this matter.

John T. Carson
Medical Center Director

CN 396801

DEPARTMENT OF VETERANS AFFAIRS
Medical Center
3200 Vine Street
Cincinnati OH 45220

In Reply Refer To: 539/115

June 29, 1994

Ms. Debbie Piskura
Materials Licensing Section
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Subject: Decay-in-Storage (DIS) of Radioactive Materials with Half-Lives Greater than 65 Days.

Enclosed is the additional information you requested from Kenneth M. Fritz, our Radiation Safety Officer. It is our understanding you are reviewing our license renewal application, license number 34-00799-03. Our control number is 396801. If you have any questions, please contact Mr. Fritz at (513) 559-5632.

John T. Carson
Medical Center Director

License No. 34-00799-03
Control No. 396801

1 (a). No possession limit increases are required for decay-in-storage (DIS) radioactive materials.

(b). We anticipate the following volume and activities:

Phosphorus-32	20 ft^3	10 mCi
Phosphorus-33	5 ft^3	3 mCi
Sulfur-35	20 ft^3	10 mCi
Chromium-51	5 ft^3	3 mCi
Technicium 99m	3 ft^3	0.5 mCi
Iodine-125	35 ft^3	10 mCi
Iodine-131	15 ft^3	10 mCi
Thallium-201	3 ft^3	0.5 mCi

(c). (1). All waste is Class A

(2). We currently store only solid waste and do not anticipate liquid waste kept for extended storage. Typically liquid waste generated is aqueous based.

(3). Waste is separated by half life to minimize storage time. Compacting will be considered if the need arises. 10,5

(4). These materials may be hazardous or biologic/pathogenic. After decaying to background, they will be handled by a licensed waste vendor who will be made aware of any additional hazards.

(d). Radioactive materials currently being held for DIS include the radionuclides listed above in 1(b) with the exception of S-35. We wish to include S-35 and any other radionuclides with half-lives up to 90 days if they are allowed to be possessed pursuant to the conditions of our license. Special survey procedures.

(e). We are a small quantity hazardous waste generator (EPA #OH8360010369). We also are registered with the Ohio EPA. Certification of Registration as a Generator of Infectious Waste, #31-G-00143.

(f). Radioactive materials held for DIS are separated according to half life and physical form. Each package is labeled as to radioisotope, quantity, date, and authorized user.

2 (a). Materials are stored on the third floor of the Research Building in a room solely for this purpose. (See the attached diagram). There are no sources of flammable or explosive material nearby. We do not store corrosive or flammable materials for DIS. Exposures have been evaluated outside the room and always found to be at background levels.

(b). The maximum volume of radioactive material that we propose to store in this area is 150 ft^3. The annual volume of waste generated for DIS is approximately 20 ft^3.

(c). The storage area is an inside room in the VA Research Building. It is weather resistant.

(d). A special card key is needed to enter this building. The storage room key is held only by the RSO and the Research Director.

(e). The room contains a chemical hood.

(f). The room is protected by the Research Building fire protection system. There are no flammable materials in this room and smoking in this building is prohibited.

(g). The storage room has the same heating and cooling system as the rest of the building.

(h). There is no extreme vulnerability to other hazards due to the nature of the building.

3 (a). Dry solid waste will be stored in dry, sturdy cardboard boxes or similar metal containers. We do not at this time keep liquids for DIS. If we do in the future, the liquids will be in double leak resistant containers i.e., vials in drums.

(b). The waste storage area is inspected at least quarterly.

(c). Due to the nature of our waste, remote handling is not likely to be needed.

4 (a). Radiation and contamination surveys will be conducted pursuant to 10 CFR 20, and 10 CFR 35 and other statements contained in the license renewal correspondence of March 23, 1994.

(b). Emergency aid in case the police or fire department is needed is obtained by calling the hospital operator.

(c). Waste in storage records are kept by the RSO.

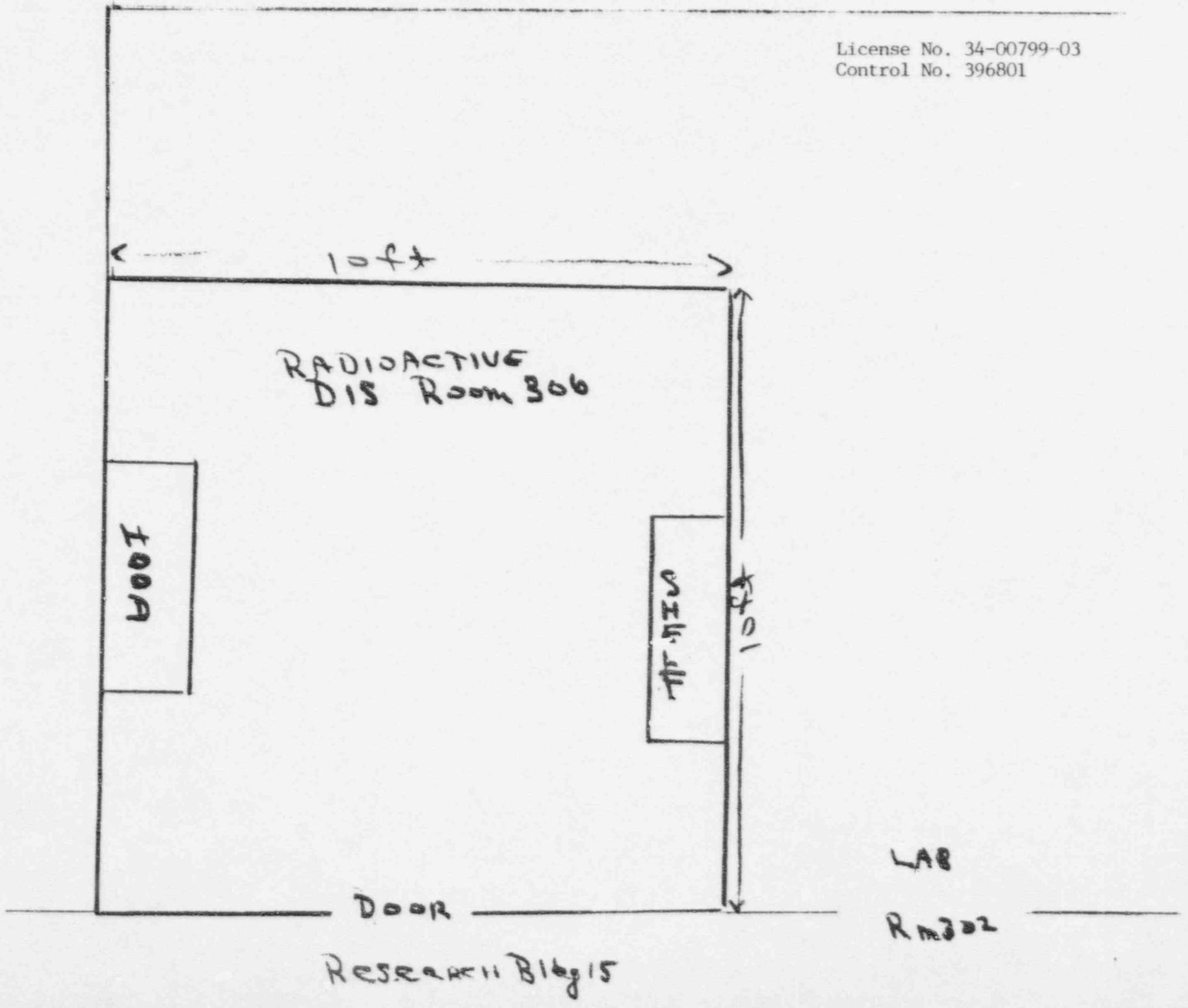
5 (a). Waste is segregated by types of radionuclide and physical form. It is held for decay for a minimum of 10 half lives and monitored in a low background area with all shielding removed using a suitable radiation monitor, such as a thin window counter. Records of surveys will be kept pursuant to 10 CFR 20 and 10 CFR 35.92.

6. Training is described in section 8 of our license renewal application (March 1994), control number 396801.

7. Not applicable.

8. Not applicable.

License No. 34-00799-03
Control No. 396801



DEPARTMENT OF VETERANS AFFAIRS
Medical Center
St Louis MO 63125

In Reply Refer To:

July 15, 1994

U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

The enclosed correspondence from the Cincinnati, Ohio VA Medical Center has been received and is forwarded to your office for processing. If there are questions, please contact the facility.

Please provide a copy of any correspondence relative to licensing actions for this Medical Center to:

Department of Veterans Affairs
Health Physics Programs (115HP)
915 North Grand Blvd.
St. Louis, MO 63106

Sincerely,

for Cindy Dubowsky

Francis K. Herbig
Health Physics Programs

APR 1 4 1994

Department of Veteran Affairs
Medical Center
ATTN: Kenneth Fritz
Radiation Safety Officer
3200 Vine Street
Cincinnati, OH 45220

License No. 34-00799-03
Control No. 396801

Dear Mr. Fritz:

SUBJECT: LICENSE RENEWAL APPLICATION

This is to acknowledge receipt of your application for renewal of the material(s) license identified above. Your application is deemed timely filed, and accordingly, the license will not expire until final action has been taken by this office.

Any correspondence regarding the renewal application should reference the control number specified and your license number.

Sincerely,

Original Signed By
Marianne Meenan, Chief
Nuclear Materials Support Section

RIII

Meenan/bt
04/ /94