NRC FORM 313
(10-87)
10 CFR 30, 32, 33, 34, 35 and 40

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB
3150-0120
Expires: 6-30-90

APPLICATION FOR MATERIAL LICENSE

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.

APPLICATIONS FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

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:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIALS SAFETY SECTION B
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
NUCLEAR MATERIALS SAFETY SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

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

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

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

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

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
NUCLEAR MATERIALS SAFETY SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

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 JURISDICTION.

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

- [ ] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [X] C. RENEWAL OF LICENSE NUMBER 37-20622-01

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

Troy Community Hospital
100 John Street
Troy, Pennsylvania 16947

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

Same as above

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Samuel L. Payne, M.S., Consultant Radiation Physicist

TELEPHONE NUMBER: (717)477-3925

SUBMIT ITEMS 5 THROUGH 11 ON 8½ 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 AND 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 7C AMOUNT ENCLOSED $ 580.00

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, 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.

SIGNATURE–CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
Mark A. Webster	Mark Webster	President	July 29, 1988

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
REN	Aug. 8	7C	ML10 109316 "OFFICIAL RECORD COPY"	[signature]
AMOUNT RECEIVED	CHECK NUMBER			DATE
$580	002838			8/11/88

26 JUL 1988

Troy Community Hospital, Inc.
37-20622-01

RADIOACTIVE MATERIAL AND PURPOSE

BYPRODUCT MATERIAL	AMOUNT	PURPOSE
5.a Material in 35.100	as needed	6.a Medical Use
5.b Material in 35.200	as needed	6.b Medical Use

Troy Community Hospital, Inc.
37-20622-01

INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY PROGRAMS-- THEIR TRAINING AND EXPERIENCE

NAME OF AUTHORIZED USER AND THEIR AUTHORIZATION:

Thomas F. Bednarek, M.D., Radiation Safety Officer
As previously licensed

Rodger P. Bowers, M.D.
As previously licensed

Ralph D. Zehr, M.D.
As previously licensed

John M. Antos, M.D.
As previously licensed

Lewis Youngwirth, M.S.
As previously licensed

Troy Community Hospital, Inc.
37-20622-01

TRAINING PROGRAM

Initial and annual instructions shall be given to our nuclear medicine staff and ancillary personnel (clerical, nursing, housekeeping security, etc.) whose duties may require them to work in the vicinity of radioactive material.

PERSONNEL WILL BE INSTRUCTED:

1. Before assuming duties with, or in the vicinity of, radioactive materials.

2. During annual refresher training.

3. Whenever there is a significant change in duties, regulations, or the terms of the license.

INSTRUCTIONS FOR INDIVIDUALS IN ATTENDANCE WILL INCLUDE THE FOLLOWING SUBJECTS:

1. Applicable regulations and license conditions.

2. Areas where radioactive material is used or stored.

3. Potential hazards associated with radioactive material in each area where the employees will work.

4. Appropriate radiation safety procedures.

5. Licensee's in-house work rules.

6. Each individual's obligation to report unsafe conditions to the Radiation Safety Officer.

7. Appropriate response to emergencies or unsafe conditions.

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

9. Locations where the licensee has posted or made available notices, copies of pertinent regulations, and copies of pertinent licenses and license conditions (including applications and applicable correspondence), as required by 10 CFR Part 19.

Troy Community Hospital, Inc.
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FACILITIES AND EQUIPMENT DESCRIPTION

All radioactive sources are stored in such a manner (lead, concrete, or refrigerator) so as to not exceed 5.0 mR/hr at the surface of the barrier.

Mo-99/Tc-99m generators when used will be stored and eluted in the designated area. It will be shielded with lead bricks such that levels from all avenues of approach do not exceed 5.0 mR/hr. Spent generators will be stored in the location identified in the attached diagram.

During elution, the eluate will be collected, assayed, and stored in a vial held in a quarter inch lead pig except during brief periods of transfer. Transfer of the eluate or portions of the eluate will be made by the use of syringes retained in lead shields designed for this purpose.

Eluated and compounds made from eluates will be drawn, synthesized, assayed and stored in lead vials or syringes such that levels as measured at contact with a low level survey meter do not exceed 5.0 mR/hr. except for brief periods during the actual transfer.

Radioactive materials obtained from radiopharmacy suppliers will be stored in their original shipping containers. If necessary, the doses will be placed behind additional shielding to reduce activity levels emitted from the container to 5.0 mR/hr. or less.

Syringe shields will be used on all accessories requiring the transfer of radiopharmaceuticals from vial to vial and in drawing up patient doses. Syringe shields will also be used in the administration of doses to patients except when the patients well being may be compromised. Under these circumstances the dose containing syringes will be kept shielded up to the moment of injection.

FACILITIES AND EQUIPMENT
CONTINUED

Steps in the preparation of compounds requiring periods of heating, shaking, agitation or mixing will be performed utilizing lead shielding and/or mechanical or ultrasonic agitation equipment and/or remote handling devices (tongs, forceps, etc.) such that levels during the above period as measured by a low level survey meter do not exceed 5.0 mR/hr.

Protective outer garments, such as laboratory coats and rubber/plastic gloves will be worn while handling radioactivity in uncontained form.

All possible set-ups will be made on easily cleanable trays. All trays and all other work surfaces will be covered with disposable absorbent paper.

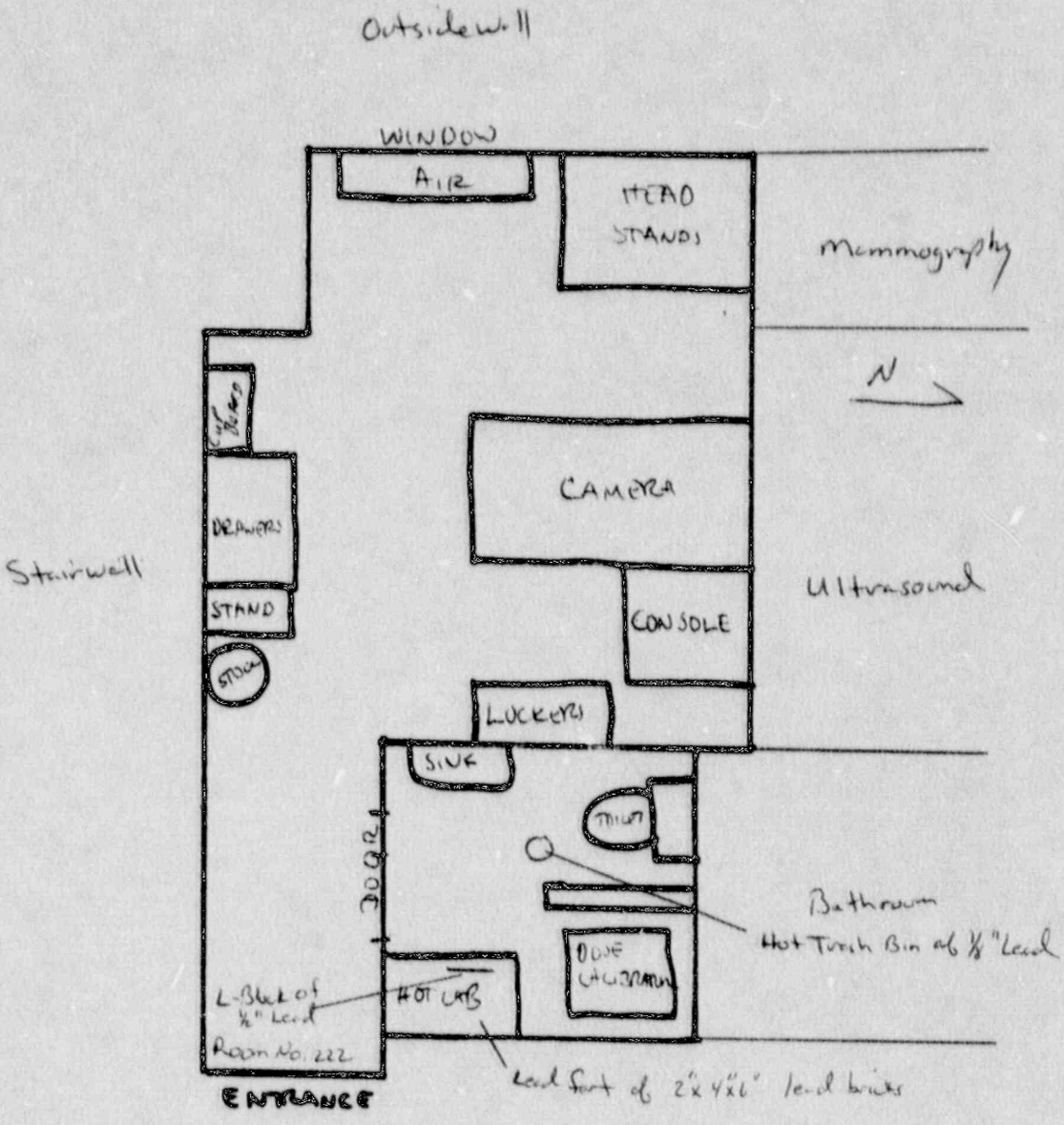
The department shall be surveyed at least weekly.

As our facility does not utilize multi-dose volatiles and gases, a fume hood is not required.

TROY COMMUNITY HOSPITAL

NUCLEAR MEDICINE DEPT.

SCALE: 1 SQUARE = @ 1 FOOT



6/88

Troy Community Hospital, Inc.
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CALIBRATION OF INSTRUMENTS

SURVEY INSTRUMENTS

Survey instruments will be checked for operability prior to each use. This will be accomplished by holding the detector against an instrument check source or a long lived dose calibrator sealed source, depending on the instrument or range to be tested.

The units will be calibrated after servicing and at least annually by the manufacturer or a calibration service which has an approved NRC license to perform survey meter calibration and which have been approved by our Radiation Safety Committee.

Our facility is currently utilizing the calibration services of Health Physics Associates. A copy of their method to account for energy variations is attached for your reference.

Each of our survey meters have a dedicated check source which shall be returned to our calibration vendor with the unit during its annual calibration and the apparent exposure rate shall be noted on the instrument following calibration. We shall check each survey instrument for proper operation with the dedicated check source each day of use as per 10 CFR 35.51.

Health Physics Associates, Ltd.
3312 Commercial Ave.
Northbrook, IL 60062-1909
(312) 480-1900
Consultants in Radiation Safety Since 1961

April 11, 1988

Mr. Sam Payne
R.D. #3
Box 152-D
Hunlock Creek, PA 18621

Please calibrate our survey instrument as per the protocol you have established with our consultant.

Thank you.

Re: Calibration of GM survey meters

Dear Mr. Payne:

In accordance with your request of earlier date we can furnish the following information relative to the above subject. It is our understanding from Mr. Thompson of NRC Region #1 that it is now required to have a correction factor for Tc-99m energies for the GM survey meter.

Since HPA uses both Am-241 and Cs-137 gamma calibration sources, we can check both 60 KeV and 660 KeV. Our calibration is usually done at 660 KeV. For your GM metters we will compare two points for Am-241 and Cs-137.

From the energy calibration curves furnished by the manufactures (if available to us) we would be able to provide a reasonable correction factor for Tc-99m (140KeV.).

As I have noted in discussion earlier, I do not believe the extra effort is cost effective for the following reasons:

1. The instrument detector (GM) doesn't know the energy of the scattered radiation. At 90° or 180° the energy of the combined primary and scattered radiation can be significantly lower than 140 KeV.

2. The reading (uncorrected) at lower energy for a GM counter would all err on the safe side by a large factor. Since the GM counter is used primarily as a detector rather than a dosimeter, the extra effort in applying an unknown correction factor is dubious.

3. Most ion chamber survey meters do not need energy corrections factors. They are usually more sensitive to positioning than energy.

To repeat, we will apply a correction factor for your GM meters derived from our 60 and 660 KeV points. We will be pleased to continue our long standing relationship.

Sincerely yours,

Mr. Ted Fields, M.S., FACR, CHP
President

TF:cm/enclosure

Troy Community Hospital, Inc.
37-20622-01

CALIBRATION OF INSTRUMENTS

PROCEDURE FOR CALIBRATION DOSE CALIBRATOR

1. Test for the following at the indicated frequency and for the suggested tolerance:

    a. Constancy at least once each working day prior to assay of patient dosages (+ or - 5 percent).

    b. Linearity at installation and at least quarterly thereafter (+ or - 5 percent).

    c. Geometry dependence at installation (+ or - 5 percent).

    d. Accuracy at installation and at least annually thereafter (+ or - 5 percent).

As per 10 CFR 35.50(d), we shall replace or repair our dose calibrator if daily constancy or annual accuracy test vary from the true value by more than + or - 10 percent.

2. After repair or adjustment, repeat the above tests as appropriate.

3. **CONSTANCY** means reproducibility in measuring a constant source over a long period of time. Assay at least one relatively long-lived source such as Cs-137, Ba-133, or Co-57 using a reproducible geometry each day before using the calibrator. Consider the use of two or more sources with different photon energies and activities. Use the following procedure:

    a. Assay each reference source using the appropriate dose calibrator setting (i.e., use the Cs-137 setting to assay Cs-137).

    b. Measure background at the same setting, and subtract or confirm the proper operation of the automatic background subtract circuit if it is used.

PROCEDURE FOR CALIBRATION DOSE CALIBRATOR Continued

c. For each source used, a decay table for that source will be utilized indicating the sources decay corrected activity and + or - 5 percent differences from the true decay activity. The value for each source used shall be recorded on this sheet to confirm the required + or - 5 percent tolerance.

d. Using a Cs-137 source, measure and log the net activity for the following commonly used radio-isotope settings: Tc-99m; Mo-99; I-123.

e. Quarterly, the consultant physicist, using a long-lived reference standard (e.g., Cs-137) will record the apparent activity indicated at all of the commonly used radionuclide settings. The source readout is compared to previous tests (correcting for decay) and a percent difference is computed. A deviation of greater than + or - 5 percent will warrant recalibration or repair.

4. On a quarterly basis our consultant physicist will inspect the dose calibrator to ascertain that the measurement chamber liner is in place and that the instrument is zeroed according to the manufacturer's instructions.

5. **LINERITY** means that the calibrator is able to indicate the correct activity over the range of use of that calibrator. This test is done using a vial or syringe of Tc-99m whose activity is at least as large as the maximum activity normally assayed in a prepared radio-pharmaceutical kit, in a unit dosage syringe or in a radiopharmaceutical therapy.

We will utilize the "Calicheck" from Calcorp, Inc., as the procedure to check for dose calibrator activity linearity accuracy. The manufacturer's instructions for use as revised on March 2, 1982 will be followed. Test results will be recorded and retained for inspection. As the Calicheck device will not allow the attenuation of the gamma energy to 10 microcuries when starting at a the maximum patient dose level, two separate determinations will be made utilizing the device with over-lapping ranges to complete the evaluation to the 10 microcurie level.

CALIBRATION OF INSTRUMENTS
CONTINUED

6. **GEOMETRY INDEPENDENCE** means that the indicated activity does not change with volume or configuration. This test should be done using a syringe that is normally used for injections. Licensees who use generators and radiopharmaceutical kits should also do the test using a vial similar in size, shape, and construction to the radiopharmaceutical kit vials normally used. The following test assumes injections are done with 3-cc plastic syringes and that radiopharmaceutical kits are made in 30-cc glass vials. If you do not use these, change the procedure so that your syringes and vials are tested throughout the range of volumes commonly used.

   a. In a small beaker or vial, mix 2 cc of a solution of Tc-99m with an activity concentration between 1 and 10 mCi/ml. Set out a second small beaker or vial with non radioactive saline or water.

   b. Draw 0.5 cc of the Tc-99m solution into the syringe and assay it. Record the volume and millicuries indicated on the dose calibrator geometry form.

   c. Remove the syringe from the calibrator, draw an additional 0.5 cc of nonradioactive saline or water, and assay again. Record the volume and millicuries indicated.

   d. Repeat the process until you have assayed a 2.0-cc volume.

   e. Select as a standard the volume closest to that normally used for injections. For all other volumes, divide the standard millicuries by the millicuries indicated for each volume. The quotient is a volume correction factor.

   f. If any correction factors are greater than 1.05 or less than 0.95, it will be necessary to make a corrections table that will allow you to convert from "indicated activity" to "true activity". If this is necessary, be sure to label the table "syringe geometry dependence", and note the date of the test and model number and serial number of the calibrator.

CALIBRATION OF INSTRUMENTS
CONTINUED

g. To test the geometry dependence for a 30-cc glass vial, draw 1.0 cc of the Tc-99m solution into a syringe and then inject it into the vial. Assay the vial. Record the volume and millicuries indicated.

h. Remove the vial from the calibrator and, using a clean syringe, inject 2.0 cc of nonradioactive saline or water, and assay again. Record the volume and millicures indicated.

i. Repeat the process until you have assayed a 19.0 cc volume. The entire process must be completed within 10 minutes.

j. Select as a standard the volume closest to that normally used for mixing radiopharmaceutical kits. For all the other volumes, divide the standard millicuries by the millicuries indicated for each volume. The quotient is a volume correction factor.

k. If any correction factors are greater than 1.05 or less than 0.95, it will be necessary to make a correction table that will allow you to convert from "indicated activity " to "true activity". If this is necessary, be sure to label the table "vial geometry dependence," and note the date of the test and the model number and serial number of the calibrator.

7. **ACCURACY** means that, for a given calibrated reference source, the indicated millicurie value is equal to the indicated millicurie value determined by the National Bureau of Standards (NBS) or by the supplier who has compared that source to a source that was calibrated by the NBS. Certified sources are available from the NBS and from many radioisotope suppliers. The activity of at least one reference source should be within the range of activities normally assayed. At least three sources with different principal photon energies (such as Co-57, Ba-133, and Cs-137) should be used. These sources must be at least 50 microcuries.

CALIBRATION OF INSTRUMENTS
CONTINUED

a. Assay a calibrated reference source at the appropriate setting (i.e., use the Co-57 setting to assay Co-57), and then remove the source and measure background. Subtract background from the indicated activity to obtain the net activity. Record this measurement and repeat for a total of three determinations.

b. Average three determinations. The average value should be within 5 % of the certified activity of the reference source, mathematically corrected for decay.

c. Repeat the procedure for other calibrated reference sources.

d. If the average value does not agree, within 5 %, with the certified value of the reference source, the calibrator will be repaired or adjusted.

e. At the same time the accuracy test is done, assay the certified reference source on all commonly used radioisotope settings (using the Cs-137 source). Record the settings and the indicated activity values with the accuracy data.

Troy Community Hospital, Inc.
37-20622-01

Personnel External Exposure Monitoring Program

We will establish and implement the model personnel external exposure monitoring program published in Appendix D to Regulatory Guide 10.8.

Troy Community Hospital, Inc.
37-20622-01

INSTRUMENTATION

DIAGNOSTIC INSTRUMENTS:

Picker Dyna Camera 4C

DOSE CALIBRATOR (s):

Rad X Assayer I ARC-268

SURVEY METERS:

Victoreen Thyac III G.M. Survey Meter

Atomic Products Corp. Model 069-701 G.M. Meter

Nuclear Associates Wipe Test Counter Model 05-578

Victoreen Ion Chamber Survey Meter Model #450

Troy Community Hospital, Inc.
37-20622-01

RADIATION SAFETY COMMITTEE

CHARGE. **The Committee Shall:**

1. Ensure that licensed material will be used safely. This includes review as necessary of training programs, equipment, facility, supplies, and procedures;

2. Ensure that licensed material is used in compliance with NRC regulations and the institutional license;

3. Ensure that the use of licensed material is consistent with the ALARA philosophy and program;

4. Establish a table of investigational levels for individual occupational radiation exposures; and

5. Identify program problems and solutions.

RESPONSIBILITIES. **The Committee Shall:**

1. Be familiar with all pertinent NRC regulations, the license application, the license, and amendments.

2. Review the training and experience of the proposed authorized users and the Radiation Safety Officer (RSO) to determine that their qualifications are sufficient to enable the individuals to perform their duties safely and are in accordance with the regulations and the license.

3. Review on the basis of safety and approve or deny, consistent with the limitations of the regulations, the license, and the ALARA philosophy, all requests for authorization to use radioactive material within the institution;

4. Prescribe special conditions that will be required during a proposed method of use of radioactive material such as requirements for bioassays, physical examinations of users, and special monitoring procedures;

RADIATION SAFETY COMMITTEE
CONTINUED

5. Review the summary report of the occupational radiation exposure records of all personnel, giving attention to individuals or groups of workers whose occupational exposures appears excessive;

6. Establish a program to ensure that all persons whose duties may require them to work in or frequent areas where radioactive materials are used (i.e., nursing, security, housekeeping) are appropriately instructed as required in 19.12 of 10 CFR Part 19;

7. Review the annual summary report of the entire radiation safety program to determine that all activities are being conducted safely, in accordance with NRC regulations and the conditions of the license, and consistent with the ALARA program and philosophy. the review will include an examination of records, reports from the RSO, results of NRC inspections, written safety procedures, and the adequacy of the management control system;

8. Recommend remedial action to correct any deficiencies identified in the Radiation Safety Program;

9. Maintain written minutes of all Committee meetings, including members in attendance and members absent, discussions, actions, and recommendations; and

10. Ensure that the byproduct material license is amended if required prior to any changes in facilities, equipment, policies, procedures, and personnel.

ADMINISTRATIVE INFORMATION

1. The Committee shall meet as often as necessary to conduct its business but not less than once in each calendar quarter.

RADIATION SAFETY COMMITTEE
CONTINUED

2. Membership shall include one authorized user for each type of use authorized by the license, the RSO, a representative of the nursing staff, and a representative of management who is neither an authorized user nor an RSO. Management may appoint alternate members to participate in meetings in the case of absence of principal members.

3. To establish a quorum, one-half of the committee's membership, including the RSO and the management representative, must be present.

4. To the extent that they do not interfere with the mission of the Committee, management may assign other responsibilities such as x-ray radiation safety, quality assurance oversight, and research project review and approval.

Troy Community Hospital, Inc.
37-20622-01

DELEGATION OF AUTHORITY

Thomas F. Bednarek, M.D. has been appointed Radiation Safety Officer (RSO)
and is responsible for assuring the safe use of radiation. The RSO is responsible for managing the radiation safety program, identifying radiation safety problems, initiating, recommending, or providing corrective actions, verifying implementation of corrective actions, and assuring compliance with regulations. The RSO is hereby delegated the authority necessary to meet those Responsibilities.

The RSO is also responsible for assisting the Radiation Safety Committee in the performance of its duties and serving as it secretariat.

The RSO shall be assisted by Samuel L. Payne, M.S., our Consultant Radiation Physicist.

Troy Community Hospital, Inc.
37-20622-01

PROGRAM FOR MAINTAINING OCCUPATIONAL RADIATION EXPOSURE AT MEDICAL INSTITUTIONS ALARA

Troy Community Hospital, Inc.
July 27, 1988

1. MANAGEMENT COMMITMENT:

a. We, the management the Troy Community Hospital, Inc., are committed to the program described herein for keeping individual and collective doses as low as is reasonably achievable (ALARA)/ In accord with this commitment, we hereby describe an administrative organization for radiation safety and will develop the necessary written policy, procedures, and instructions to foster the ALARA concept within our institution. The organization will include the Radiation Safety Committee (RSC) and the Radiation Safety Officer (RSO).

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

c. Modifications to operating and maintenance procedures and to equipment and facilities will be made if they will reduce exposures unless the cost, in our judgment, is considered to be unjustified. We will be able to demonstrate, if necessary, that improvements have been sought, that modifications have been considered, and that they have been implemented when reasonable. If modifications have been recommended but not implemented, we will be prepared to describe the reason for not implementing them.

d. In addition to maintaining doses to individuals as far below the limits as is reasonable achievable, the sum of the doses received by all exposed individuals will also be maintained at the lowest practicable level. It would not be desirable, for example, to hold the highest doses to individuals to some fraction of the applicable limit if this involved exposing additional people and significantly increasing the sum of radiation doses received by all involved individuals.

ALARA Program Continued

2. Radiation Safety Committee

a. Review of Proposed Users and Uses

(1) The RSC will thoroughly review the qualifications of each applicant with respect to the types and quantities of materials and methods of use for which application has been made to ensure that the applicant will be able to take appropriate measures to maintain exposure ALARA.

(2) When considering a new use of byproduct material, the RSC will review the efforts of the applicant to maintain exposure ALARA

(3) The RSC will ensure the users justify their procedures and that individual and collective doses will be ALARA.

b. Delegation of Authority

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

(1) The RSC will delegate authority to the RSO for enforcement of the ALARA concept.

(2) The RSC will support the RSO when it is necessary for the RSO to assert authority. If the RSC has overruled the RSO, it will record the basis for its action in the minutes of the quarterly meeting.

c. Review of ALARA Program

(1) The RSC will delegate authority to the RSO for enforcement of the ALARA concept.

ALARA Program Continued

(2) The RSC will perform a quarterly review of occupational radiation exposure with particular attention to instances in which the investigational levels in Table 1 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.

TABLE 1

INVESTIGATIONAL LEVELS

	Investigational Levels (mrems per calendar quarter)	
	Level I	Level II
1. Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads	125	375
2. Hands and forearms; feet and ankles	1875	5625
3. Skin of whole body	750	2250

(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.

3. RADIATION SAFETY OFFICER

a. Annual and Quarterly Review

ALARA Program Continued

(1) Annual review of the radiation safety program. The RSO with the assistance of the consultant physicist will perform an annual review of the radiation safety program for adherence to ALARA concepts. Reviews of specific methods of use may be conducted on a more frequent basis.

(2) Quarterly review of occupational exposures. The RSO with the assistance of the consultant physicist, will review at least quarterly the external radiation exposures of authorized users and workers to determine that their exposures are ALARA in accordance with the provisions of Section 6 of this program and will prepare a summary report for the RSC.

(3) Quarterly review of records of radiation level surveys. The RSO with the assistance of the consultant physicist, will review radiation levels in unrestricted and restricted areas to determine that they were at ALARA levels during the previous quarter and will prepare a summary report for the RSC.

b. Education Responsibilities for ALARA Program

(1) The RSO or his designee, will schedule briefings and educational sessions to inform workers of ALARA program efforts.

(2) The RSO or his designee will ensure 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 concept.

ALARA Program Continued

c. Cooperative Efforts for Development of ALARA Procedures

Radiation workers will be given opportunities to participate in formulating the procedures that they will be required to follow.

(1) The RSO will be in close contact with all users and workers in order to develop ALARA procedures for working with radioactive materials.

(2) The RSO will establish procedures for receiving and evaluating the suggestions of individual workers for improving health physics practices and will encourage the use of those procedures.

d. Reviewing Instances of Deviation from Good ALARA Practices

The RSO with the aid of the consultant physicist will investigate all known instances of deviation from good ALARA practices and, if possible, will determine the causes. When the cause is known, the RSO will require changes in the program to maintain exposures ALARA.

4. Authorized Users

a. New Methods of Use Involving Potential Radiation Exposures

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

(2) The authorized user will evaluate all methods of use before using radioactive materials to ensure that exposures will be kept ALARA. This may be enhanced by using trial runs.

ALARA Program Continued

b. Authorized User's Responsibility to Supervised Individuals

(1) The authorized user or this designee will explain the ALARA concept and the need to maintain exposures ALARA to all supervised individuals.

(2) The authorized user will ensure that supervised individuals who are subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

5. Individuals Who Receive Occupational Radiation Exposure

a. Workers will be instructed in the ALARA concept and its relationship to work procedures and work conditions.

b. Workers will know what recourses a re available if they feel that ALARA is not being promoted on the job.

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

The Troy Community Hospital, Inc. hereby establishes investigational levels for occupational external radiation dose which, when exceeded, will initiate review or investigation by the RSC and/or the RSO with the assistance of the consultant physicist. The investigational levels that we adopted are listed in Table 1. These levels apply to the exposure of individual nuclear medicine workers.

ALARA Program Continued

The RSO with the aid of the consultant physicist, will review and record on our Quarterly ALARA Review of Radiation Doses to Personnel Form (provided by our consultant physicist), the results of personnel monitoring not less than once in any calendar quarter as required by 20.401 of 10 CFR Part 20. The following actions will be taken at the investigational levels as stated in Table 1:

a. Personnel dose 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 dose is less than Table 1 values for the Investigational Level I.

b. Personnel dose equal to or greater than Investigational Level I but less than Investigational Level II.

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

ALARA Program Continued

c. Personnel dose equal to or greater than Investigational Level II.

The RSO with the aid of the consultant physicist will investigate in a timely manner the causes of all personnel doses equaling or exceeding Investigational Level II and, if warranted, will take action. A report of the investigation, any actions taken, and a copy of the individual's Form NRC-5 or its equivalent will be presented to the RSC at its first meeting following completion of the investigation. The details of these reports will be included in the RSC minutes.

d. Reestablishment of Investigational Level II to a level above that listed in Table 1.

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

The RSC will review the justification for and will approve all revisions of Investigational Level II. In such cases, when the exposure equals or exceeds the newly established Investigational Level II, those actions listed in paragraph 6.c above will be followed.

7. Signature of Certifying Official of the Troy Community Hospital, Inc.

I hereby certify that the Troy Community Hospital, Inc. has implemented the ALARA Program as set forth above.

Mark Webster
President

Troy Community Hospital, Inc.
37-20622-01

PROCEDURE FOR LEAK-TESTING SEALED SOURCES

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

As per 10 CFR 35.59 (b)(2), sealed sources shall be tested each six months for leakage.

Troy Community Hospital, Inc.
37-20622-01

GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL

1. Wear laboratory coats or other protective clothing at all times in areas 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 and clothing for contamination in a low-background area with a low-level GM meter or camera.

4. Use syringe shields for routine preparation of patient dosages and administration to patients, except in those circumstances in which their use is contraindicated (e.g., recessed veins, infants). In these exceptional cases, consider the use of other protective methods such as remote delivery of the dose (e.g., through use of a butterfly valve).

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

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

7. Wear personnel monitoring devices at all times while in areas where radioactive materials are used or stored. These devices should be worn as prescribed by the RSO. 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 during the elution of generators; during the preparation, assay, and injection of radiopharmaceuticals; and when holding patients during procedures.

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

10. Never pipette by mouth.

GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL CONTINUED

11. Wipe-test byproduct material storage, preparation, and administration areas weekly for contamination. If necessary, decontaminate or secure the area for decay.

12. With a low-range GM survey meter, survey the generator storage, kit preparation, and injection areas daily for contamination. If necessary, decontaminate or secure the area for decay as appropriate.

13. Confine radioactive solutions in shielded containers that are clearly labeled. Radiopharmaceutical multidose diagnostic vials and therapy vials should be labeled with the isotope, the name of the compound, and the date and time of receipt or preparation. A log book should be used to record the preceding information and total prepared activity, specific activity as mCi/cc at a specified time, total volume prepared, total volume remaining, the measured activity of each patient dosage, and any other appropriate information. Syringes and unit dosages should be labeled with the radiopharmaceutical name or abbreviation, type of study, or patient's name and identification number.

14. Assay each patient dosage in the dose calibrator before administering it. Do not use a dosage if it is more than 10 percent off from the prescribed dosage, except for prescriptions of less than 10 microcuries. Check the patient's name and identification number and the prescribed radionuclide, chemical form, and dosage before administering.

15. Always keep flood sources, syringes, waste, and other radioactive material in shielded containers.

16. Use a cart or wheelchair to move flood sources, syringes, waste, and other radioactive material.

17. We shall record the measurement of radiopharmaceutical dosages as per Appendix M to Regulatory Guide 10.8, Revision 2.

Troy Community Hospital, Inc.
37-20622-01

EMERGENCY PROCEDURES

MINOR SPILLS OF LIQUIDS AND SOLIDS

1. Notify persons in the area that a spill has occurred.

2. Prevent the spread of contamination by covering the spill with absorbent paper.

3. Clean up the spill using disposable gloves and absorbent paper. Carefully fold the absorbent paper with the clean side out and place in a plastic bag for transfer to a radioactive waste container. Also put contaminated gloves and any other contaminated disposable material in the bag.

4. Survey the area with a low-range GM survey meter. Check the area around the spill. Also check your hands, clothing, and shoes for contamination.

5. Report the incident to the RSO.

6. The RSO or his designee will supervise the cleanup of the spill and will complete an incident report on the spill.

MAJOR SPILLS OF LIQUIDS AND SOLIDS

1. Clear the area. Notify all persons not involved in the spill to vacate the room.

2. Prevent the spread of contamination by covering the spill with absorbent paper, but do not attempt to clean it up. To prevent the spread of contamination, limit the movement of all personnel who may be contaminated.

3. Shield the source if possible. This should be done only if it can be done without further contamination or a significant increase in radiation exposure.

4. Close the room and lock or otherwise secure the area to prevent entry.

EMERGENCY PROCEDURES
CONTINUED

5. Notify the RSO immediately.

6. Decontaminate personnel by removing contaminated clothing and flushing contaminated skin with lukewarm water and then washing with mild soap. If contamination remains, induce perspiration by covering the area with plastic. Then wash the affected area again to remove any contamination that was released by the perspiration.

7. The RSO will supervise the cleanup of the spill and will complete the Radioactive Spill Report and the Radioactive Spill Contamination Survey Form.

We will initiate a MAJOR or MINOR spill procedure based on the following dividing lines:

Radionuclide	Millicuries
Cr-51	10
Co-57	100
Ga-67	100
Tc-99m	100
In-111	10
I-123	10
I-125	1
I-131	1
Tl-201	100

Troy Community Hospital, Inc.
37-20622-01

ORDERING AND RECEIVING RADIOACTIVE MATERIAL

1. The Radiation Safety Officer (RSO) or his designee(s) will authorize each order for radioactive materials and ensure that the requested materials and quantities are authorized by the license and that possession limits are not exceeded.

2. The RSO will establish and maintain a system for ordering and receiving radioactive material. The system must contain the following information:

   a. For routinely use materials

      (1) Written records that identify the authorized user or department, isotope, chemical form, activity, and supplier will be made.

      (2) The above records will be checked to confirm that material received was ordered through proper channels.

   b. For occasionally used materials (e.g., therapeutic dosages)

      (1) The authorized user who will perform the procedure will make a written request that indicates the isotope, compound, and activity.

      (2) The person who receives the material will check the physician's written request to confirm that the material received is what was ordered.

3. For deliveries during normal working hours, the carriers will be directed to deliver radioactive packages directly to a specified area.

4. For deliveries during off-duty hours, the RSO or his designee will direct security personnel or other designated persons to accept delivery of radioactive packages in accordance with procedures outlined below. The appropriate phone numbers for the RSO and other responsible individuals shall be posted on our memorandum to personnel who receive radioactive shipments during off duty hours.

Troy Community Hospital Inc.
37-20622-01

MEMORANDUM

MEMO TO: CHIEF OF SECURITY

FROM: NUCLEAR MEDICINE DEPARTMENT

SUBJECT: RECEIPT OF PACKAGES CONTAINING RADIOACTIVE MATERIAL

The security guard on duty shall sign for any packages containing radioactive material that arrive during other than normal working hours. Packages should be placed on a cart or wheelchair and taken immediately to the NUCLEAR MEDICINE DEPARTMENT. Unlock the door, place the package in the nuclear medicine department, and relock the door.

If the package appears to be damaged, immediately contact one of the individuals identified below. Ask the carrier to remain at the hospital until it can be determined that neither the driver nor the delivery vehicle is contaminated.

If you have any questions concerning this memorandum, please call our hospital Radiation Safety Officer (RSO).

Radiation Safety Officer: _____
Phone:_____

Nuclear Medicine Technologist: _____
Phone:_____

Nuclear Medicine Technologist on Call:
(call page operator at extension_____)

Nuclear Medicine Physician on Call:
(call page operator at extension_____)

Troy Community Hospital, Inc.
37-20622-01

PROCEDURE FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL

1. Special requirements must be followed for packages containing quantities of radioactive material in excess of the Type A quantity limits specified in paragraph 20.205(b) of 10 CFR Part 20 (e.g., more than 20 curies of Mo-99, Tc-99m, uncompressed Xe-133, or more than 3 curies of Xe-133, I-131, Cs-137, Ir-192, I-125, or more than 0.001 curies of Ra-226). Such packages must be monitored for external radiation levels and surface contamination within 3 hours after receipt if received during working hours or within 18 hours if received after working hours, in accordance with the requirements of paragraphs 20.205(a) through (c). The NRC regional Office must be notified if removable contamination exceeds 0.01 uCi/100 sq cm.

2. In addition to any requirements above, 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 and notify the RSO.

   c. Measure the exposure rate from the package at one meter and at the package surface. If it is higher than usual, stop and notify the RSO.

      Our trigger levels shall be as follows:

Package Label	Exposure at 1 meter should not exceed	Exposure at Surface should not exceed
White I	0 mR/hr	0.5 mR/hr
Yellow II	1.0 mR/hr	50.0 mR/hr
Yellow III	10.0 mR/hr	200.0 mR/hr

IF MEASURED EXPOSURE LEVELS EXCEED THE ABOVE VALUES: NOTIFY THE RSO!!!!

Procedure for Safely Opening Packages Containing Radioactive Material (Cont)

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 package 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 final source container and remove the wipe sample to a low-background area. Assay the wipe to determine if there is any removable radioactivity by using a low level GM survey meter, or a NaI(Tl) crystal and ratemeter. Take precautions against the potential spread of contamination.

f. Check the user request to ensure that the material received is the material that was ordered.

g. Monitor the packing material and the empty packages for contamination with a low-range GM survey meter before discarding.

(1) If contaminated, treat this material as radioactive waste.

(2) If not contaminated, remove or obliterate the radiation labels before discarding in in-house trash.

h. Make a record of the receipt.

Troy Community Hospital, Inc.
37-20622-01

RECORDS OF BYPRODUCT MATERIAL USE
Records of Unit Dosage Use

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

OR

RECORDS OF BYPRODUCT MATERIAL USE
Records of Multidose Vial Use

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

Troy Community Hospital, Inc.
37-20622-01

Measuring and Recording Molybdenum Concentration

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.

or,

Molybdenum concentrations shall be measured and data supplied by our central pharmacy.

Troy Community Hospital, Inc.
37-20622-01

DEPARTMENTAL AREA SURVEYS

AMBIENT EXPOSURE RATE SURVEYS

1. SURVEY AREAS

a. In radiopharmaceutical elution, preparation, and administration areas, survey at the end of each day of use with a low-range survey meter. If diagnostic administrations are occasionally made in patient's rooms and special care is taken to remove all paraphernalia, those rooms need not be surveyed.

b. In laboratory areas where only small quantities of gamma-emitting radioactive material are processed (less than 200 microcuries at a time), survey monthly with a low-range survey meter.

c. In radiopharmaceutical storage and radiopharmaceutical waste storage areas, survey weekly with a low-range survey meter.

d. In sealed source and brachytherapy storage areas, survey quarterly with an ionization chamber survey meter.

2. Immediately notify the RSO if you find unexpectedly high or low levels.
Our TRIGGER LEVELS for ambient exposure measurements are:
5.0 mR/hr - RESTRICTED AREAS
0.5 mR/hr - UNRESTRICTED AREAS

REMOVABLE CONTAMINATION SURVEYS

1. SURVEY AREAS

a. In radiopharmaceutical elution, preparation, and administration areas, survey weekly for removable contamination. If diagnostic administrations are occasionally made in patients' rooms and special care is taken to remove all paraphernalia, those rooms need not be surveyed.

DEPARTMENTAL AREA SURVEY
CONTINUED

b. In laboratory areas where only small quantities of gamma-emitting radioactive material are processed (less than 200 microcuries at a time), survey monthly for removable contamination.
c. In radiopharmaceutical storage and radiopharmaceutical waste storage areas, survey weekly for removable contamination.

2. The wipe sample assay procedure should be sufficiently sensitive to detect the presence of 2000 dpm/100 sq cm of removable contamination. You must use a radioactive source with a known amount of activity to convert sample measurements (usually in counts per minute) to dpm.

3. Notify the RSO if you find unexpectedly high levels. Our TRIGGER LEVELS for removalbe contamination are as follows (wipe tests in dpm/100 sq cm):

	I-123, I-125, I-131 Yb-169, I-111	Cr-51, Co-57, Ga-67 Tc-99m, Tl-201
Unrestricted Areas Personnel Clothing	200	2,000
Restricted Areas Protective Clothing	2,000	20,000

RECORDS

1. Keep a record of exposure rate and contamination survey results. It must include the following information:
   a. The date, area surveyed, and equipment used.
   b. The name or initials of the person who make the survey.
   c. A drawing of the area surveyed and contamination and exposure rate action levels as established by the RSO. (Recommended removable surface contamination action levels are published in Regulatory Guide 8.23, "Radiation Safety Surveys at Medical Institutions.")
   d. Measured exposure rates in mR/hr or contamination levels in dpm/100 sq cm, as appropriate.
   e. Actions taken in the case of excessive exposure rates or contamination and followup survey information.

2. The RSO will review and initial the record at least quarterly and also promptly in those cases in which action levels were exceeded.

Troy Community Hospital, Inc.
37-20622-01

PROCEDURE FOR MONITORING, CALCULATING, AND CONTROLLING AIR CONCENTRATIONS

WORKER DOSE FROM AEROSOLS

We will collect spent aerosol in a shielded trap supplied by the manufacturer. We will utilize single-use devices for aerosol studies and therefore do not have to monitor the trap effluent.

WASTE DISPOSAL

GENERAL GUIDANCE

1. All radioactive labels must be defaced or removed from containers and packages prior to disposal in in-house waste. If waste is compacted, all labels that are visible in the compacted mass must be defaced or removed.

2. Nonradioactive waste such as leftover reagents, boxes, and packing material will not be mixed with radioactive waste.

3. Occasionally monitor all procedures to ensure that radioactive waste is not created unnecessarily. Review all new procedures to ensure that waste is handled in a manner consistent with established procedures.

4. In all cases, consider the entire impact of various available disposal routes. Consider occupational and public exposure to radiation, other hazards associated with the material and routes of disposal (e.g., toxicity, carcinogenicity, pathogenicity, flamability), and expense.

PROCEDURE FOR DISPOSAL OF LIQUIDS AND GASES

Liquids may be disposed of by release to the sanitary sewer or evaporative release to the atmosphere.

1. Regulations for disposal in the sanitary sewer appear in 20.303. Material must be readily soluble or dispersable in the water. There are daily and monthly limits based on the total sanitary sewerage release by the facility. (Excreta from patients undergoing medical diagnosis or therapy is exempt from all the above limitations; see paragraph 20.303(d).) Make a record of the date, radionuclide, estimated activity that was released (in millicuries or microcuries), and of the sink or toilet at which the material was released.

WASTE DISPOSAL
CONTINUED

2. Limits on permissible concentrations in effluents to unrestricted areas are enumerated in Table II of Appendix B to 10 CFR Part 20. These limits apply at the boundary of the restricted area. Make a record of the date, radionuclide, estimated activity that was released (in millicuries or microcuries) and estimated concentration, and of the vent site at which the material was released.

3. Liquid scintillation-counting media containing 0.05 millicurie per gram of H-3 or C-14 may be disposed of without regard to its radioactivity (20.306). Make a record of the date, radionuclide, estimated activity (in millicuries or microcuries), and estimated concentration in microcuries per gram and how the material was disposed of.

PROCEDURE FOR DISPOSAL BY DECAY-IN-STORAGE (DIS)

Short-lived material (physical half-life less than 65 days) may be disposed of by DIS. If you use this procedure, keep material separated according to half-life.

1. Consider using separate containers for different types of waste, e.g., capped needles in one container, other injection paraphernalia (syringes, swabs, and gauze) in another, and unused dosages in a third container. Smaller departments may find it easier to use just one container for all DIS waste. Because the waste will be surveyed with all shielding removed, the containers in which waste will be disposed or must no provide any radiation shielding for the material.

2. When the container is full, seal it with string or tape and attach an identification tag that includes the date sealed, the longest-lived radioisotope in the container, and the initials of the person sealing the container. The container may then be transferred to the DIS area.

3. Decay the material for at least 10 half-lives.

WASTE DISPOSAL
CONTINUED

4. Prior to disposal as in-house waste, monitor each container as follows:

   a. Check your low-range GM survey meter for proper operation;

   b. Monitor in a low-level (less than 0.05 mR/hr) area;

   c. Remove any shielding from around the container;

   d. Monitor all surfaces of each individual container;

   e. Discard in in-house waste only those containers that cannot be distinguished from background. Record the date on which the container was sealed, the disposal date, and type of material (e.g., paraphernalia, unused dosages). Check to be sure no radiation labels are visible.

   f. Containers that can be distinguished from background radiation levels must be returned to the storage area for further decay or transfer for burial.

5. If possible, Mo-99/Tc-99m generators should be held 60 days before being dismantled because of the occasional presence of a long-lived contaminant. When dismantling generators, keep a low-range GM survey meter (preferably with a speaker) at the work area. Dismantle the oldest generator first, then work forward chronologically. Hold each individual column in contact with a low-level survey instrument in a low-background (less than 0.05 mR/hr) area. Log the generator date and disposal date for your waste disposal records. Remove or deface the radiation labels on the generator shield.

Troy Community Hospital, Inc.
37-20622-01

WASTE DISPOSAL
CONTINUED

PROCEDURE FOR TRANSFER FOR BURIAL

Except for material suitable for DIS, solids must be transferred to a burial site. Follow the packaging instructions you received from the transfer agent and the burial site operator. For your record of disposal, keep the consignment sheet that the transfer agent gave you.

PROCEDURE FOR RELEASE TO IN-HOUSE WASTE

Waste from in vitro kits that are generally licensed pursuant to 31.11 is exempt for waste disposal regulations. Radioactive labels should be defaced or removed. There is no need to keep any record of release or make any measurements.

PROCEDURE FOR RETURN OF RADIOACTIVE MATERIALS TO MANUFACTURERS

Mo-99/Tc-99m generators will be repackaged in the original shipping carton and returned to the manufacturer as per the manufacturers instructions.

Radioactive materials obtained from a Central Pharmacy, will be returned in the original container as per their instructions.

TROY
COMMUNITY
HOSPITAL

100 JOHN STREET
TROY, PENNSYLVANIA 16947
717-297-2121

TROY COMMUNITY HOSPITAL
37-20622-01

RECEIPT OF BYPRODUCT MATERIAL FOR THE
ROBERT PACKER HOSPITAL, SAYRE, PENNSYLVANIA

License No. 37-20622-01
Docket No. 030-19998
Control No. 104823

As per the amendment to our current license of January 26, 1986, we will continue to receive byproduct material from the Robert Packer Hospital, Sayre, Pennsylvania, NRC License No. 37-01893-01.

We shall maintain the program as currently licensed through your office and request that we be allowed to continue this program as written.

Sincerely,

Mark A. Webster
President

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 02120
STATUS CODE: 2
FEE CATEGORY: 7C
EXP. DATE: 19880831
FEE COMMENTS: CODE 23

LICENSE FEE TRANSMITTAL

4. REGION I

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: TROY COMMUNITY HOSPITAL
RECEIVED DATE: 880726
DOCKET NO: 3019998
CONTROL NO.: 109316
LICENSE NO.: 37-20622-01
ACTION TYPE: RENEWAL

2. FEE ATTACHED
AMOUNT: $580.00
CHECK NO.: 012838

COMMENTS

SIGNED T. F. Brown
DATE 8/08/04

LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED 1-4)

FEE CATEGORY AND AMOUNT: 7C $580

CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT
RENEWAL
LICENSE

OTHER

SIGNED S. Kenneally
DATE 8/9/04

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS
PROGRAM CODE: 02120
STATUS CODE: 2
FEE CATEGORY: 7C
EXP. DATE: 19880831
FEE COMMENTS: CODE 23

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: TROY COMMUNITY HOSPITAL
RECEIVED DATE: 880726
DOCKET NO.: 3019998
CONTROL NO.: 109316
LICENSE NO.: 37-20622-01
ACTION TYPE: RENEWAL

2. FEE ATTACHED
AMOUNT: $580.00
CHECK NO.: 0012838

3. COMMENTS

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

SIGNED L. T. Brown
DATE 8/28/84

FEE CATEGORY AND AMOUNT: 7C $580

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

SIGNED S. Gambrell
DATE 8-31-84

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 02120
STATUS CODE: 2
FEE CATEGORY: 7C
EXP. DATE: 19880831
FEE COMMENTS: CODE 23

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: TROY COMMUNITY HOSPITAL
RECEIVED DATE: 880726
DOCKET NO: 3019998
CONTROL NO.: 109316
LICENSE NO.: 37-20622-01
ACTION TYPE: RENEWAL

2. FEE ATTACHED
AMOUNT: $580.00
CHECK NO.: 0012838

3. COMMENTS

SIGNED R. F. Brown
DATE 88/08/04

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

1. FEE CATEGORY AND AMOUNT: 7C $580

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

3. OTHER

SIGNED S. Kenneally
DATE 8/8/88