Rockville General Hospital

MS 12
P8

March 15, 1985

John E. Glenn, Ph.D., Chief
Nuclear Materials Safety Section B
Division of Radiation Safety and Safeguards
Nuclear Regulatory Commission, Region I
Mail Control No. 03171
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Glenn:

Pursuant to your request for additional information, in order to complete our license application dated November 22, 1984, I have enclosed the necessary material for your review.

1. The formal structure of the Radiation Safety Committee was established in 1982 as an all inclusive committee, to combine the activities of the previously established Nuclear Medicine Committee. You will find a copy of the minutes of the meeting which established the membership committee structure (Attachment 1). Also included is a copy of the most recent survey of our Nuclear Medicine Rooms as performed by our Radiation Consultant (Attachment 2).

2. The model program has been completed as recommended (Attachment 3). A copy has been sent to the Radiation Saftey Officer, Dr. James Danigelis and the Radiation Consultant, William Patton, Physicist.

3. The following is a list of our instrumentation:

   a. ADAC computer #2200 (DPS) Serial #007393.
   b. Picker Dyna Camera 4C Serial #248288.
   c. Victoreen Survey Meter Model #498.
   d. Ludlum Survey Meter Model #3.
   e. Capintec Dose Calibrator CRC-6A Serial #62722.
   f. MEDEX Gama Camera Model X-37 Serial #28878.

4. Our reference Sources and their activity are as follows:

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Rockville General Hospital

a. Cobalt 57 Source Vial E New England Nuclear 2/12/81
Serial #20622812-30 Activity .117 millicuries.

Comment: A new source is on order from New England Nuclear
NES 206 Vial E 5 MCI. Delivery date 3/25/85 P.O. #X0661.

b. Gamma reference source Cs 137 Vial E Date 6/15/75. Activity 0.2 millicuries Serial #319.055.08.

I hope this information will be satisfactory and look forward to your response.

Sincerely,

Donald Bergeron

Donald Bergeron
Administrative Department Head
Department of Diagnostic Imaging Services

DB/lmh

cc: Dr. James Danigelis
Dr. Lyman B. Fogg
Mr. Boradman
Mr. Beeman
Mr. Patton

Rockville General Hospital

RADIATION SAFETY COMMITTEE

October 5, 1982

Members In Attendance: Donald Bergeron, Department Head, Diagnostic Imaging Services, James Danigelis, M.D., Medical Director Nuclear Medicine Division, Colby Stearns, M.D., Medical Director Radiology Division, Irene Tedford, Nursing Supervisor, Ted Kravitz, Nuclear Medicine Technologist.

This committee is being newly organized to meet JCAH requirements. Activities and business of the Nuclear Medicine Committee will be incorporated as part of this committee's responsibility, following a final November meeting of the Nuclear Medicine Committee.

The first matter of business was the selection of members to serve on this committee. It was unanimously decided that members of this committee should include representatives of the nursing staff who are involved in radiology procedures. Our radiation physicist, the radiologists, supervisory staff of the Radiology Department, as well as Nuclear Medicine personnel should serve as permanent members of the committee. A representative of the Lab. should also be selected to serve on the committee. During the first two years of the committees activity, it is felt that the hospital nursing supervisor and supervising nurses from the O.R., E.R. and ICU should also serve as members. In October of 1984 new nursing representatives will be selected.

The frequency of this committees activity was another matter of discussion. Since RGH is only a 120 bed facility, quarterly meetings are considered more than adequate to handle all radiation safety matters. Additional meetings will be scheduled whenever the need arises.

The final discussion concern the need for development of a policy for holding patients during X-ray exams. Mr. Bergeron felt that Dr. Stearns and he should work on this project. A policy will be developed during the course of October and circulated to the nursing department. In addition, a log book will be kept in the Radiology Department to record the names of individuals called upon to help in holding patients. The results of this policy and its effectiveness will be reviewed at a future Radiation Safety Committee meeting.

The next meeting will be scheduled for January 5, 1983.

Respectfully submitted,

Donald Bergeron, R.T.

Donald Bergeron, R.T.
Department Head
Diagnostic Imaging Services

DB/jd

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ATTACHMENT 1

RADIATION PROTECTION SURVEY REPORT
ROCKVILLE GENERAL HOSPITAL
March 13, 1985

AREA SURVEYED: Nuclear Medicine Rooms

APPRAISAL OF PERSONNEL DOSIMETRY REPORTS:

Review of reports through December 1984 indicated excellent dose control.

EXTERNAL RADIATION SURVEY :

Radiation level outside the preparation shield was at background.

Radiation level outside the storage safe was at background.

Radiation level in all other areas was at background.

Note: Levels determined with calibrated sensitive G.M. type survey meter.

CONTAMINATION SURVEY:

A contamination survey using wipes inside the preparation shield and storage safes and a G.M. survey meter for other areas was conducted. No detectable contamination was found.

WASTE DISPOSAL REVIEW:

Waste material was surveyed and segregated for disposal. The short lived isotopes generally used permits use of decay (to back-ground) to avoid disposal problems.

GENERAL COMMENTS:

General conditions were orderly and clean. Presence of contaminated surgical gown in waste indicates that monitoring is effective during nuclear medicine procedures.

APPENDIX O

MODEL PROGRAM FOR MAINTAINING OCCUPATIONAL RADIATION EXPOSURES AT MEDICAL INSTITUTIONS ALARA

Rockville General Hospital

(Licensee's Name)

March 15, 1985

(Date)

1. **Management Commitment**

   a. We, the management of this (medical facility, hospital, etc.), are committed to the program described in this paper for keeping exposures (individual and collective) 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 a Radiation Safety Committee (RSC)[1] 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 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 where reasonable. Where modifications have been recommended but not implemented, we will be prepared to describe the reasons for not implementing them.

   d. In addition to maintaining doses to individuals as far below the limits as is reasonably 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.

2. **Radiation Safety Committee (RSC)[2]**

   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 uses for which he has applied 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. 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 proposed use.

      (3) The RSC will ensure that the user justifies his procedures and that dose will be ALARA (individual and collective).

   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 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.

[1] Private practice physician licenses do not include an RSC.

[2] The RSO on private practice physician licenses will assume the responsibilities of the RSC under Section 2.

c. Review of ALARA Program

(1) The RSC will encourage all 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 in Table 0-1 below 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 (see Section 6).[3]

(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 (RSO)**

a. Annual and Quarterly Review

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

(2) Quarterly review of occupational exposures. The RSO 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.

(3) Quarterly review of records of radiation level surveys. The RSO will review radiation levels in unrestricted and restricted areas to determine that they were at ALARA levels during the previous quarter.

b. Education Responsibilities for ALARA Program

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

(2) The RSO 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.

c. Cooperative Efforts for Development of ALARA Procedures

Radiation workers will be given opportunities to participate in formulation of 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 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 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 radioactive materials to ensure that exposures will be kept ALARA. This may be enhanced through the application of trial runs.

b. Responsibility of Authorized User to Persons Under His/Her Supervision

(1) The authorized user will explain the ALARA concept and his/her commitment to maintain exposures ALARA to all persons under his/her supervision.

(2) The authorized user will ensure that persons under his/her supervision who are

[3] The NRC has emphasized that the Investigational Levels in this program are not new dose limits but, as noted in ICRP Report 26, "Recommendations of the International Commission on Radiological Protection," serve as check points above which the results are considered sufficiently important to justify further investigations.

subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

5. **Persons Who Receive Occupational Radiation Exposure**

   a. The worker will be instructed in the ALARA concept and its relationship to 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.

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

   This institution (or private practice) hereby establishes Investigational Levels for occupational external radiation exposure which, when exceeded, will initiate review or investigation by the RSC and/or the RSO. The Investigational Levels that we have adopted are listed in Table O-1 below. These levels apply to the exposure of individual workers.

Table O-1

	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

*Not normally applicable to nuclear medicine operations except those using significant quantities of beta-emitting isotopes.

The Radiation Safety Officer will review and record on Form NRC-5, "Current Occupational External Radiation Exposures," or an equivalent form (e.g., dosimeter processor's report), 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 O-1:

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 O-1 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 and will report the results of the 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 Committee. The Committee 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 Committee minutes.

c. Exposure equal to or greater than Investigational Level II.

   The RSO will investigate in a timely manner the cause(s) of all personnel exposures equaling or exceeding Investigational Level II and, if warranted, will take action. A report of the investigation, actions taken, if any, and a copy of the individual's Form NRC-5 or its equivalent will be presented to the RSC at the first RSC meeting following completion of the investigation. The details of these reports will be recorded in the RSC minutes. Committee minutes will be sent to the management of this institution for review. The minutes, containing details of the investigation, will be made available to NRC inspectors for review at the time of the next inspection.

d. Reestablishment of an individual occupational worker's Investigational Level II to a level above that listed in Table O-1.

   In cases where a worker's or a group of workers' exposures 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[4]

I hereby certify that this institution (or private practice) has implemented the ALARA Program set forth above.

Donald Bergeron
Signature

Donald Bergeron
Name (print or type)

Adminiatrative Department Head
Title Diagnostic Imaging Services

Institution (or Private Practice) Name and Address
Rockville General Hospital
31 Union Street
Rockville, CT 06066

[4]The person who is authorized to make commitments for the dministration of the institution (e.g., hospital administrator) or, n the case of a private practice, the licensed physician.