reid memorial hospital

March 9, 1979

Control No. 01234

United States
Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Bowyer:

The following is in answer to the request for additional information received February 28, 1979. These are labeled with the same headings as used in your request. We will be happy to answer any further questions if the need arises.

Yours sincerely,

BSMacDowell

Barry S. MacDowell
Executive Vice President
Reid Memorial Hospital
1401 Chester Boulevard
Richmond, Indiana 47374

BSM/wh

Item #1

A. In reference to training of personnel

1. Housekeeping personnel are not permitted in the Nuclear Lab. All housekeeping is done by Nuclear personnel.

2. Security.- The procedure for receiving and transporting Nuclear medicine and pharmaceuticals is enclosed. This procedure describes the responsibilities of the delivery service, the emergency admitting personnel and the security personnel. The Nuclear Lab doors are locked outside of working hours. Restricted area notices are posted at the entrance to the lab.

3. Nursing.- All therapy patients are scheduled and admitted to one ward, namely L-6. The nurses on this ward have been through specific training programs in Radiaion Safety conducted by the Radiology and Therapy Departments. These programs are updated periodically to keep up with the change in personnel. The nurses on this floor also wear film badges when therapy patients are on the ward, to monitor personnel exposure.

B. There are posted signs of restricted area on the doors of the Nuclear Laboratory.

Nuclear personnel were sent to Indianapolis for ALARA concept review meeting in 1978.

There is a staff meeting on the first Tuesday of every month to review procedures.

NRC handbooks are reviewed by Nuclear personnel.

Item #2

A. Dr. Wiland, Pathologist is on the Radiation Safety Committee representing the Hematology Laboratory.

Barry MacDowell, Hospital Safety Officer represents administration on the Radiation Safety Committee.

B. The Radiation Safety Committee will review annually the entire program at the last quarterly meeting of the year.

Item #3

Being aware that the possibility that the Volatile Iodine is released when opening vials of theraputic liquid iodine the personnel follows the following procedure:

1. Gloves are worn.

2. The vial in a lead container is placed in a fume hood on absorbant paper.

3. The vial is opened with hemostats and allowed to sit 5 minutes.

Item #4

Attached is a drawing of the preparation area.

1. The door is marked with a 10 x 12 approved caution sign.

2. All radioactive areas are marked with caution signs including the generator shield and trash container.

Item #5

Attached are the Radiology Department guidelines for the safe use, handling, removal, and storage or radioactive elements and therapeutic procedures. As regards to storage the capsules are enclosed within a lead safe with lead walls at least 5 centimeters thick. In addition the safe is surrounded by lead bricks 5 centimeters thick. Additional description of the storage is found in the Radiology Department guidelines attached to this page. There is at least 10 feet of separation between the storage area and all unrestricted areas.

Item #6

Syringe shields are used routinely except in circumstances where the patient's well being would be compromised.

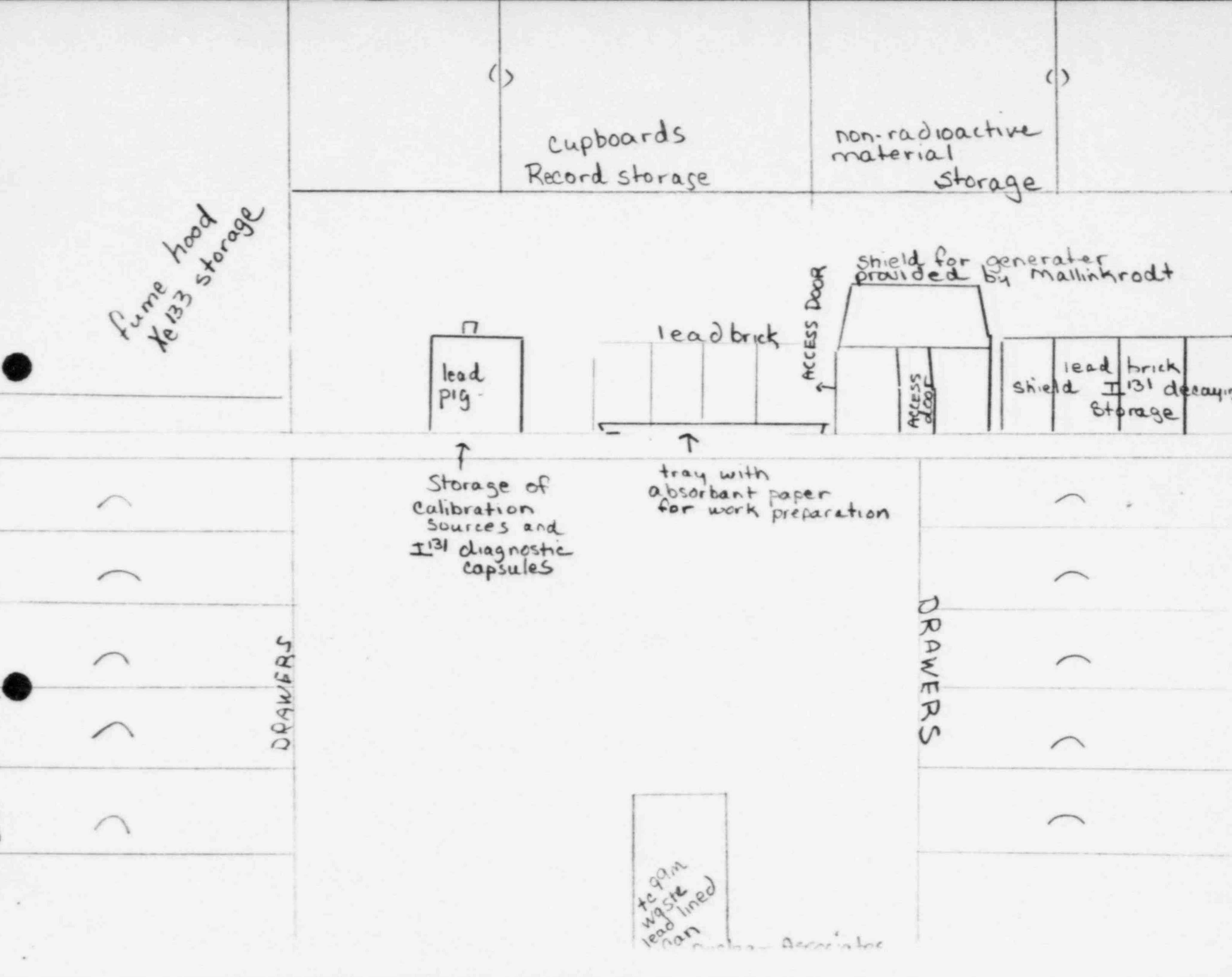
Item #7

All radioactive patient doses are checked and recorded prior to administration in a Capentec CRC-6A dose calibrater.

Item #8

Pcrsonnel working in the area where pharmaceuticals are stored, and after handling of, or, administering radiopharmaceuticals, are required to moniter their hands and clothing with Technical Associates moniter, Model PUG 1 for contamination. The instrument is kept outside of the "hot" lab door so that hands and clothing are checked with each exit from the area.

Item # 4



cupboards
Record storage
non-radioactive material storage
fume hood
Xe133 storage
shield for generater provided by Mallinkrodt
ACCESS DOOR
lead brick
lead pig
Access door
lead brick shield I^{131} decaying storage
Storage of calibration sources and I^{131} diagnostic capsules
tray with absorbant paper for work preparation
DRAWERS
DRAWERS
tc 99m waste lead lined can

RADIOLOGY DEPARTMENT GUIDELINES FOR THE SAFE USE, HANDLING, REMOVAL, AND STORAGE OF RADIUM AND RADIOACTIVE ELEMENTS IN THERAPEUTIC PROCEDURES

The following departmental guidelines have been drawn up from our own local practices, relating to the following NCRP reports:

NCRP Report #37 - precautions in the management of patients who have received therapeutic amounts of radionuclides.

NCRP Report #40 - protection against radiation from brachytherapy sources.

NCRP Report #48 - radiation protection for medical and allied health personnel.

The use of these intracavitary sources is restricted to members of the Radiology staff under the bylaws, rules and regulations of the hospital and only by those individuals who have demonstrated their training and experience in the safe use of these radioactive elements.

CESIUM SOURCES

1. Description and Identification--there is a complete description of each source capsule including original strength, measurement, and manufacturing specifications. Each Cesium source is color coded and also engraved with a number for proper identification.

2. Calibration--the original calibration has been provided by the manufacturer and the decay of each capsule has been provided by our Radiological Physicist.

3. Storage--the Cesium capsules are stored within a locked lead safe which is partially surrounded with additional lead shielding blocks and this safe is kept inside a small storage room which has a locked sliding door. This room is within the Orthovoltage therapy room which itself is locked at all times when the room is not in use. Radiation surveys of the area and surrounding areas are carried out periodically by our Consulting Physicist.

4. Handling Equipment--the Cesium sources are handled only with long handled forceps while standing behind a large protective lead L block containing a lead glass window. These sources are never to be touched with the bare hand. To minimize exposure of personnel during insertions of brachytherapy sources into patients, the Fletcher-Suit and Henschke afterloading applicators are almost exclusively used for all brachytherapy. The Cesium sources are therefore not loaded into the holders and then not loaded into the patient until the basic applicator has been inserted and proper position verified.

5. Transportation--there is available one long-handled lead carrying container and a second lead container which may be carried on a platform with wheels. The portable lead container and carrier is left in the patient's room during the application.

6. Leak Testing--the Cesium sources will be done every 6 months by our Consulting Physicist according to accepted methods.

Continued on Page II

7. Cleaning of Sources--there is no direct contact between the Cesium sources and the patient and therefore there is very little problem with dirty or contaminated sources; if this does occur, sources will be cleaned in a Zephiran or other similar solution and promptly returned to the storage safe.

8. Transfer and Preparation of Sources--careful planning is necessary during source handling to keep exposure to a minimum. Each time sources are removed from the storage safe, a notation is made in the Cesium-137 capsule inventory log, kept in a large brown notebook in the storage area. Notations are made in regard to the date and time removed, patient's name and number and size of capsules removed. No hospital personnel will be allowed to work with brachytherapy sources unless specific training has been given to them in regard to their safe use, handling, and storage.

9. Application of Sources--special nursing instructions for patients with Cesium or radium intracavitary applications have been drawn up with the approval of our Radiological Physicist (see attached nursing instructions). These instructions are placed on the front of the patient's chart during the application. A notation is also made on the chart concerning the type of application, number of sources and the treatment plan. The patient will be in a private room and a sign placed at the door indicating the presence of radiation hazard.

10. Removal of Sources--all linen, dressings, clothing and equipment should be kept within the room where the removal takes place until all sources are accounted for. A radiation survey will be carried out with a GM detector, after sources are removed from the area of the room, covering the patient's bed, the dirty linen and dressings and the patient's room. The Cesium sources will be promptly unloaded and placed back into the storage safe, and notation made in the log book as to date and time returned; a complete inventory check of all sources and initials of the responsible person. After sources are placed back into the safe, a radiation survey of the storage and loading area will be carried out with the GM instrument with one reading taken at the folding door and a second reading just to the right of the L shield and notation of these readings placed into the log book. In addition to the inventory on removal and return of sources, the brown log notebook contains information on: (i) decay of all Cesium sources; (ii) the most recent radiation survey of the area surrounding the Cesium storage; (iii) the original source certification and manufacturing description of the capsules from the 3-M company; (iv) general decay tables of Cesium-137; and (v) the most recent wipe tests results for Cesium-137 brachytherapy sources by our physicist.

11. Loss of Sources--any loss of the source shall be reported immediately to the radiation protection officer; all linens, dressing, equipment and trash containers shall be kept within the room of the patient until all sources are accounted for. A portable GM counter will be used for detection. A periodic inventory of all Cesium sources will be carried out at the end of each application or at least at intervals of not more than six months.

12. Working Conditions--the duties of the Radiation Protection Supervisor and details of personnel monitoring area as outlined in Sections 7.2 and 7.3 of NCRP Report #40. Finger badges will be used while loading and unloading Cesium sources.

SR-90 OPTHALMIC APPLICATOR

1. Description and Identification--there is a description of the applicator including original strength, measurement and manufacturing specifications from the 3-M company. This information is also kept in the brown log notebook in the storage area.

2. Calibration--the original calibration has been provided by the manufacturer and confirmed by measurements by our Consulting Physicist.

3. Storage--the applicator is kept within a locked container directly adjacent to the locked lead safe, which is kept in the locked storage room.

4. Use of the Applicator--after the eye is prepared, the applicator will be transferred rapidly and applied to the treatment area for the proper amount of time to deliver the dose desired. The applicator will then be returned promptly to the locked shielded storage container.

5. Cleaning--if cleaning is desired between applications, the applicator may be dipped into alcohol, Zephiran and water immediately after removing it from the container and just before returning it to the storage container.

6. Restrictions--this applicator will be used by members of the Radiology Staff under the bylaws, rules and regulations of the hospital and only by those who are properly trained in regard to it's safe use, handling and storage.

INTRACAVITARY THERAPEUTIC RADIOISOTOPES

1. These rarely done procedures will be carried out under the guidelines as laid down by NCRP Report #37, which includes precautions in the management of patients who have received therapeutic amounts of radionuclides.

2. These intracavitary therapeutic procedures will be restricted to members of the Radiology Staff under the bylaws, rules and regulations of the hospital and only by those individuals who have been appropriately trained in the use of these therapeutic radioisotopes.