



VETERANS ADMINISTRATION
MEDICAL CENTER
SALISBURY, N.C. 28144

0447

January 29, 1979

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IN REPLY REFER TO: 659/115

ADCMD for Operations (115)
Veterans Administration
Central Office
Washington, D. C. 20555

SUBJ: Nuclear Regulatory Commission License #32-15483-01

Attached are our answers and comments to questions contained in the letter from the Nuclear Regulatory Commission dated January 2, 1979, which is also attached. They are submitted for our Nuclear Regulatory Commission license renewal.

Dorothea S. Bedillion
DOROTHEA S. BEDILLION
Director

Attachments: 2

James J. Smith MD
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release from HOD
"To care for him who shall have borne the battle, and for his widow, and his orphan."—ABRAHAM LINCOLN

1. As requested in item 4 of our letter, please submit a complete description of the methods for calibration of your survey meters, including all the information specified in Appendix D to the Medical Licensing Guide. Specifically, your response did not include the procedures nor an exact description of the standards to be used.

COMMENTS:

A. The calibration of the survey meters will be performed in the following manner:

1. Essentially point sources are used.
2. The standard sources of Ra-226, Co-60, Cs-137 were purchased from ICN Chemical and Radioisotope Division, Irvin, California, and are certified by ICN to be within +5% of NBS calibrations.
3. The instruments are calibrated semiannually.
4. Each scale is calibrated at two points (approximately 1/3 and 2/3 of full scale.)
5. The exposure rate measured by the instrument shall differ from the true exposure rate by less than 10% of full scale. For readings greater than 10% but less than 20% a calibration chart or graph is prepared and attached to the instrument.

B. A reference check source is provided by the manufacturer and is used to determine operational readiness of the unit before each use and after each battery change. If this reading is not within +20% of the reading immediately following calibration, the instrument is recalibrated.

C. The instrument is energy independent over the range of its use.

D. Records of calibration and operational checks are maintained.

E. The activity and the gamma constant of each radionuclide is used to determine the dose at any given distance. Since this involves the inverse square law, the dose at any distance can be calculated.

$$x/t = A\Gamma/d^2 \text{ (R/hr)}$$

When x/t = Exposure rate R/hr
 A = activity (mCi)
 Γ = specific gamma constant ($R \cdot \text{cm}^2/\text{mCi} \cdot \text{hr}$)
 d = source to point of interest distance in cm.

The activity of the standards are corrected for current values by use of the radioactive decay law.

$$a_t = a_0 e^{-\lambda t}$$

2. Submit a description of the standards used for calibration of your dose calibrator, including radionuclide and activity.

COMMENTS:

Sources of Cs-137 and Co-57 are employed for the calibration of the dose calibrator. The activities of the radionuclides are as follows:

Co-57 - 39.9 μ Ci as of 12/31/78
Cs-137 - 88.1 μ Ci as of 12/31/78

These standard sources were purchased from Capintec Instruments to be within +5% of NBS calibrations.

3. In response to item 8 of our letter, you stated that no patients received greater than 30 millicuries. However, our question referred to those patients who receive any therapeutic quantity of iodine-131. If these patients are hospitalized for any reason, procedures must be established to protect other patients from contamination. You should, therefore, confirm that these patients will be placed in a private room and that precautions in Appendix K to the Medical Licensing Guide will be followed or submit alternative methods for contamination control.

COMMENTS:

1. All patients who receive I-131 therapy shall be placed in private rooms with a toilet, and that room shall be properly posted in accordance with Section 20.203, 10 CFR Part 20.
2. The patient's room and surrounding area shall be monitored; and exposure rates will be measured at the patient's bedside, three feet away, and at the entrance to the room. The RSO or his/her designate will determine from these surveys how long a person may remain at this position, and this information will be posted in the patient's chart and on his/her door. The results of daily surveys will be used to recalculate permitted times which shall also be posted as above.
3. The form, Nursing Instructions for Patients Treated with Phosphorus-32, Gold-198, or Iodine-131, will be completed with the administration of the treatment dose, and a copy shall be placed in the patient's chart.
4. Radiation levels in unrestricted areas will be maintained less than the limits specified in Section 20.105(b), 10 CFR Part 20.
5. All linens will be surveyed for contamination before being removed from the patient's room and will, if necessary, be held for decay.
6. Disposable plates, cups, eating utensils, tissue, surgical dressings, and other similar waste items will be placed in a specially designated container. The material will be collected daily by the Radiation Safety Officer (or his designate), checked for contamination, and disposed of as normal or radioactive waste, as appropriate.

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7. Non-disposable items used for these patients will be held in plastic bags in the patient's room, and checked for contamination by the Radiation Safety Officer or his designate. Items may be returned for normal use, held for decay, or decontaminated, as appropriate.
8. Urine and vomitus, from iodine-131 therapy patients will be stored for decay in our radioactive waste storage area. When it has reached background levels as measured with a low-level survey meter, it will be released to the sanitary sewer system.
9. Before a therapy patient's room is reassigned to another patient, the room will be surveyed for contamination (and decontaminated if necessary), and all radioactive waste and waste containers will be removed.
10. Nursing Instructions
 - a. Nurses should spend only that amount of time near the patient required for ordinary nursing care. Special restrictions may be noted on the precaution sheet in the patient's chart. Nurses should read these instructions before administering to the patients. Call the Nuclear Medicine Department if you have any questions about the care of these patients.
 - b. Visitors will be limited to those 18 years of age or over, unless other instructions are noted on the precautions sheet in the patient's chart.
 - c. Patients must remain in bed while visitors are in the room, and visitors should remain at least three feet from the patient.
 - d. Radioactive patients are to be confined to their rooms except for special medical or nursing purposes approved by the Nuclear Medicine Department.
 - e. No nurse, visitor, or attendant who is pregnant should be permitted in the room of a patient who has received a therapeutic amount of radioactivity until the patient no longer presents a radiation hazard. Female visitors should be asked whether they are pregnant.
 - f. Attending personnel must wear rubber or disposable plastic gloves when handling urinals, bedpans, emesis basins, or other containers having any material obtained from the body of the patient. Wash gloves before removing and then wash hands. The gloves must be left in the patient's room in the designated waste container. These gloves need not be sterile or surgical in type.
 - g. Disposable items should be used in the care of these patients whenever possible. These items should be placed in the designated

waste container. Contact the Nuclear Medicine Department for proper disposal of the contents of the designated waste container.

h. All clothes and bed linens used by the patient should be placed in the laundry bag provided and left in the patient's room to be checked by a member of the Nuclear Medicine Department.

i. All non-disposable items should be placed in a plastic bag and left in the patient's room to be checked by a member of the Nuclear Medicine Department.

j. Surgical dressings should be changed only as directed by the physician. Gold-198 leaking from a puncture wound will stain the dressings dark red or purple. Such dressings should not be discarded but should be collected in plastic bags and turned over to the Nuclear Medicine Department. Handle these dressings only with tongs or tweezers. Wear disposable gloves.

k. For iodine-131 patients:

(1) Urine from iodine-131 patients will be collected in special containers provided by the Nuclear Medicine Department. The patient should be encouraged to collect his own urine in the container. If the patient is bedridden, a separate urinal or bedpan should be provided. The urinal or bedpan should be flushed several times with hot soapy water after use.

(2) If the nurse helps to collect the excreta, she should wear disposable gloves. Afterwards she should wash her hands with the gloves on and again after the gloves are removed. The gloves should be placed in the designated waste container for disposal by the Nuclear Medicine Department.

(3) Disposable plates, cups, and eating utensils will be used by patients who are treated with iodine-131.

(4) Vomiting within 24 hours after oral administration, urinary incontinence, or excessive sweating within the first 48 hours, may result in contamination of linen and/or floor. In any such situations, or if radioactive urine and/or feces is spilled during collection, call the Nuclear Medicine Department, Ext. 480. Meanwhile, handle all contaminated material with disposable gloves and avoid spreading contamination.

(5) All vomitus must also be kept in the patient's room for disposal by the Nuclear Medicine Department. Feces need not be routinely saved, unless ordered on the chart. The same toilet should be used by the patient at all times, and it should be well flushed (3 times).

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- l. Utmost precautions must be taken to see that no urine or vomitus is spilled on the floor or the bed. If any part of the patient's room is suspected to be contaminated, notify the Nuclear Medicine Department.
- m. If a nurse, attendant, or anyone else knows or suspects that his skin or clothing--including shoes--is contaminated, notify the Nuclear Medicine Department immediately. This person should remain in the patient's room and not walk about the hospital. If the hands become contaminated, wash immediately with soap and water.
- n. If a therapy patient should need emergency surgery or should die, notify the Nuclear Medicine Department immediately.
- o. When the patient is discharged, call the Nuclear Medicine Department and request that the room be surveyed for contamination before remaking the room.

Date: _____

NURSING INSTRUCTIONS FOR PATIENTS TREATED WITH
PHOSPHORUS-32, GOLD-198, OR IODINE-131

Patient's Name: _____

Room No.: _____ Physician's Name: _____

Radioisotope Administered: _____

Date and Time of Administration: _____

Dose Received: _____ Method of Administration: _____

Exposure Rates in MR/hr _____

Date	3 feet from bed	10 feet from bed
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(Comply with all Check Items)

____ 1. Visiting time permitted: _____

____ 2. Visitors must remain _____ from patient.

____ 3. Patient may not leave room.____ 4. Visitors under 18 not permitted.____ 5. Pregnant visitors not permitted.

____ 6. Film badges must be worn.

____ 7. Use and complete the following tags:

____ door

____ bed

____ chart

____ wrist

- ___ 8. Gloves must be worn while attending patient.
- ___ 9. Patient must use disposable utensils.
- ___ 10. All items must remain in room until OK'd by Radiation Safety.
- ___ 11. Smoking is not permitted.
- ___ 12. Do not release room to admitting until OK'd by Radiation Safety.
- ___ 13. Other instructions

In case of an emergency contact:

RSO

Name

on/off duty telephone no.