

|                                      |  |                        |
|--------------------------------------|--|------------------------|
| FORM NRC-313M<br>(8-78)<br>10 CFR 35 | U.S. NUCLEAR REGULATORY COMMISSION<br><b>APPLICATION FOR MATERIALS LICENSE – MEDICAL</b> | Approved:<br>GAO R0557 |
|--------------------------------------|--|------------------------|

**INSTRUCTIONS** – Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to: Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.

|  |  |
|--|--|
| 1.a. NAME AND MAILING ADDRESS OF APPLICANT (institution, firm, clinic, physician, etc.) INCLUDE ZIP CODE<br><br>JOSEPH S. SAFKO MD.<br>838 MARKET ST.<br>ZANESVILLE, OHIO 43701<br>TELEPHONE NO.: AREA CODE (614) 452-4319 | 1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED (If different from 1.a.) INCLUDE ZIP CODE<br><br>SAME<br><br>3/31/79 7A   |
| 2. PERSON TO CONTACT REGARDING THIS APPLICATION<br><br>JOSEPH SAFKO MD.<br>TELEPHONE NO.: AREA CODE (614) 452-9319   | 3. THIS IS AN APPLICATION FOR: (Check appropriate item)<br>a. <input type="checkbox"/> NEW LICENSE<br>b. <input type="checkbox"/> AMENDMENT TO LICENSE NO. _____<br>c. <input checked="" type="checkbox"/> RENEWAL OF LICENSE NO. 34-13165-01<br>030-02852 |
| 4. INDIVIDUAL USERS (Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)<br><br>JOSEPH SAFKO MD.   | 5. RADIATION SAFETY OFFICER (RSO) (Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)<br><br>JOSEPH S. SAFKO MD.  |

#### 6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

| RADIOACTIVE MATERIAL LISTED IN:      | ITEMS DESIRED<br>"X" | MAXIMUM POSSESSION LIMITS<br>(In millicuries) | ADDITIONAL ITEMS:   | MARK ITEMS DESIRED<br>"X" | MAXIMUM POSSESSION LIMITS<br>(In millicuries) |
|--------------------------------------|----------------------|---|---|---------------------------|---|
| 10 CFR 31.11 FOR IN VITRO STUDIES    |                      |   | IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM   | X                         | 30  |
| 10 CFR 35.100, SCHEDULE A, GROUP I   |                      | AS NEEDED                                     | PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES | X                         | 20  |
| 10 CFR 35.100, SCHEDULE A, GROUP II  |                      | AS NEEDED                                     | PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.    |                           |   |
| 10 CFR 35.100, SCHEDULE A, GROUP III |                      |   | GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.                             |                           |   |
| 10 CFR 35.100, SCHEDULE A, GROUP IV  |                      | AS NEEDED                                     | IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA   | X                         | 30  |
| 10 CFR 35.100, SCHEDULE A, GROUP V   |                      | AS NEEDED                                     | XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.            |                           |   |
| 10 CFR 35.100, SCHEDULE A, GROUP VI  |                      |   |   |                           |   |

#### 6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. (Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)

| ELEMENT AND MASS NUMBER   | CHEMICAL AND/OR PHYSICAL FORM | MAXIMUM NUMBER OF MILLICURIES OF EACH FORM | DESCRIBE PURPOSE OF USE   |
|---|-------------------------------|--|---|
| <div style="border: 1px solid black; padding: 5px;"> <b>RECEIVED BY LHM</b><br/> Date MAR 19 1979<br/> Log. [Signature]<br/> By. [Signature]<br/> Jmg. To [Signature]<br/> Action Compl. 3/21/79 </div> |                               |  | <div style="border: 1px solid black; padding: 5px;"> Applicant: 8504<br/> Check No. 8504<br/> Amount/Fee Category: 150 (10)<br/> Type of Fee: Renewal<br/> Date Check Rec'd: MAR 19 1979<br/> Received By: [Signature] </div> |

# INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

For Items 7 through 23, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the medical licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10.8 , Rev. \_\_\_\_\_ Date: \_\_\_\_\_

|   |  |  |  |
|---|--|--|--|
| 7. MEDICAL ISOTOPES COMMITTEE   |  | 15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL (Check One)               |  |
| Names and Specialties Attached; and   |  | Appendix G Rules Followed; or  |  |
| Duties as in Appendix B; or _____ (Check One)   |  | Equivalent Rules Attached  |  |
| Equivalent Duties Attached  |  | 16. EMERGENCY PROCEDURES (Check One)   |  |
| 8. TRAINING AND EXPERIENCE  |  | Appendix H Procedures Followed; or   |  |
| Supplements A & B Attached for Each Individual User; and                                |  | Equivalent Procedures Attached   |  |
| Supplement A Attached for RSO.  |  | 17. AREA SURVEY PROCEDURES (Check One)   |  |
| 9. INSTRUMENTATION (Check One)  |  | Appendix I Procedures Followed; or   |  |
| Appendix C Form Attached; or  |  | Equivalent Procedures Attached   |  |
| List by Name and Model Number   |  | 18. WASTE DISPOSAL (Check One)   |  |
| 10. CALIBRATION OF INSTRUMENTS  |  | Appendix J Form Attached; or   |  |
| Appendix D Procedures Followed for Survey Instruments; or _____ (Check One)             |  | Equivalent Information Attached  |  |
| Equivalent Procedures Attached; and   |  | 19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS (Check One)                              |  |
| Appendix D Procedures Followed for Dose Calibrator; or _____ (Check One)                |  | Appendix K Procedures Followed; or   |  |
| Equivalent Procedures Attached  |  | Equivalent Procedures Attached   |  |
| 11. FACILITIES AND EQUIPMENT  |  | 20. THERAPEUTIC USE OF SEALED SOURCES  |  |
| Description and Diagram Attached  |  | Detailed Information Attached; and   |  |
| 12. PERSONNEL TRAINING PROGRAM  |  | Appendix L Procedures Followed; or _____ (Check One)                                 |  |
| Description of Training Attached  |  | Equivalent Procedures Attached   |  |
| 13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL                          |  | 21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon - 133)      |  |
| Detailed Information Attached   |  | Detailed Information Attached  |  |
| 14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS (Check One) |  | 22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS            |  |
| Appendix F Procedures Followed; or  |  | Detailed Information Attached  |  |
| Equivalent Procedures Attached  |  | 23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b |  |
|   |  | Detailed Information Attached  |  |

## 24. PERSONNEL MONITORING DEVICES

| TYPE<br>(Check appropriate box) |                 | SUPPLIER                 | EXCHANGE FREQUENCY |
|---------------------------------|-----------------|--------------------------|--------------------|
| a. WHOLE BODY                   | FILM            | R. S. Landauer Jr. & Co. |                    |
|                                 | TLD             |                          |                    |
|                                 | OTHER (Specify) |                          |                    |
| b. FINGER                       | FILM            |                          |                    |
|                                 | TLD             |                          |                    |
|                                 | OTHER (Specify) |                          |                    |
| c. WRIST                        | FILM            |                          |                    |
|                                 | TLD             |                          |                    |
|                                 | OTHER (Specify) |                          |                    |

d. OTHER (Specify)

## 25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

|   |       |                   |  |
|---|-------|-------------------|--|
| NAME OF HOSPITAL                            |       |                   |  |
| Bethesda Hospital & Good Samaritan Hospital |       |                   |  |
| MAILING ADDRESS                             |       |                   |  |
| 2951 Maple Avenue                           |       | 800 Forest Avenue |  |
| CITY  | STATE | ZIP CODE          |  |
| Zanesville, Ohio                            | Ohio  | 43701             |  |
| 43701                                       |       |                   |  |

b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.

c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.

## 26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED  
(See Section 170.31, 10 CFR 170)

b. APPLICANT OR CERTIFYING OFFICIAL (Signature)

(1) NAME (Type of Print)

Joseph S. Safko, M. D.

(2) TITLE

(1) LICENSE FEE CATEGORY:

Renewal Individual License

(2) LICENSE FEE ENCLOSED: \$ 150.00

c. DATE

2/28/79

## PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on Form NRC-313M. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S)** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30-36 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES** The information may be used: (a) to provide records to State health departments for their information and use; and (b) to provide information to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for a NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you. A copy of the license issued will routinely be placed in the NRC's Public Document Room, 1717 H Street, N.W., Washington, D.C.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed.
5. **SYSTEM MANAGER(S) AND ADDRESS** Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.



TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER

|   |   |
|---|---|
| 1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER<br><b>JOSEPH S. JAFKO M.D.</b> | 2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE<br><b>OHIO</b> |
|---|---|

| 3. CERTIFICATION     |                       |                               |
|----------------------|-----------------------|-------------------------------|
| SPECIALTY BOARD<br>A | CATEGORY<br>B         | MONTH AND YEAR CERTIFIED<br>C |
| ① RADIOLOGY          | DIAGNOSIS AND THERAPY | 1964                          |
| ② NUCLEAR MEDICINE   | ALL CATEGORIES        | OCTOBER 1977                  |

| 4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES        |                                       |   |  |
|---|---------------------------------------|---|--|
| FIELD OF TRAINING<br>A  | LOCATION AND DATE(S) OF TRAINING<br>B | TYPE AND LENGTH OF TRAINING                 |  |
|   |                                       | LECTURE/ LABORATORY COURSES<br>(Hours)<br>C | SUPERVISED LABORATORY EXPERIENCE<br>(Hours)<br>D |
| a. RADIATION PHYSICS AND INSTRUMENTATION                              | RADIOLOGY RESIDENCY<br>USPHS HOSPITAL |   |  |
| b. RADIATION PROTECTION   | BALTIMORE, MARYLAND<br>1960 - 1963    |   |  |
| c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY |                                       |   |  |
| d. RADIATION BIOLOGY  |                                       |   |  |
| e. RADIOPHARMACEUTICAL CHEMISTRY                                      |                                       |   |  |

| 5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience) |   |  |                        |                 |
|--|---|--|------------------------|-----------------|
| ISOTOPE  | MAXIMUM AMOUNT                                | WHERE EXPERIENCE WAS GAINED                | DURATION OF EXPERIENCE | TYPE OF USE     |
| ALL<br>AUTHORIZED<br>ISOTOPES<br>FOR<br>Dx +<br>Therapy                              | MEDICAL<br>DIRECTOR OF<br>NUCLEAR<br>MEDICINE | USPHS HOSPITAL<br>BALTIMORE, Md.           | 3 yrs.                 | Dx +<br>Therapy |
|  |   | BARTLES DA Hospital<br>ZANESVILLE OHIO     | 10 yrs.                |                 |
|  |   | LICENSE # 34-16710-01                      |                        |                 |
|  |   | GOOD SAMARITAN Hospital<br>ZANESVILLE OHIO | 10 yrs.                |                 |
|  |   | LICENSE # 34-16725-01                      |                        |                 |

PRECEPTOR STATEMENT

ON FILE  
LICENSE 34-13165-01

Supplement B must be completed by the applicant physician's preceptor. If more than one preceptor is necessary to document experience, obtain a separate statement from each.

|   |                  |   |
|---|------------------|---|
| 1. APPLICANT PHYSICIAN'S NAME AND ADDRESS |                  | <b>KEY TO COLUMN C</b><br><b>PERSONAL PARTICIPATION SHOULD CONSIST OF:</b><br>1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.<br>2-Collaboration in dose calibration and actual administration of dose to the patient including calculation of the radiation dose, related measurements and plotting of data.<br>3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment. |
| FULL NAME                                 |                  |   |
| STREET ADDRESS                            |                  |   |
| CITY                                      | STATE   ZIP CODE |   |

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

| ISOTOPE<br>A         | CONDITIONS DIAGNOSED OR TREATED<br>B              | NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION<br>C | COMMENTS<br>(Additional information or comments may be submitted in duplicate on separate sheets.)<br>D |
|----------------------|---|---|---|
| I-131<br>or<br>I-125 | DIAGNOSIS OF THYROID FUNCTION                     |   |   |
|                      | DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME    |   |   |
|                      | LIVER FUNCTION STUDIES                            |   |   |
|                      | FAT ABSORPTION STUDIES                            |   |   |
|                      | KIDNEY FUNCTION STUDIES                           |   |   |
|                      | IN VITRO STUDIES                                  |   |   |
| OTHER                |   |   |   |
| I-125                | DETECTION OF THROMBOSIS                           |   |   |
| I-131                | THYROID IMAGING                                   |   |   |
| P-32                 | EYE TUMOR LOCALIZATION                            |   |   |
| Se-75                | PANCREAS IMAGING                                  |   |   |
| Yb-169               | CISTERNOGRAPHY                                    |   |   |
| Xe-133               | BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES |   |   |
| OTHER                |   |   |   |
| Tc-99m               | BRAIN IMAGING                                     |   |   |
|                      | CARDIAC IMAGING                                   |   |   |
|                      | THYROID IMAGING                                   |   |   |
|                      | SALIVARY GLAND IMAGING                            |   |   |
|                      | BLOOD POOL IMAGING                                |   |   |
|                      | PLACENTA LOCALIZATION                             |   |   |
|                      | LIVER AND SPLEEN IMAGING                          |   |   |
|                      | LUNG IMAGING                                      |   |   |
|                      | BONE IMAGING                                      |   |   |
| OTHER                |   |   |   |

# PRECEPTOR STATEMENT (Continued)

## 2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN (Continued)

| ISOTOPE               | CONDITIONS DIAGNOSED OR TREATED                               | NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION | COMMENTS<br>(Additional information or comments may be submitted in duplicate on separate sheets.) |
|-----------------------|---|--|--|
| A                     | B   | C  | D  |
| P-32<br>(Soluble)     | TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES |  |  |
| P-32<br>(Colloidal)   | INTRACAVITARY TREATMENT                                       |  |  |
| I-131                 | TREATMENT OF THYROID CARCINOMA                                |  |  |
|                       | TREATMENT OF HYPERTHYROIDISM                                  |  |  |
| Au-198                | INTRACAVITARY TREATMENT                                       |  |  |
| Co-60<br>or<br>Cs-137 | INTERSTITIAL TREATMENT  |  |  |
|                       | INTRACAVITARY TREATMENT                                       |  |  |
| I-125<br>or<br>Ir-192 | INTERSTITIAL TREATMENT  |  |  |
| Co-60<br>or<br>Cs-137 | TELETHERAPY TREATMENT   |  |  |
| Sr-90                 | TREATMENT OF EYE DISEASE                                      |  |  |
|                       | RADIOPHARMACEUTICAL PREPARATION                               |  |  |
| Mo-99/<br>Tc-99m      | GENERATOR   |  |  |
| Sn-113/<br>In-113m    | GENERATOR   |  |  |
| Tc-99m                | REAGENT KITS  |  |  |
| Other                 |   |  |  |

## 3. DATES AND TOTAL NUMBER OF HOURS RECEIVED IN CLINICAL RADIOISOTOPE TRAINING

### 4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:

a. NAME OF SUPERVISOR

b. NAME OF INSTITUTION

c. MAILING ADDRESS

d. CITY

5. MATERIALS LICENSE NUMBER(S)

6. PRECEPTOR'S SIGNATURE

7. PRECEPTOR'S NAME (Please type or print)

8. DATE

## SUPPLEMENTARY DATA

## Item 7: RADIATION CONTROL (MEDICAL ISOTOPES) COMMITTEE

## a. Committee Duties &amp; Responsibilities

- .1 The duties and responsibilities will be as described in Appendix B of NUREG-0338, Rev. 1, 11-01-77.

## b. Meeting Frequency

- .1 Meetings will be held as described in Appendix B of NUREG-0338, Rev. 1, 11-01-77.

## c. Composition

Not Applicable

03 1979

Control No. 01413

Item 7: Date \_\_\_\_\_



## SUPPLEMENTARY DATA

## Item 8: AUTHORIZED USERS

a. Current By-product Material License #34-13165-01

Current License #34-16710-01

Current License #34 16725-01

Also see enclosed Supplement A

b. Radiation Safety Officer

.1 Joseph S. Safko, M. D.

.2 George W. Callendine, Jr., Ph. D., Consulting Physicist  
License Number 34-16779-01

## SUPPLEMENTARY DATA

Item 9: INSTRUMENTATION

| INSTRUMENT    |      |        | Number<br>Available | Radiation<br>Detected | Sensitivity<br>Ranges<br>mR/hr | Use* |   |   |
|---------------|------|--------|---------------------|-----------------------|--------------------------------|------|---|---|
| Manufacturer  | Name | Model  |                     |                       |                                | M    | S | Q |
| <u>SURVEY</u> |      |        |                     |                       |                                |      |   |   |
| Picker        |      | 655186 | one                 | Beta<br>Gamma         | 0-0.2 to<br>0-2000             |      | X |   |
| <u>ASSAY</u>  |      |        |                     |                       |                                |      |   |   |
| Picker        |      | 655186 | one                 | Beta<br>Gamma         | 0-0.2 to<br>0-2000             |      |   |   |

\*M-monitor: S-survey: Q-quantitation or measuring

## SUPPLEMENTARY DATA

## Item 10: INSTRUMENT CALIBRATION

## a. Survey Instruments

- .1 Calibrations are performed at least annually by or under the direction of George W. Callendine, Jr., Ph. D..

- .1 See procedure on file under NRC License #34-16779-01

- .2 A long-lived reference check source is measured in fixed geometry at least quarterly and

- .1 at time of calibration
  - .2 before each use
  - .3 after each battery change

## b. Asscy Instruments

- .1 Calibrations are performed at least annually by or under the direction of George W. Callendine, Jr., Ph. D.. See procedure on file under NRC License #34-16779-01.

## SUPPLEMENTARY DATA

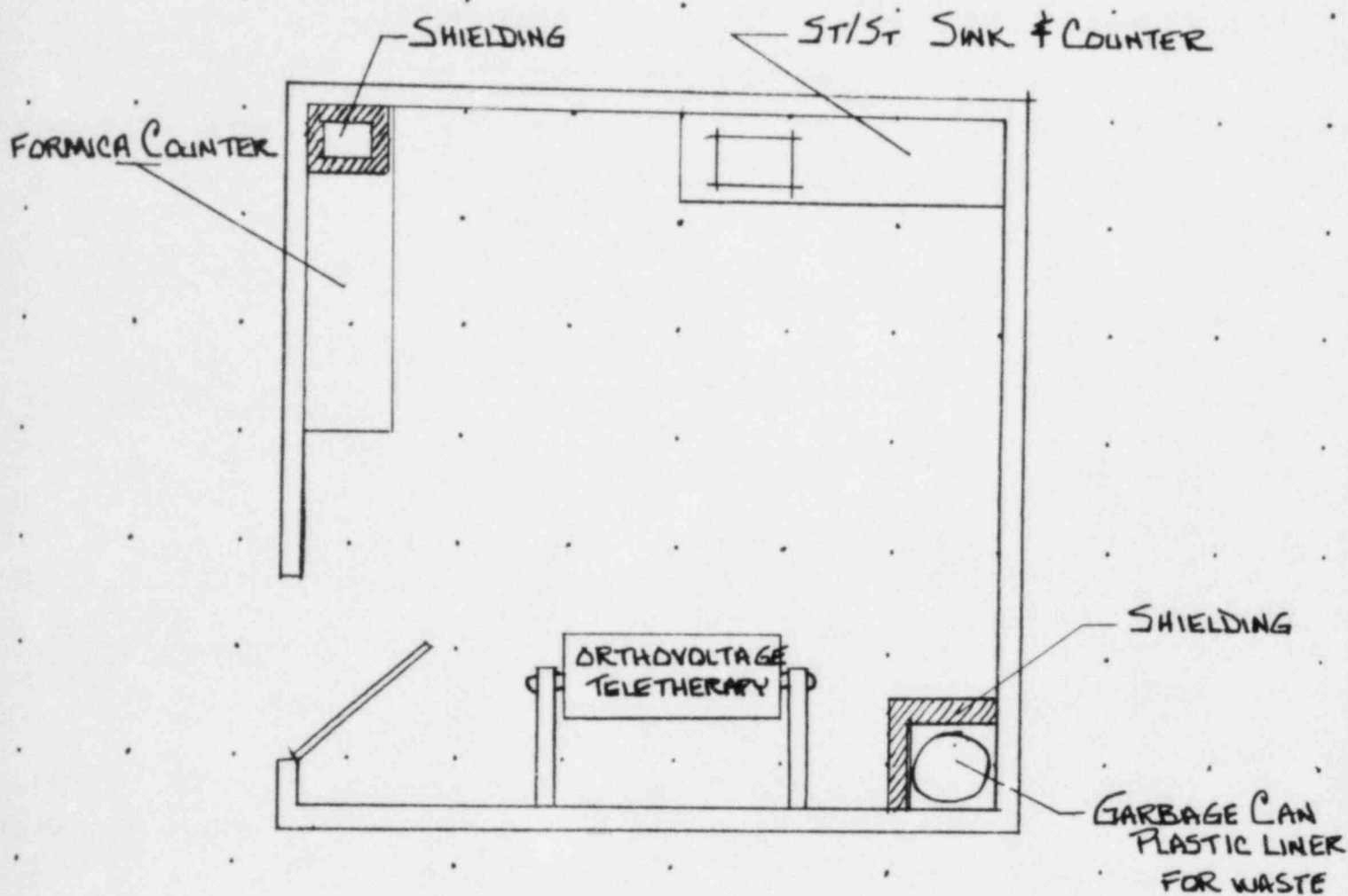
## Item 11: FACILITIES AND EQUIPMENT

A plan view of the area where the material is stored and dispensed is enclosed with this material.

Lead bricks and lead containers for vials and bottles are provided so all material will be shielded.

Instruments and equipment are used only for the Nuclear Medicine procedures and are not shared with other functions. Cafeteria trays and absorbant paper are provided for manipulations. Plastic bags and other plastic containers are available for use. Long tongs and forceps are used to handle radioactive sources. Plastic and/or rubber gloves are easily available and are used when handling materials.



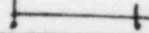


Control No. 01413

GEORGE W. CALLENDINE, JR., PH. D.  
CONSULTING RADIOLOGIC PHYSICIST  
803 OXFORD STREET  
WORTHINGTON, OHIO 43085  
(614) 885-6173

NUCLEAR MEDICINE

RADIOLOGY ASSOCIATES  
ZANESVILLE OHIO

SCALE:   
DATE: 02-28-79

DWG:

SUPPLEMENTARY DATA

Item 12: PERSONNEL TRAINING PROGRAM

Orientation of all new personnel and annual review with regular personnel are carried out by Dr. Safko.

All personnel who have occasion to be in the area are instructed in the pertinent provisions of 10 CFR 19.12 as they apply to specific tasks.

1. HOUSEKEEPING

Housekeeping personnel are instructed that all general areas in the Nuclear Medicine department are safe for general housekeeping. They are cautioned about the areas where radionuclides are stored and instructed to refrain from cleaning these counters, etc.

2. DEPARTMENT PERSONNEL

This program is continually updated.

## Item 13: ORDERING AND RECEIVING RADIOACTIVE MATERIALS

## a. Ordering

Radionuclide compounds used will be limited to those distributed by recognized pharmaceutical firms with NCR authorization where applicable.

The teletherapy technologist issues individual orders for radionuclide materials as they are needed at the direction of Joseph S. Safko, M. D. Incremental levels are established for individual orders so that total possession limits of the newly received materials and other material which may be on hand do not exceed those authorized.

## b. Receipt

## .1 General

All materials received are restricted to the radionuclide storage area. No radioactive materials are accessible to unauthorized personnel at any time. Radiation levels in all unrestricted areas in the hospital do not exceed the limit specified in 10 CFR 20.105. All materials are handled in accordance with the provisions of 10 CFR 20.105.

Records are kept detailing the receipt and disposition of all radionuclide materials.

All personnel are instructed in proper techniques and handling, record keeping, patient care and emergency procedures. Plastic gloves are worn at all times when handling packages and containers containing radioactive materials.

## .2 Receipt During Working Hours

Upon receipt at the office, all radioactive materials are delivered directly to the radionuclide storage area by the shipper. All materials are received during working hours.

## .3 Receipt During Off-Duty Hours

No materials are received during off-duty hours.

## .4 Receipt

All packages containing radioactive materials which are received are evaluated for radiation levels and for radioactive contamination. Plastic gloves are worn.

## .1 Wipe Testing

All packages containing radionuclides with half lives greater than 30 days and/or quantities greater than 100-mCi are wipe tested for surface contamination to insure integrity of the containers.

## .2 Surveying

All packages are monitored for acceptable radiation exposure levels at the surfaces (100-mR/hr maximum) and at three feet (10-mR/hr maximum) to insure integrity of shielding and packaging. When levels exceed those specified the Radiation Safety Officer is notified immediately.

## SUPPLEMENTARY DATA

## Item 14: OPENING PACKAGES

The sealing tape on the carton is cut with a sharp knife and the package opened carefully. When packages are stapled closed, the top is usually cut off by carefully ringing the package just below the top with a knife. The shielded container is removed and checked for proper labeling and damage.

All packing material is monitored with a Geiger counter for contamination and then disposed of in the normal trash if not contaminated. All labels are obliterated before discarding. In the event a package is found to be leaking the Radiation Safety Officer and Dr. Callendine are notified immediately and the packing material and vials sequestered. The Radiation Safety Officer and/or Dr. Callendine then notify the carrier and the Region III office of the Nuclear Regulatory Commission in Glen Ellyn, Illinois.



## SUPPLEMENTARY DATA

## Item 15: LABORATORY RULES

1. Wear disposable gloves at all times while handling radioactive materials.
2. Monitor hands and clothing for contamination after each procedure or before leaving the area.
3. Do not eat, drink, smoke, or apply cosmetics in any area where radioactive material is stored or used.
4. Assay each patient dose prior to administration.
5. Wear personnel monitoring devices (film badge or TLD) at all times while in areas where radioactive materials are used or stored. These devices should be worn at chest or waist level.
6. Dispose of radioactive waste only in specially designated receptacles.
7. Confine radioactive solutions in covered containers plainly identified and labeled with name of compound, radionuclide, date, activity, and radiation level, if applicable.
8. Always transport radioactive material in shielding containers.

APPENDIX H  
EMERGENCY PROCEDURES

Minor Spills:

1. NOTIFY: Notify persons in the area that a spill has occurred.
2. PREVENT THE SPREAD: Cover the spill with absorbent paper.
3. CLEAN UP: Use disposable gloves and remote handling tongs.  
Carefully fold the absorbent paper and pad. Insert into a plastic bag and dispose of in the radioactive waste container. Include all other contaminated materials such as disposable gloves.
4. SURVEY: With a G.M. Survey Meter, check the area around the spill, your hands and clothing for contamination.
5. REPORT: Report incident to the Radiation Safety Officer.

Major Spills:

1. CLEAR THE AREA: Notify all persons not involved in the spill to vacate the room.
2. PREVENT THE SPREAD. Cover the spill with absorbent pads, but do not attempt to clean it up. Confine the movement of all personnel potentially contaminated to prevent the spread.

Item No. 16

Date: \_\_\_\_\_

Control No. 01413

3. SHIELD THE SOURCE. If possible, the spill should be shielded, but only if it can be done without further contamination or without significantly increasing your radiation exposure.
4. CLOSE THE ROOM. Leave the room and lock the door(s) to prevent entry.
5. CALL FOR HELP. Notify the Radiation Safety Officer immediately.
6. PERSONNEL DECONTAMINATION. Contaminated clothing should be removed and stored for further evaluation by the Radiation Safety Officer. If the spill is on the skin, flush thoroughly and then wash with mild soap and lukewarm water.

RADIATION SAFETY OFFICER: Joseph S. Safko, M. D.

OFFICE PHONE: 614/452-9319

HOME PHONE: 614/454-4301

Item No. 16

Date: \_\_\_\_\_

## SUPPLEMENTARY DATA

## Item 17: AREA SURVEY PROCEDURES

Except for short periods of actual manipulation of radionuclide materials, the radiation levels of all areas remain below 2-mR/hr. Corrective measures are continually taken to insure this level. The survey is made with a low-range Geiger counter.



APPENDIX J  
WASTE DISPOSAL PROCEDURES

1. Liquid Waste will be disposed of

Check as appropriate

- ☐ By commercial waste disposal service (See also No. 4 below)
- ☒ In the sanitary sewer system in accordance with Section 20.303 of 10 CFR Part 20.
- ☐ Other (specify): \_\_\_\_\_

2. Mo-99/Tc-99m generators will be:

(Check as appropriate)

- ☐ Returned to the manufacturer for disposal
- ☐ Held for decay until radiation levels as measured with a low-level survey meter and with all shielding removed, have reached background levels. All radiation labels will be removed or obliterated and the generators disposed of as normal trash. (Note: this method of disposal may not be practical for generators containing long-lived radioactive contaminants)
- ☐ Disposed of by commercial waste disposal service (See also No. 4 below)
- ☐ Other (specify): \_\_\_\_\_ NOT APPLICABLE

3. Other Solid Waste will be:

(Check as appropriate)

- ☒ Held for decay until radiation levels as measured with a low-level survey meter and with all shielding removed) have reached background levels. All radiation labels will be removed or obliterated and the waste will be disposed of in normal trash.

Item No. 18

Date: \_\_\_\_\_

Control No. 01413

\_\_\_\_\_ Disposed of by commercial waste disposal service (See also  
No. 4 below)

\_\_\_\_\_ Other (Specify): \_\_\_\_\_  
\_\_\_\_\_

4. The commercial waste disposal service used will be: \_\_\_\_\_  
(Name) \_\_\_\_\_ (City, State) \_\_\_\_\_

NRC/Agreement State License No. \_\_\_\_\_

Item No. 18

Date: \_\_\_\_\_

## SUPPLEMENTARY DATA

## Item 19: THERAPEUTIC USE OF RADIOPHARMACEUTICALS

## a. Administration of Iodine-131

## .1 Capsules

- .1 The capsules containing I-131 are assayed and then given to the patient to ingest, along with two (2) glasses of water.

## .2 Solution

- .1 The vial containing the calibrated I-131 is given to the patient. The patient opens it and drinks the material directly from the vial. The vial is rinsed twice with water and the patient drinks the rinse from the vial.

The vial is then stored for decay.

- b. The patient and family will be instructed about precautions to be taken to insure compliance with 10 CFR 20.105.

SUPPLEMENTARY DATA

Item 20: NOT APPLICABLE

Item 21: NOT APPLICABLE

Item 22: NOT APPLICABLE

Item 23: NOT APPLICABLE