Veterans Administration

Memorandum

Date: July 1, 1984

From: Center Director (ØØ)

To: Materials Licensing Branch
Nuclear Regulatory Commission
Washington, D. C. 20555

Subj: Roster of Members; U.S. Medical Radioisotope/ Radiation Safety Committee

1. As required by N.R.C. Regulatory Guide 1Ø.8, Item 7, and N.R.C. Form 313M, page 2, Item 7; the following current roster of committee members is furnished in support of application for renewal of U.S.N.R.C. License No. 23-12255-Ø2.

JOHN L. CAMPBELL,II,M.D. Chief, Nuclear Medicine Service	Committee Chairman
ROBERT O. AMDALL,M.D. Chief, Medicine Service	Internal Medicine Representative
EDWARD C. KRECKER,M.D. Chief, Laboratory Service	Laboratory/Pathology Representative
SUSAN K. SMITH,R.N. Nursing Education Instructor	Nursing Service Representative
ROY E. WOODARD,Jr.,C.N.M.T. Nuclear Medicine Service	Deputy R.S.O.
JAMES H. GARNER Assistant to Center Director	Hospital Management Representative

2. Pertinent data relating to education and qualifications is supplied as attachments to N.R.C. Form 313M.

J. H. CALDWELL JR.
Center Director

Attachment: NRC Form 313M SUPPLEMENT A USNRC LIC. #23-12255-02

MEDICAL RADIOISOTOPE/RADIATION SAFETY COMMITTEE MEMBER

Name:
ROBERT O. AMDALL, M.D. SSAN 446-22-1331
Chief, Medical Service (Internal Medicine)

Education:

University of Oklahoma, Oklahoma City, OK	1946-49	Undergrad
University of Oklahoma, School of Medicine, Oklahoma City, OK	1949-53	M.D. Degree

Internship:

University Hospital Oklahoma City, OK	1953-54	Rotating

Residency:

University Hospital Oklahoma City, OK	1956-57	Gen. Practice
Wilford Hall USAF Medical Center Lackland AFB, TX	1959-62	Internal Medicine

Board Certification:
American Board of Internal Medicine Sept. 1964
Recertified 1974 and 1980

Medical Licensure:
State of Oklahoma
State of Mississippi

Society Membership:
American College of Physicians (Fellow)
American Thoracic Society
American College of Chest Physicians (Fellow)
Society of Air Force Physicians (President 1970)

Military Experience:
Staff Physician and Commander 337th USAF Hospital, Portland, OR
Hospital, Portland, OR 1954-56 & 1957-59
Chief, Medicine Division, USAF Hospital

TachiKawa AB, Japan Additional Duty: Commander 655th Tactical Hospital	1962-66
Chairman, Department of Medicine, USAF Medical Center Keesler AFB, MS Additional Duty: Director Internal Medicine Residency	1966-74
Deputy Commander, USAF Medical Center Keesler AFB, MS	1974-75
Commander, USAF Medical Center, Keesler AFB, MS	1975-78

Medical Appointments:

Assistant Corporate Medical Director Reynolds Metals Company, Richmond, VA	1978-81
Chief, Medical Service, VA Medical Center, Biloxi, MS	1981-Present

*Served as member Medical Radioisotope Committee, USAF Medical Center, Keesler AFB, MS USAEC LIC. #23-01002-02

Attacment: NRC Form 313M SUPPLEMENT A USNRC LIC.# 23-12255-02

MEDICAL RADIOISOTOPE/RADIATION SAFETY COMMITTEE MEMBER

Name:
SUSAN K. SMITH, R.N. SSAN 587-42-9198
Nursing Education Instructor

Education:

University of Southern Mississippi Hattiesburg, Mississippi	1969-73	B.S. Nursing
University of Southern Mississippi Hattiesburg, Mississippi	1976	Graduate School

Continuing Education:

Coronary Care Nursing Course Mobile Infirmary, Mobile, AL	1974
Nursing Educators Workshop University of Mississippi Medical Center, Jackson, MS	1984

*Serving as Nursing Representative, Medical Radioisotope/Radiation Safety Committee, VA Medical Cener, Biloxi, MS 1983-Present.

Attachment: NRC Form 313M SUPPLEMENT A USNRC LIC. #23-12255-02

SUMMARY OF EDUCATION & EXPERIENCE (RADIATION SAFETY OFFICER)

Name:
ROY E. WOODARD JR. SSAN 418-40-4659
Deputy Radiation Safety Officer

Education:
Springhill College, Mobile, AL 1951-52
University of Maryland, Far East Division
Tokyo, Japan 1961-62
University of Nebraska, Medical School
Omaha, NB 1964-65
Curriculum:

Radioisotope Physics	3 semester hours
Health Physics	2 semester hours
Basic Radioisotope Technology	4 semester hours
Intermediate Radioisotope Tech.	10 semester hours
Advanced Radioisotope Technology	4 semester hours
Neutron Activation Analysis	5 semester hours

Technical Training:
Medical Laboratory Specialist Course, School of Aviation Medicine, Gunter AFB, AL 21 weeks 7/54-12/54
Curriculum: Math, Chemistry, Physics, Biology, Hematology, Immunology, Bacteriology, Parisitology, Mycology, and Laboratory Techniques.
Clinical Chemistry Course, 3rd Army Area Laboratory
Ft. McPherson, GA 2 weeks 3/56
Curriculum: Laboratory techniques in clinical chemistry.
Clinical Parasitology Course, 3rd Army Area Laboratory
Ft. McPherson, GA 4 weeks 7/56
Medical Laboratory Supervisor Course, School of Aviation, Gunter AFB, AL 26 weeks 5/58-11/58
Curriculum: Math, Chemistry, Physics, Biology, Anatomy and Physiology, Bacteriology, Parasitology, Mycology, Virology, Immunology, Hematology, Radiation Safety
Nuclear Instrumentation and Technology Course, USVA Hospital, Omaha, NB 27 weeks 9/64-2/65
Curriculum: See University of Nebraska above.

Positions/Duties Related to Work With Ionizing Radiation:
Chief, Nuclear Medicine Technologist, Department of Nuclear Medicine, USAF Medical Center, Keesler AFB, MS 5/65-11/76
Technical Duties: Performance of in-vitro and in-vivo diagnostic and therapeutic procedures in Nuclear Medicine, pre-

paration and administration of diagnositc and therapeutic doses of radiopharmaceuticals to patients, elution of radionuclide generators, preparation, assay, quality control of radiopharmaceuticals. Calibration, standardization, and quality control of nuclear instrumentation. Monitoring, decontamination, and radiation safety procedures.
Administrative Duties: Procurement, storage, and disposal of radioactive materials, preparation of AEC/NRC license applications, amendments, required AEC/NRC records and correspondence. Training of technical personnel in Nuclear Medicine technology and radiation safety. Department fiscal management.

Deputy Radiation Safety Officer, USAF Medical Center, Keesler (NRC Lic. #23-01002-02) 1972-76

Staff Nuclear Medicine Technologist, University South Alabama Medical Center, Mobile, AL 1979-80

Chief Nuclear Medicine Technologist and Deputy Radiation Safety Officer, VA Medical Center, Biloxi, MS 1982-Present
Technical and Administrative duties are essentially same as shown above. Responsible as Deputy RSO for administration of Radiation monitoring and ALARA Programs. (NRC Lic. #23-122055-02)

Continuing Education:

Radioisotope Orientation Course E. R. Squibb Labs, Atlanta, GA	1966
Gamma Scintillation Camera Symposium Houston, TX	1967
Rectilinear Imaging Symposium University Medical Center, Birmingham, AL	1968
Gamma Scintillation Camera Symposium, New Orleans, LA	1969
Nuclear Medicine Technology Registry Review Seminar, Altanta, GA	1970
Continuing Education Program SE Chapter Society Nuclear Medicine, Atlanta, GA	1972
Continuing Education Program SE Chapter Society Nuclear Medicine, Memphis, TN	1973
International Symposium on Radiopharmaceutials Atlanta, GA	1974
Annual Meeting, Alabama Society of Nuclear Medicine, Birmingham, AL	1974
Continuing Education Program, SE Chapter Society Nuclear Medicine, St. Petersburg, FL	1975
Annual Meeting, Alabama Society of Nuclear Medicine, Mobile, AL	1975
Continuing Education Program, SE Chapter Society Nuclear Medicine, Atlanta, GA	1976
Annual Meeting, Alabama Society of Nuclear Medicine, Anniston, AL	1976
Continuing Education Program, SE Chapter Society Nuclear Medicine, Orlando, FL	1978

Annual Meeting, Alabama Society of Nuclear Medicine, Huntsville, AL 1979

Technical Certification:
American Registry Radiologic Technologists; Registered Nuclear Medicine Technologist 1970
Certified, Nuclear Medicine Technology Certification Board 1979

Membership; Technical/Scientific:
Society of Nuclear Medicine, Technical Affiliate 1965
Technologist Section, Society of Nuclear Med. 1969
Alabama Society of Nuclear Medicine 1970-79

Nuclear Instrumentation Experience:
Survey Meters: G-M & Ion Chamber, portable and fixed
Personnel Dosimeters: Direct Reading Chambers, Chargers Battery Power Alarm Monitors
Rectilinear Scanner Imaging Systems
Well/Type Scintillation Detector/Spectrometer System (manual and automatic)
Liquid Scintillation Counting System
Multi-Probe Scintillation Detector System, Rate meters Strip-Recorders
Gamma Scintillation Camera Imaging Systems with Accesories
Nuclear Medicine Dedicated Computers
Ion-Chamber Radionuclide Dose Calibrators
Radiochromatogram Scanners
Radio-Xenon Gas Delivery Systems & Monitors

Experience With Radioactive Materials:
I-131 (200+mCi) NaI, IHSA, MAA, T3, Rose Bengal, Hippuran, Cholografin
125-I (1mCi) IHSA, T3, T4, Cortisol, HAA, TSH
197 Hg (15mCi) Chlormerodrin
203 Hg (10mCi) Chlormerodrin
198 Au (50mCi) Colloid
85 Sr (250uCi) Nitrate, Chloride
75 Se)250uCi) Selenomethionine
169-Yb (2.5mCi) DTPA Chelate
51-Cr (3mCi) Na Chromate
201-Tl (1∂mCi) Chloride
99Mo (2.48Ci) Radionuclide Generators
99mTc (1.2Ci) Tc04, Sulfur Colloid, Albumin Microspheres, MAA, Glucoheptonate, DMSA, DTPA, Polyphosphate, PYP, MDP, HIDA< PIPIDA
32-P (10mCi) Soluble Phosphate
59-Fe (1mCi) Chloride, Citrate, Sulfate

57Co (10mCi) Cyanocobalamin and Sealed Calibration Sources
58Co (<10uCi) Cyanocobalamin
90-Sr (50mCi) Sealed Source Beta Applicators
133-Xe (25mCi) Gas
67-Ga (10mCi) Citrate
129-I, 60-Co, 133 Ba, 137 Cs, (<100uCi) Sealed Calibration Sources
226-Ra (100mg) after loading devices, needles & tubes

Technical Experience; Nuclear Medicine Procedures:
Thyroid Function and Imaging 5000+
In-vitro Radioassay and RIA 7000+
Therapy, Thyroid Cancer and Hyperthyroid 400+
Therapy Polycythemia/leukemia 2
Brain Imaging and Dynamics 3000+
Lung Perfusion Imaging 600+
Lung Ventilation Imaging 25+
Liver/Spleen and Hepatobiliary Imaging 2000+
Renal Imaging and Dynamics 750+
Bone Imaging 1000+
Cardiac Imaging and Dynamics 100+
Placental Localization and Imaging 36
RBC Volume Blood/Plasma Volumes, RBC Survival 100+
Radionuclide Cisternography 10+
Radionuclide Venography 20
External Beta Therapy Eye Lesions 8

FORM RH-2
REVISED
5/80

MISSISSIPPI STATE BOARD OF HEALTH
DIVISION OF RADIOLOGICAL HEALTH

RADIOACTIVE MATERIAL LICENSE

Pursuant to the Mississippi Radiation Control Act and Mississippi State Board of Health Environmental Regulations on radiation, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess and transfer radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules and regulations of the State Board of Health and orders of the Division of Radiological Health, now or hereafter in effect and to any conditions specified below.

LICENSEE	3. License Number
1. Name Ocean Springs Hospital	MS-356-01
2. Address Bienville Boulevard East Ocean Springs, Mississippi 39564	4. Expiration Date June 1, 1983
	5. File Number MS-356

6. Radioactive Material *(Element and Mass Number)*	7. Chemical and/or Physical Form	8. Maximum Radioactivity and/or quantity of material which licensee may possess at any one time.
A. Any licensed material listed in Group I, Schedule A, attached to this license.	A. Any Radiopharmaceutical listed in Group I, Schedule A.	A. As necessary for uses authorized in Item 9. A.

9. Authorized Use

A. and B. Any diagnostic procedure listed in Groups I and II, Schedule A, attached to this license.

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.

Continued on Page 3

FOR THE MISSISSIPPI STATE BOARD OF HEALTH

Date June 18, 1976

by Eddie L. Fuente

DIVISION OF RADIOLOGICAL HEALTH
JACKSON, MISSISSIPPI 39205

Amended in its entirety
June 10, 1981, Amendment No. 6

CORRECTED COPY

FORM RH-2 (cont.)

MISSISSIPPI STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

Supplementary Sheet

License Number MS-356-01

Amendment No. 6

6. Radioactive Material (Element and Mass Number)	7. Chemical and/or Physical Form	8. Maximum Radioactivity and/or quantity of material which licensee may possess at any one time.
B. Any licensed material listed in Group II, Schedule A, attached to this license.	B. Any radiopharmaceutical listed in Group II, Schedule A.	B. As necessary for uses authorized in Item 9. B.
C. Any licensed material listed in Group III, Schedule A, attached to this license.	C. Any form listed in Group III, Schedule A.	C. 2 curies of each licensed material authorized in Item 6. C.
D. Cesium-137	D. Liquid (Squibb Lot No. 8834D.C.)	D. 125 millicuries
E. Iodine-131	E. Iodide	E. 100 millicuries
F. Iodine-125	F. Any	F. 1 millicurie
G. Iodine-131	G. Any	G. 1 millicurie
H. Carbon-14	H. Any	H. 1 millicurie
I. Hydrogen-3	I. Any	I. 1 millicurie
J. Iron-59	J. Any	J. 1 millicurie
K. Cobalt-57	K. Any	K. 1 millicurie
L. Selenium-75	L. Any	L. 1 millicurie

. Authorized Use, continued

C. Preparation and use of radiopharmaceuticals for any diagnostic procedure listed in Group III, Schedule A, attached to this license.

D. Calibration and/or reference.

E. Diagnosis of thyroid function, for thyroid imaging. To localize metastes associated with thyroid malignancies. Treatment of hyperthyroidism and selected cases of carcinoma of the thyroid.

F. through L. Any in vitro study.

FORM RH-2 (cont.)

MISSISSIPPI STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

Supplementary Sheet

License Number MS-356-01

Amendment No. 6

Conditions, continued

11. The licensee shall comply with the provisions of the Mississippi State Board of Health Environmental Regulations, Part 801-Radiation, Section A, "General Provisions," Section C, "Licensing of Radioactive Material," Section D, "Standards for Protection Against Radiation," and Section J, "Notices, Instructions and Reports to Workers: Inspections."

12. Licensed material listed in Item 6. A. through Item 6. E. shall be used by, or under the supervision of Jeffrey L. Sauls, M.D., Laura M. Sauls, M.D. and/or Charles P. Stroble, M.D. Licensed material listed in Item 6. F. through Item 6. L. shall be used by, or under the supervision of Lyman Scripter, M.D.

13. The specified possession limit includes all licensed material possessed by the licensee under this license whether in storage, held as waste, implanted in patients, or otherwise in use.

14. For a period not to exceed sixty (60) days in any calendar year, a visiting physician is authorized to use licensed material for human use under the terms of this license, provided the visiting physician:

    (a) Has the prior written permission of the hospital's Administrator and its Medical Isotopes Committee, and

    (b) Is specifically named as a user on a Mississippi State Board of Health Radioactive Material license authorizing human use, and

    (c) Performs only those procedures for which he is specifically authorized by a Mississippi State Board of Health Radioactive Material License.

    The licensee shall maintain for inspection by the Division of Radiological Health, the Mississippi State Board of Health copies of the written permission specified in subitem (a) above and of the license(s) specified in subitems (b) and (c) above. These records shall be maintained for five (5) years from the time the licensee grants its permission under subitem (a) above.

15. Technetium-99m labeled sulfur colloid preparations which appear flocculent or aggregated shall not be used in humans.

FORM RH-2 (cont.)

MISSISSIPPI STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

Supplementary Sheet

page 1 of 2 pages

License Number MS-356-01

Amendment No. 11

Ocean Springs Hospital
Bienville Boulevard East
Ocean Springs, Mississippi 39564

In accordance with requests received April 25, 1983, and May 11, 1983, from Ocean Springs Hospital, authorized by Jeffrey L. Sauls, M.D., and Percy T. Miller, Administrator, Radioactive Material License No. MS-356-01 is amended as follows:

Item No. 4. is amended to read:

4. Expiration date:

June 1, 1986

Condition Nos. 19., and 20. are amended to read:

19. Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in Items 6., 7., and 8. of this license in accordance with statements, representations and procedures contained in application with attachments dated June 1, 1981, signed by Percy T. Miller, Administrator, letter dated June 29, 1982, signed by Jeffrey L. Sauls, M.D., letter with attachments dated August 27, 1982, signed by Jeffrey L. Sauls, M.D., letter with attachment dated January 13, 1983, signed by Dennis R. Wiggins, and letter dated May 16, 1983, signed by Percy T. Miller, Administrator. The Mississippi State Department of Health regulations shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations.

20. The licensee is authorized to have dose calibrator calibrations performed by an individual instructed in the use of the Calicheck dose calibrator activity linearity test kit manufactured by Calcorp, Inc., according to manufacturer procedures and instructions contained in instruction manual revised March 2, 1982.

Condition No. 25. is hereby added:

25. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:

A. Radiocative waste to be disposed of in this manner shall be held for decay a minimum of ten (10) half-lives.

FORM RH-2 (cont.)

MISSISSIPPI STATE DEPARTMENT OF HEALTH

RADIOACTIVE MATERIAL LICENSE

Supplementary Sheet

page 1 of 1 pages

License Number MS-254-01

Amendment No. 33

Memorial Hospital at Gulfport
P. O. Box 1810
4500 13th Street
Gulfport, Mississippi 39501

In accordance with request received January 11, 1984 from Memorial Hospital at Gulfport, authorized by Theodore J. Badger, Jr., Radioactive Material License No. MS-254-01 is amended as follows:

Item No. 4. is amended to read:

4. Expiration date

February 1, 1986

Item Nos. 6.V., 7.V., 8.V., and 9.V. are hereby deleted.

Condition No. 12. is amended to read:

12. Licensed material named in Item 6.A. through 6.C., Item 6.I. and Item 6.U. shall be used by or under the supervision of John W. Godsey, M.D., Frank L. Schmidt, M.D., Andrew K. Martinolich, M.D., Hoshall S. Barrett, M.D. &/or Laura M. Sauls, M.D. Licensed material named in Item 6.D. through 6.G. shall be used only by or under the supervision and in the physical presence of John W. Godsey, M.D. Licensed material named in Item 6.I. through 6.L. shall be used by or under the supervision of John W. Godsey, M.D., Frank L. Schmidt, M.D., Andrew K. Martinolich, M.D., and/or Hoshall S. Barrett, M.D. Licensed material named in Item 6.M. through 6.T. shall be used by, or under the supervision of, Phillip Saccoccia, M.D., William B. Atchinson, M.D. and/or John S. Basone, M.D.

Condition No. 27. is hereby deleted.

Date January 26, 1984

FOR THE MISSISSIPPI STATE DEPARTMENT OF HEALTH

by Eddie L. Fuente

Division of Radiological Health
Jackson, Mississippi 39205

NRC 313M, p.2, Item 8 (1 JULY 34)

FORM RH-2
REVISED
5/80

MISSISSIPPI STATE BOARD OF HEALTH
DIVISION OF RADIOLOGICAL HEALTH

RADIOACTIVE MATERIAL LICENSE

Pursuant to the Mississippi Radiation Control Act and Mississippi State Board of Health Environmental Regulations on radiation, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess and transfer radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules and regulations of the State Board of Health and orders of the Division of Radiological Health, now or hereafter in effect and to any conditions specified below.

LICENSEE

1. Name Memorial Hospital at Gulfport

2. Address P. O. Box 1810
4500 Thirteenth Street
Gulfport, Mississippi 39501

3. License Number
MS-254-01

4. Expiration Date
February 1, 1984

5. File Number
MS-254

6. Radioactive Material *(Element and Mass Number)*	7. Chemical and/or Physical Form	8. Maximum Radioactivity and/or quantity of material which licensee may possess at any one time.
A. Any licensed material listed in Group I, Schedule A, attached to this license.	A. Any radiopharmaceutical listed in Group I, Schedule A, attached to this license.	A. As necessary for uses authorized in Item 9. A.

9. Authorized Use

A. & B. Any diagnostic procedure listed in Groups I and II, Schedule A, attached to this license.

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.

CONTINUED ON PAGE 4

FOR THE MISSISSIPPI STATE BOARD OF HEALTH

Date December 22, 1969

by Eddie S. Fuente
DIVISION OF RADIOLOGICAL HEALTH
JACKSON, MISSISSIPPI 39205

MS-254-01 is amended in its entirety April 13, 1982, Amendment No. 29.

CORRECTED COPY

)RM RH-2 (cont.)

MISSISSIPPI STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

Supplementary Sheet

ge 2 of 8 pages

License Number MS-254-01
Amendment No. 29

Radioactive Material (Element and Mass Number)	7. Chemical and/or Physical Form	8. Maximum Radioactivity and/or quantity of material which licensee may possess at any one time.
B. Any licensed material listed in Group II, Schedule A, attached to this license.	B. Any radiopharmaceutical listed in Group II, Schedule A.	B. As necessary for uses authorized in Item 9.B.
C. Any licensed material listed in Group III, Schedule A, attached to this license.	C. Any	C. 2500 millicuries
D. Cesium-137	D. Sealed Sources (3M, 6D6C-CA)	D. 1500 millicuries
E. Iodine-125	E. Sealed Source (3M, Model No.6701)	E. 500 millicuries
F. Gold-198	F. Sealed Source (Best Industries, Model 81-02 and Nuclear Sources and Services, no model number)	F. 50 millicuries
G. Iridium-192	G. Sealed Source (Rad/Irid, Model No. 1 and Best Industries, Model 81-01)	G. 500 millicuries
H. Iodine-131	H. Iodide	H. 600 millicuries
I. Phosphorus-32	I. Soluble	I. 100 millicuries
J. Phosphorus-32	J. Colloidal Chromic	J. 100 millicuries
K. Gold-198	K. Colloidal	K. 350 millicuries
L. Xenon-133	L. Gas	L. 400 millicuries
M. Iodine-131	M. Any	M. 1 millicurie
N. Iodine-125	N. Any	N. 1 millicurie
O. Carbon-14	O. Any	O. 1 millicurie
P. Hydrogen-3	P. Any	P. 1 millicurie
Q. Selenium-75	Q. Any	Q. 1 millicurie

Corrected Copy

FORM RH-2 (cont.)

MISSISSIPPI STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

Supplementary Sheet

License Number MS-254-01

Amendment No. 29

6. Radioactive Material (Element and Mass Number)	7. Chemical and/or Physical Form	8. Maximum Radioactivity and/or quantity of material which licensee may possess at any one time.
R. Chromium-51	R. Any	R. 1 millicurie
S. Cobalt-60	S. Any	S. 1 millicurie
T. Iron-59	T. Any	T. 1 millicurie

AUTHORIZED USE:

9. C. Preparation and use of radiopharmaceuticals from kits for any diagnostic procedure listed in Group III, Schedule A, attached to this license.

D. Intracavitary treatment of cancer.

E. Interstitial treatment of cancer.

F. Best Industries sources shall be stored in shipping container Best 4 and Nuclear Sources and Services sources shall be stored in shipping container DOT7A. All sources are to be used for interstitial treatment of cancer.

G. Rad/Irid sources shall be stored in storage devices R/1P-1, R/1P-2, R/1P-3, and R/1P-4. Best Industries sources shall be stored in storage devices Best 1, 2 and 3. All sources are to be used for interstitial treatment of cancer.

H. Diagnosis of thyroid function for thyroid imaging. To localize metastases associated with thyroid malignancies. Treatment of hyperthyroidism and selected cases of carcinoma of the thyroid.

I. Treatment of polycythemia vera, treatment of chronic myelocytic leukemia and chronic lymphocytic leukemia. Diagnostic aid in localizing certain ocular tumors; cerebral tumors at time of surgery in conjunction with a surgical radiation detection probe.

J. Treatment of peritoneal or pleural effusions caused by metastatic disease; interstitial treatment of cancer.

K. Therapeutic: palliative management of ascites and pleural effusion associated with metastatic malignancies; diagnostic: liver imaging.

L. The gas may be used for inhalation studies in the elevation of pulmonary function, for imaging the lungs or the assessment of cerebral blood flow. The solution may be used for the diagnosis of cardiac abnormalities; cerebral blood flow, pulmonary function or muscle blood flow studies.

AUTHORIZED USE, continued

9. M. through T. Any in vitro studies.

CONDITIONS, continued

11. The licensee shall comply with the provisions of the Mississippi State Board of Health Environmental Regulations, Part 801 - Radiation, Section A, "General Provisions," Section C, "Licensing of Radioactive Material," and Section D, "Standards for Protection Against Radiation," Section G, "Use of Sealed Radioactive Sources in the Healing Arts," and Section J, "Notices, Instructions and Reports to Workers: Inspections."

12. Licensed material named in Item 6. A. through 6. C. and Item 6. H. shall be used by or under the supervision of John W. Godsey, M.D., Frank L. Schmidt, M.D., Andrew K. Martinoloch, M.D., Hoshall S. Barrett, M.D.&/or Laura M. Sauls, M.D. Licensed material named in Item 6. D. through 6. G. shall be used only by or under the supervision and in the physical presence of John W. Godsey, M.D. Licensed material named in Item 6. I. through 6. L. shall be used by or under the supervision of John W. Godsey, M.D., Frank L. Schmidt, M.D., Andrew K. Martinolich, M.D., and/or Hoshall S. Barrett, M.D.

13. Sealed sources containing licensed material shall not be opened.

14. A. (1) Each sealed source listed in Item 6. E. through F. with a half-life greater than thirty days in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six months. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, a sealed source received from another person shall not be put into use until tested.

(2) Each sealed source listed in Item 6. D. shall be tested for leakage or contamination at intervals not to exceed three years.

B. The periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another person unless they have been leak tested within six months prior to the date of use or transfer.

C. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate.

Form NRC 313M, Page 2, Item 9. Appendix C - Instrumentation

INSTRUMENT DESCRIPTION & MANUFACTURER	MODEL NO.	QUANT.	INSTRUMENT APPLICATION (Used For)
Gamma Scintillation Camera System (Mobile), Picker Dyna-Mo 'Picker International'	615 280-1	1	Dynamic & Static Imaging,Patients
Gamma Scintillation Camera System (Mobile) with Computer 'Technicare Corp'	420/550	1	Dynamic & Static Gamma Imaging, Computer Processing, Patients
Gamma Scintillation Camera System, Large-Field Stationary, with Whole-Body Imaging. 'Technicare Corp'	Omega 500	1	Dynamic & Static Gamma Imaging,Whole-Body Imaging, Computer Processing.
Thyroid Uptake System 201-C Gamma Scintillation Probe 300-C Gamma Spectrometer Mobile Probe Stand 'A D C Medical Inc.'	111-S	1	Organ Uptake Measurement, In-Vivo Bioassay Range:0-999,999 counts
Xenon-Gas Administration & Trapping System. 'A D C Medical Inc.	XE-400A	1	Lung Ventilation Imaging, Administration & Trapping. Radioactive Xe-133 Gas
Xenon-Gas Monitoring System, Ambient Air 'Johnston Labs, Inc.'	133-C	1	Air Monitoring, Xe-133 Gas Concentration in Ambient Air
Radiochromatogram-Scanner System 'A D C Medical, Inc.'	QG-400	1	Radiochromatographic Analysis/ Quality Control
Calculator, Electronic, Digital Desktop 'Monroe Business Machines'	2865	1	Mathematical Computation

INSTRUMENT DESCRIPTION & MANUFACTURER	MODEL NO.	QUANT.	INSTRUMENT APPLICATION (Used For)
G-M Portable Survey Meter 'Victoreen/Nuclear Associates'	3700	1	Ranges: min.=0-0.5 mR/hr max=0-500 mR/hr Low-Level Survey
Ion-Chamber Portable Survey Meter, Digital Readout 'Keithley Instruments'	36100	1	Ranges: min.=0-200 mR/hr max.=0-20 R/hr Intermediate-Level Survey
Lab-Monitor, G-M Type, with Audio-Alarm, fixed or portable, Constant Operation. 'Technical Associates'	SML-2	1	Constant Operation Monitor, 'Hot Lab'
Personal Radiation Alarm Monitor, Pocket Type 'Victoreen/Nuclear Associates'	PRIMA II	1	Personal Alarm Monitor
Personal Radiation Alarm Monitor, Digital Readout Type 'Victoreen/Nuclear Associates'	06-505	1	Personal Alarm Monitor w Digital Readout (cumulative) Range:0-9999 mR
Pocket Chamber Dosimeter, Direct Readout. 'Victoreen'	541 R	6	Personnel Monitoring (Supplemental Dosimetry) Range: 0-200 mR (cum-)
Charger-Reader Unit, Pocket Dosimeter. 'Victoreen'	2000A	1	Charging/Service, for Pocket Dosimeters
Radionuclide Dose-Calibrator, Ion-Chamber Type, Auto-Ranging, Digital. 'Capintec Inc.'	CRC-10	1	Assay of Radioactive Materials/Patient Doses Range:1 uCi - 2 Ci, Auto-Ranging, Digital Readout

INSTRUMENT DESCRIPTION & MANUFACTURER	MODEL NO.	QUANT.	INSTRUMENT APPLICATION (Used For)
Well-Type Scintillation Detector	330	1	Gamma Counting, Low-Level Samples, In-Vivo, & In-Vitro Assay Samples Range:0-999,999 counts
Scintillation Spectrometer, Digital. 'A D C Medical, Inc.'	300	1	
Automatic Well-Type Scintillation Detector, with Computer 'Nuclear Med Labs Inc.'	5000	1	Gamma Counting, Low-Level Samples, In-Vitro Radioassay: RANGES: 0-999,999 counts
G-M Portable Survey Meter w Pancake Probe Low-Level Type 'Victoreen/Nuclear Associates'	498	1	Low-Level Lab Surveys RANGES: 0-1 mR/hr 0-10 mR/hr 0-1 R/hr

Item 10: Appendix D - CALIBRATION OF INSTRUMENTS.

1. Calibration of survey meters is performed by George R. Meckstroth, PhD, Consultant Physicist. Copies of pertinent data relating to calibration procedures, and State of Louisiana License data are attached for reference.

2. Calibration of survey meters is performed on a 2 times per year minimum basis.

3. Calibrations of Dose Calibrator are according to Appendix D, Section 2, NRC Licensing Guide 10.8, except that tests for instrument linearity are performed utilizing the 'LINEATOR' system (Atomic Products, Model 086-507) according to manufacturers instructions and procedures. Reference is made to VAMC Biloxi amendment application dated Jan. 1984, and to Amendment # 14, Condition 21, USNRC License # 23-12255-02, dated April 1984.

GEORGE R. MECKSTROTH, Ph.D.
Certified Radiological Physicist
American Board of Radiology

1430 Tulane Avenue
New Orleans, Louisiana 70112

9 May 1984

Roy E. Woodard, Jr.
Deputy Radiation Safety Officer
Nuclear Medicine (115)
V.A. Medical Center
Biloxi, Mississippi 39531

Dear Mister Woodard:

Enclosed please find calibration of survey meter procedure for your file.

This will satisfy requirements set forth in NRC Licensing Guide 10.8 (October 80).

Advise if further information is required.

Very truly yours,

George R. Meckstroth, Ph.D.

GRM:mp
Enclosure

17807

CALIBRATION OF SURVEY METERS

STANDARDS

Radionuclide Sources:

Cs-137 Source S-419, 148 millicuries on 5-24-83 in Technical Operations Model 773 Calibration Device.

Tc-99m Sodium Pertechnetate eluted from 1770 mCi Mo-99/Tc-99m Generator. 100 mCi in 2 ml contained in glass walled tube (1.3 cm diameter X 10 cm long). Tc-99m assayed in Capintec Nuclear CRC-16 Dose Calibrator, Model CRC-16, Serial 16101. Dose Calibrator response checked with Co-57 Reference Source, New England Nuclear Type Vial E, Simulated Tc-99m, NES-206.

PROCEDURE

Each survey instrument shall be placed in the radiation field at a distance that will permit checking each scale of the instrument at approximately one-third and two-thirds of full scale. If the exposure rate measured by the instrument differs from the calculated (true) exposure rate by greater than 10%, appropriate adjustments shall be made to bring the instrument into calibration. If the instrument's response cannot be adjusted to within 10% of full scale, a calibration chart will be attached to the instrument to indicate "correct exposure" reading.

Calibration shall be performed in a vacated large room to minimize scatter from nearby objects.

Upon completion of the calibration, an "Instrument Calibration Record" shall be posted on the survey meter indicating the date of calibration and source of calibration standard.

RADIATION FIELD CALCULATION

Cs-137

1. Determine the activity of the source on the date of calibration from the decay chart.
2. Determine the distance from the source at which the radiation intensity would be 800 mR/hr (refer to attached Figure 3).
3. Using the tape measure attached to the calibrator, place the survey meter such that the axis of the detector is located at the proper distance from the source as determined above.
4. Remove all attenuators from the radiation beam.
5. Standing away from the beam, expose the source by manually raising the source rod. Note and record the reading and return the source to the stored position. The actual intensity is 800 mR/hr. If the reading is within $\pm$ 10% of the actual intensity, continue checking the instrument. If the instrument reading is not within $\pm$10% of the actual intensity, the instrument must be adjusted and recalibrated.
6. Place the 0.25 attenuator in the beam. Repeat step 5; the actual intensity is 200 mR/hr.
7. Remove the 0.25 attenuator from the beam and place a 0.10 attenuator in the beam. Repeat step 5; the actual intensity is 80 mR/hr.
8. Place the 0.25 attenuator in the beam. Repeat step 5; the actual intensity is 20 mR/hr.
9. Remove the 0.25 attenuator from the beam and place the other 0.10 attenuator in the beam. Repeat step 5; the actual intensity is 8 mR/hr.
10. Place the 0.25 attenuator in the beam. Repeat step 5; the actual intensity is 2 mR/hr.

Tc-99m Exposure Rate = $\frac{N\Gamma}{D^2}$

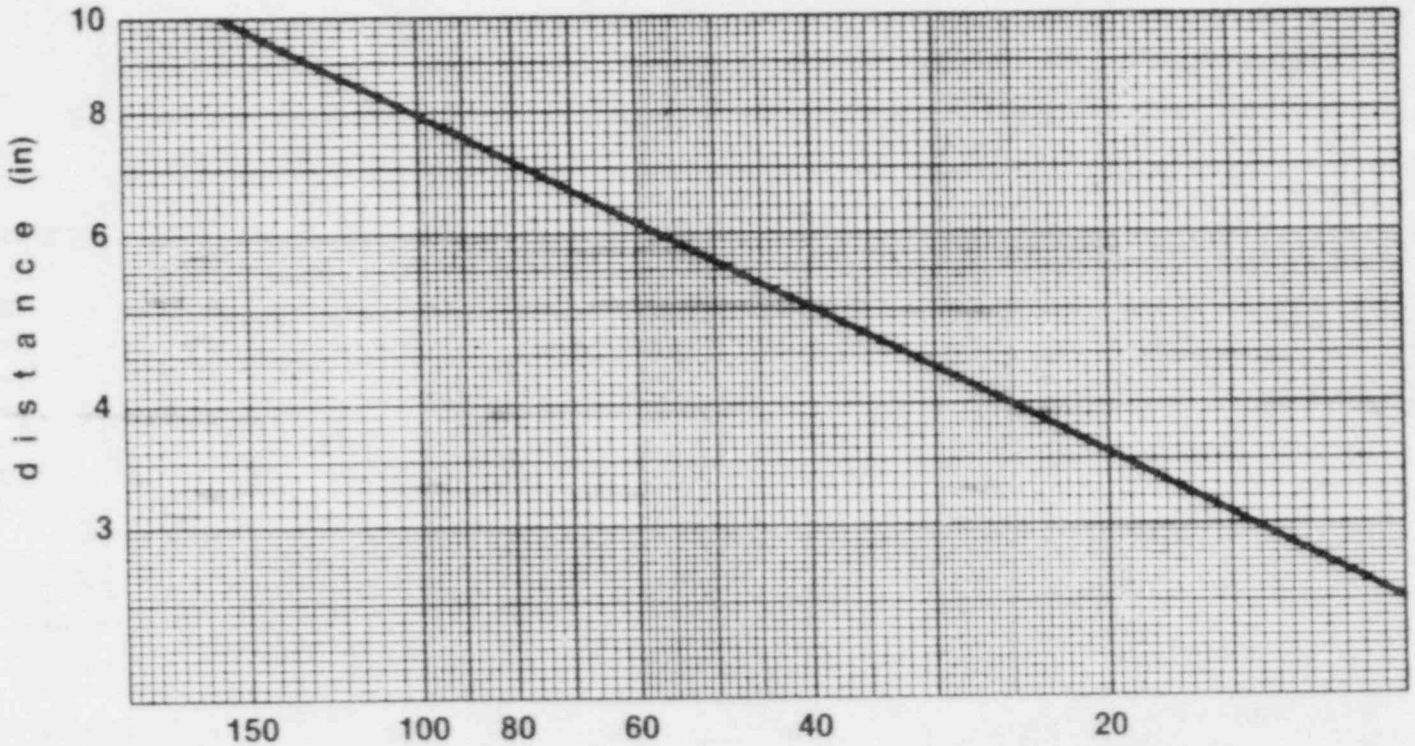
where: N = Number mCi Tc-99m

$\Gamma = 0.6 \frac{R\text{-}cm^2}{mCi\text{-}hr}$

D = Distance in cm

Distance in cm	Exposure Rate from 100 mCi Tc-99m
1	60,000.00 mR/hr
10	600
20	150
30	66.7
40	37.5
50	24.0
75	10.7
100	6.0
150	2.7
200	1.5
300	0.7
400	0.4
500	0.24

Figure 3



Distance to 800mR/hr isodose line as a Function of Activity

CERTIFICATE OF INSTRUMENT CALIBRATION

For:

Instrument:

Manufacturer _____

Type _____

Model Number _____

Serial Number _____

Calibration Data:

Scale	Exposure Rate (mR/hr)	Instrument Reading (mR/hr)	Exposure Rate (mR/hr)	Instrument Reading (mR/hr)	Exposure Rate (mR/hr)	Insturment Reading (mR/hr)

Comments:

Nuclide	Activity or Exposure Rate @ Specified Distance	Calibration Accuracy

Calibration Source: _____

Calibrated By: Date:

DEPARTMENT OF NATURAL RESOURCES
Office of Environmental Affairs

RADIOACTIVE MATERIAL LICENSE AMENDMENT

LOUISIANA NUCLEAR ENERGY DIVISION
P.O. BOX 14690
BATON ROUGE, LOUISIANA 70898 4690

LICENSEE	LICENSE NUMBER	AMEND NO	EXPIRATION DATE
George R. Meckstroth, Ph.D. 1430 Tulane Avenue New Orleans, Louisiana 70112	LA-2719-L01	3	November 30, 1987

THIS LICENSE ISSUED PURSUANT TO AND IN ACCORDANCE WITH
☐ Application ☒ Letter ☐ Telegram ☐ L.N.E.D. Action
☐

SIGNED BY: G. R. Meckstroth
DATE: September 14, 1983

INITIAL LICENSE
Amendment Number through Amendment Number 3 constitute a complete license. Previous amendments are void

RADIOISOTOPE ELEMENT	MASS NO	MAXIMUM NUMBER OF SOURCES	MAXIMUM ACTIVITY* OR QUANTITY PER SOURCE	SEALED SOURCE IDENTIFICATION CHEMICAL FORM, PHYSICAL STATE	STORAGE CONTAINER OR EXPOSURE DEVICE AUTHORIZED USE
Cs	137	total	165 mCi	Technical Operations Model 773, SN#112	Calibration Source

The above schedule of radioactive material is added to the license.

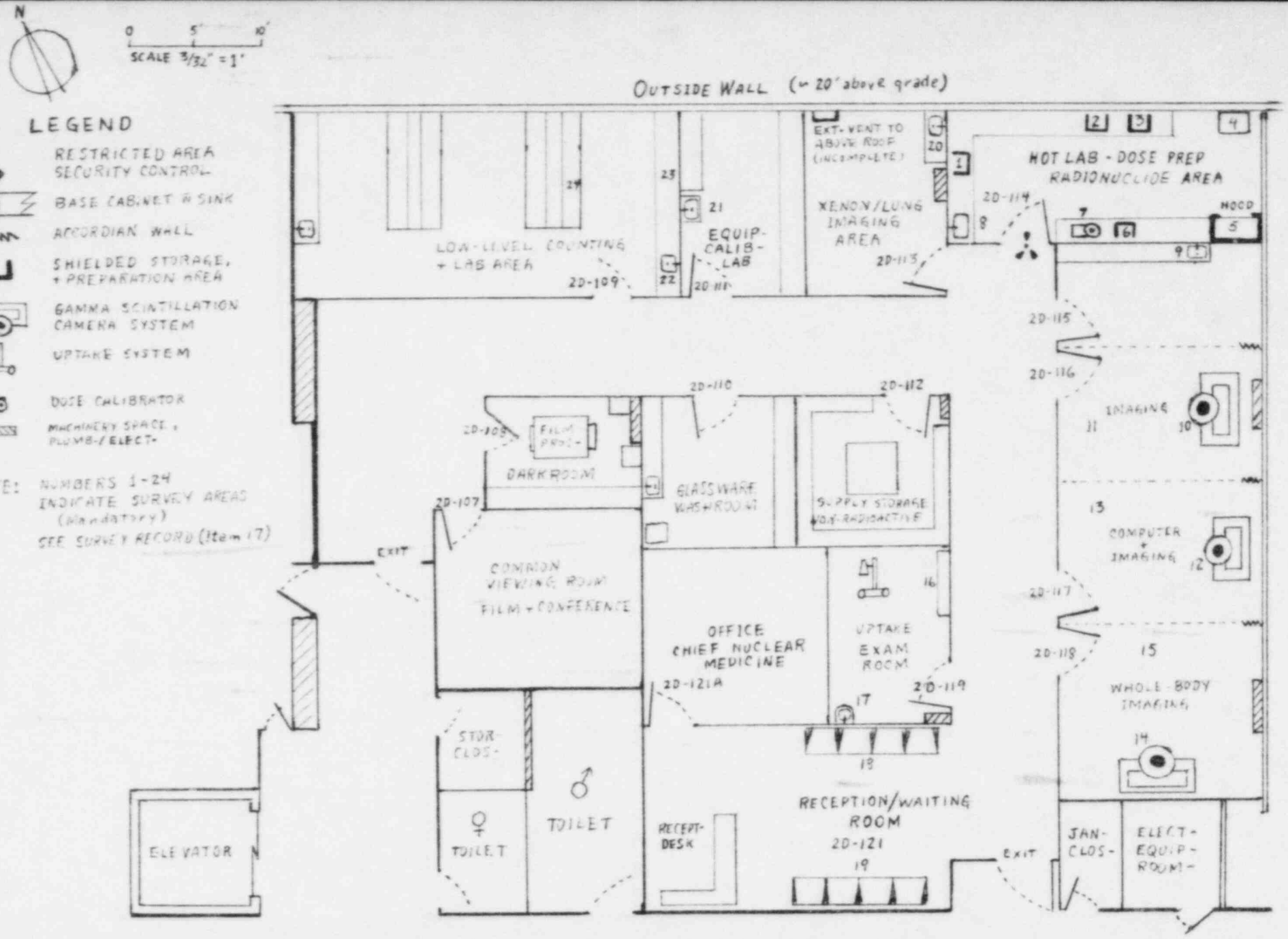
The expiration date is hereby extended from November 30, 1983 to November 30, 1987.

JJB:lc

*Microcurie, mCi-Millicurie, Ci-Curie

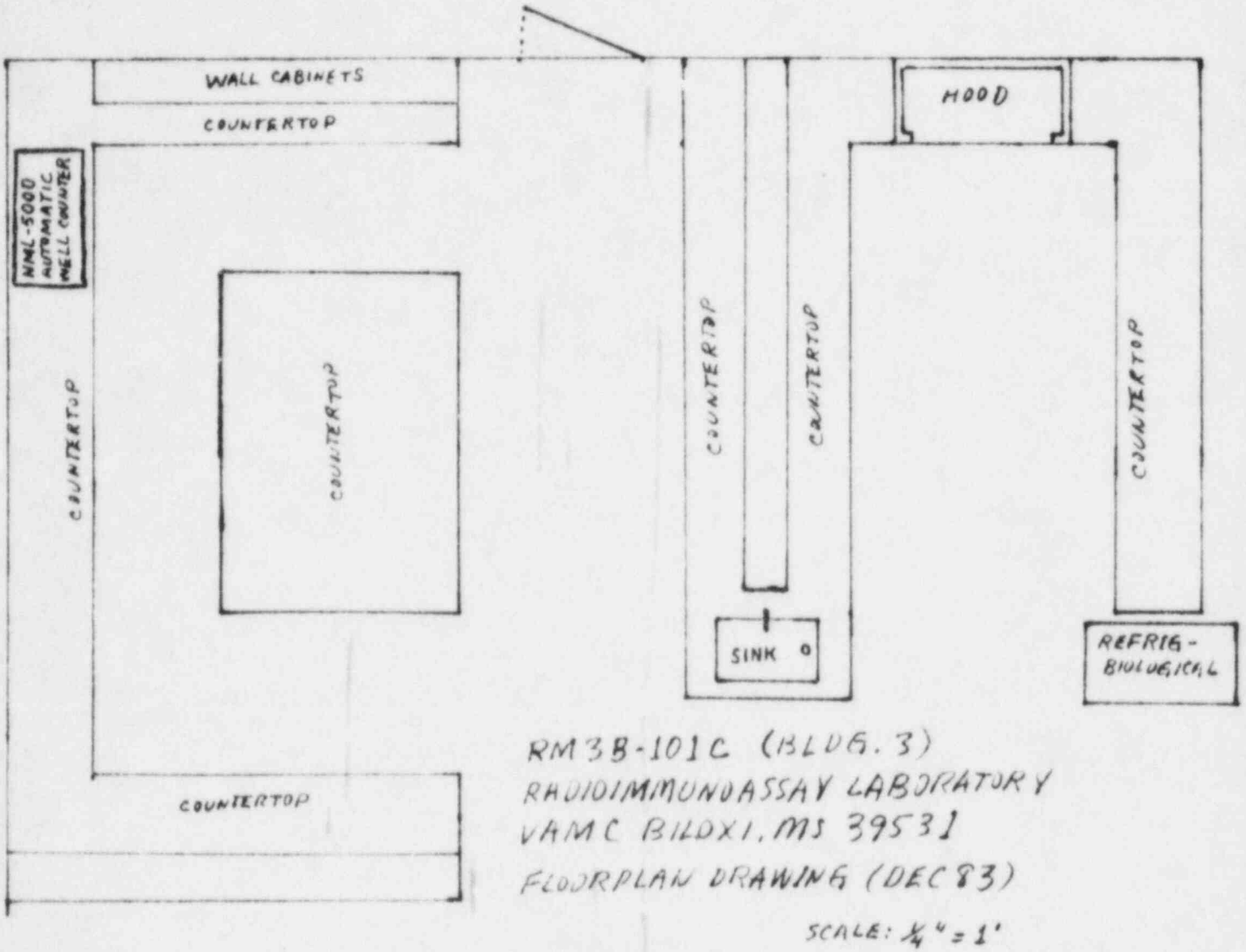
OCT 1 1 1983

PAGE 1 OF 1 PAGES



FLOORPLAN DIAGRAM
NUCLEAR MEDICINE SVC. (115)
V.A. MED CTR BILOXI, MS 39531

NRC Form 313M, p.2, Item 11,17 (July 1,84



RM3B-101C (BLDG. 3)
RADIOIMMUNOASSAY LABORATORY
VAMC BILOXI, MS 39531
FLOORPLAN DRAWING (DEC 83)

SCALE: 1/4" = 1'

PERSONNEL TRAINING PROGRAM:

1. The personnel training program is structured to comply with the provisions of NRC Draft Regulatory Guide (Jan 84) titled 'Radiation Protection Training for Personnel Employed in Medical Facilities'. The training program is conducted under the supervision of the Radiation Safety Officer, by the R.S.O. & Deputy R.S.O., with assistance from Nursing Education, and Hospital Management.

2. Because of the nature, and scope of the Nuclear Medicine program at this facility workers are divided into three general groups, based on occupational specialty, and type of training required. Specific training based on occupational grouping is targeted at each of the three groups.

Group I:
- Nuclear Medicine Technologists
- Nuclear Medicine Administrative Personnel
- Medical Laboratory Technologists
- Radiology Technologists (Radiographers)

Group II:
- Nurses, R.N.
- Nurses, L.P.N.
- Nursing Assistants/Orderlies
- Medical Technicians

Group III:
- Administrators
- Security Personnel
- Secretarial/Clerical Personnel
- Housekeeping Personnel
- Engineering/Maintenence Personnel

3. Lecture presentation is in video-format from videotape recordings, followed by comments, question & answer sessions, conducted by the R.S.O. or Deputy R.S.O. Monthly orientation briefings are conducted by the R.S.O. or Deputy R.S.O. for new-hire nursing service personnel.

4. Lectures are based on & utilize lecture material formats from the NRC Draft Regulatory Guide, and are structured as follows:

Group I:
- Diagnostic Nuclear Medicine Lecture
- Therapeutic " " "
- Laboratory Users Lecture
- Appendix II, The Radiation Scale

Group II: Nurses, Orderlies, & Technicians Lecture
Nurses, Orderlies, & Technicians I-131 Therapy Lecture
Appendix II, The Radiation Scale

Group III: Administrators Lecture
Security Personnel Lecture
Secretarial/Clerical Personnel Lecture
Housekeeping Personnel Lecture
Physical Plant Personnel Lecture
Appendix II, The Radiation Scale

5. Since Teletherapy, Brachytherapy, & Animal Research programs do not exist at this facility, specific training in these areas is not conducted, and only briefly discussed in conjunction with other training sessions.

Veterans Administration

Memorandum

Date: May 1, 1984

From: Center Director (00)

To: Nuclear Medicine Service (115)
Laboratory Service (113)
Supply Service (90-1)

Subj: Procedures for Ordering and Receipt of Radioactive Materials.

1. In order to insure continued compliance with U. S. Nuclear Regulatory Commission requirements for control of Radioactive Materials, the following procedures for ordering and receipt of Radioactive Materials are prescribed. These procedures are essential to insure that only authorized materials are ordered, and that authorized possession limits are not exceeded.

A. All orders for Radioactive Iodine-125 In-Vitro Test Kits utilized by the Radioassay Laboratory under the provisions of 10 CFR 31.11 will be approved by the Chief, Laboratory Service.

B. All orders for other Radioactive Materials authorized for use by the Nuclear Medicine Service under provisions of N.R.C. Byproduct Material License No. 23-12255, Title 10 CFR 35.100, and those Radioactive Materials authorized under provisions of VACO (115) Permit for Cyclotron Produced Radionuclides (Jan. 14, 1983) will be approved by the Chief, Nuclear Medicine Service, or by the Deputy Radiation Safety Officer.

2. The provisions and procedures of paragraphs 2, 3, and 4 of Appendix E, N. R. C. Licensing Guide 10.8 are applicable, and will be followed.

J. H. CALDWELL JR.
Center Director

Veterans Administration

Memorandum

Date: January 20, 1984

From: Center Director (00)

To: Chief, Police Section (003)

Subj: Incoming Shipments (Packages) containing Radioactive Materials

1. All packages containing RADIOACTIVE MATERIALS that arrive between 4:30 P.M. and 7:00 A.M. (Monday - Friday), and on Saturdays, Sundays, or Holidays shall be signed for by the Security Guard on duty, and taken immediately to the Nuclear Medicine Service (Bldg. 3, 2nd Floor). Unlock the door to Room 2D-119, and place the package on the floor. Re-lock the door before leaving.

2. It is essential that security personnel visually inspect the incoming package for evidence that the package is wet or appears physically damaged (torn or crushed). If the package appears wet or damaged, request that the carrier remain at the hospital until he and his vehicle can be checked for radioactive contamination.

3. If security personnel believe that there is a possibility of radioactive contamination, immediately contact one of the radiation safety personnel whose names are listed below, and advise them of the problem (Regardless of Time).

Roy E. Woodard Jr.
Deputy Radiation Safety
Officer Hosp. Ext. 333
Home Phone: 832-2683

John L. Campbell II, M.D.
Radiation Safety Officer
Hosp. Ext. 333/371
Home Phone: 388-5973

J. H. CALDWELL JR.
Center Director

Ref: USNRC Licensing Guide 10.8-31 (Oct. 80)

RADIATION SAFETY SURVEY - NUCLEAR MEDICINE SERVICE (115)
VA Medical Center, Biloxi, MS USNRC Lic. #23-12255-02

DATE:_____ SURVEY BY:_____ G-M SURVEY METER #_____

[ ] AREA SURVEY; G-M Survey Meter Background: _____mR/hr.

[ ] WIPE SURVEY; Well Counter Background: _____cpm

DISCRIMINATOR SETTINGS: Upper Level _____kEv Lower Level _____kEv

NUMBER AND DESCRIPTION OF SURVEY AREA	G-M SURVEY METER READS	WIPE SAMPLE	REMARKS: Use Back If Necessary
(1) HOT LAB-BOILING AREA*			
(2) HOT LAB-SHIELDED PREP*			
(3) HOT LAB-GENERATOR AREA*			
(4) HOT LAB-REFRIGERATOR*			
(5) HOT LAB-STORAGE HOOD*			
(6) HOT LAB-STORAGE SHIELD*			
(7) HOT LAB-DOSE CALIBRATOR*			
(8) HOT LAB-SINK*			
(9) IMAGING AREA-SINK			
(10) IMAGING CAMERA AREA			
(11) IMAGING- PATIENT TABLE			
(12) IMAGING-CAMERA AREA			
(13) IMAGING-PATIENT TABLE			
(14) IMAGING-CAMERA AREA			
(15) IMAGING-PATIENT TABLE*			
(16) EXAM ROOM INJECTION AREA*			
(17) EXAM ROOM SINK*			
(18) PATIENT WAITING ROOM			
(19) PATIENT WAITING ROOM			
(20) XENON IMAGING AREA-SINK			
(21) EQUIP-CALIBR-LAB-SINK			
(22) LOW LEVEL LAB SINK*			
(23) LOW LEVEL LAB BENCHTOP*			
(24) LOW LEVEL LAB BENCHTOP*			
(25)			
(26)			
(27)			
(28)			
(29)			
(30)			

*Indicates Mandatory Wipe Survey Area

Item 18: Appendix J-WASTE DISPOSAL

1. Liquid waste will be disposed of in the sanitary sewer system in accordance with 10 CFR 20.303.

2. Mo-99/Tc-99m Radionuclide Generators will be returned to the manufacturer for disposal.

3. Other solid waste will be held for decay until radiation levels as measured in a low-background area with a low-level survey meter, with all shielding removed, have reached background levels. All radiation labels will be removed or obliterated, and waste will be disposed of in normal trash.

Item 19: APPENDIX K - RADIOPHARMACEUTICALS THERAPY

19(a) Procedures described in Appendix K will be followed, except that for paragraph K.(1) relating to collection of urine from I-131 therapy patients is considered to constitute an additional unnecessary potential radiation hazard, and an increased 'spill' hazard. Title 10 CFR 20.303 (2),(d) specifically exempts excreta from individuals undergoing medical diagnosis or therapy with radioactive materials form disposal limitations. Experience with direct release of urine from I-131 therapy patients into the toilet (sanitary sewer) without collection has demonstrated both safety and practicality over a period of 15 years with a total in excess of 75 cases. Multiple flushings of the toilet result in speedy removal of radioactive urine, and dilution in large volumes of liquid.

19(b) A description of Technical, and Administrative Radiation Safety Procedures for Radiopharmaceuticals Therapy is included as an attachment to this section. This description is extracted from the Radiation Safety Manual.

VII RADIATION SAFETY, TECHNICAL, AND ADMINISTRATIVE PROCEDURES FOR THERAPY WITH RADIOPHARMACEUTICALS

(Group IV and V, 10 CFR 35.100, Schedule A)

1. Radiation safety personnel will be notified on receipt of incoming shipments of therapeutic radionuclides. Appropriate receiving procedures will be accomplished and duly recorded.

2. All therapeutic radionuclides will remain in the primary shielded shipping container, and transferred to shielded storage, after survey, unpacking, leak testing, and assay verification procedures. The containment vial will not be opened or punctured until the actual administration of the dose is ready to begin.

3. The provisions of Appendix K, NRC License Guide 10.8 shall be applicable, with supplemental guidance from NCRP Report #37 and #48. These procedures shall be followed as appropriate for each specific case and treatment. All therapeutic procedures will be under direction of the Chief, Nuclear Medicine, and the Radiation Safety Officer or Deputy RSO will be in attendance for supervision and monitoring of actual procedures.

4. All patients treated with radionuclide doses of 30mCi or greater will be hospitalized in a private room with private toilet/bathroom facilities. Radiation safety personnel will evaluate the suitability of individual rooms and determine suitability of individual facilities with respect to radiation safety. The Chief, Nuclear Medicine, will be advised which rooms are satisfactory for therapeutic procedures. Attention will be given to the protection of other patients, the general public, and hospital personnel not involved in therapeutic procedures. Radiation safety restrictions appropriate to the specific procedure, including but not limited to, posting of signs, personnel dosimetry, isolation procedure, instruction of nursing care personnel, and periodic monitoring will be instituted and maintained by radiation safety personnel. The Radiation Safety Officer, or Deputy RSO will assist the Chief, Nuclear Medicine Service, in determining on a case by case basis, the need for hospitalization of patients treated with doses of less than 30 millicuries. Patients treated on an outpatient basis will be counseled by the Chief, Nuclear Medicine, and appropriate instructions will be issued by radiation safety personnel.

5. Radiation safety personnel will maintain proper records of actions during and subsequent to therapy procedures, including survey records, and any necessary decontamination procedures required as a result of contamination of facilitis.

6. Bioassay procedures will be considered a necessary adjunct to all therapeutic procedures utilizing NaI-131. The I-131 Sodium Iodide is considered potentially volatile and will necessitate bioassay procedures for personnel involved in the procedure. The Radiation Safety Oficer or Deputy RSO will designate those personnel selected for bioassay and will issue instructions for compliance. (See Attached I-131 Bioassay Procedure.)

7. Therapeutic procedures utilizing P-32 or Au-198 are not generally regarded as having potential for the release of volatile readionuclides, however, the potential for surface contamination exists as with all radioactive materials, and the Radiation Safety Officer or Deputy RSO will determine and institute appropriate protective measures.

8. The Chief, Nuclear Medicine, and radiation safety personnel will be available for consultation in the following therapeutic procedures. The phone numbers for immediate contact will be furnished to attending physician, nursing prsonnel, and in cases of outpatient therapy, to the patient. Phone numbers for day and night contact will be furnished.

PROCEDURES FOR ADMINISTRATION OF THERAPEUTIC RADIONUCLIDES

1. All therapeutic procedures with radionuclides will be carried out over spill trays lined with disposable absorbent pads, utilizing disposable gloves, remote handling devices, and appropriate barrier shields.

2. Appropriate personal monitoring devices will be worn, and appropriate survey instruments will be utilized. Radiation safety personnel will be in attendance during therapeutic dose administrations.

3. Referring to manufacturers assay document supplied with radionuclide, check calculations and verify assay of dose to be administered utilizing dose calibrator. Dose calculations are to be performed by two persons operating independently for

verification of proper dose.

4. Therapeutic dose administrations to outpatients who are not to be hospitalized will be done in the Nuclear Medicine 'Hot Lab' in order to preclude possibility of contamination of other areas. Patients will be held in Nuclear Medicine for visual monitoring for a suitable interval following dose administration. The holding interval will e determined on a case by case basis by the Chief, Nuclear Medicine.

5. Administration of Radioiodine (NaI-131) Doses to Patients:

A. Outpatient administration (less than 30mCi).

1. Although manufacturer formulation processes have been changed and current NaI-131 solutions are prepared at pH ranges to inhibit loss of volatile iodine, it will be assumed that the probability for loss of volatile I-131 exists. Prior to any handling or preparation actions, a baseline bioassay for all personnel to be involved in therapeutic I-131 procedures will be obtained and results recorded. (Refer I-131 Bioassay Protocol)

2. The patient will be brought to the Nuclear Medicine 'Hot Lab' and seated at the spill tray area where the dose has been positioned ready for administration.

3. The dose will then be opened using remote handling devices, a plastic soda straw inserted into the dose vial, and the patient allowed to drink the contents of the dose vial. Three successive cool water washes will then be introduced into the dose vial and the patient will drink the contents of each wash through the straw from the vial. This ensures that minimal activity remainds in the vial after administration. The vial is then closed and maintained inside the primary shielding container for assay of residual I-131 content.

4. After suitable time elapses for observation and monitoring, the patient may then be permitted to leave the department, after having been furnished with appropriate instructions and phone numbers of personnel to be contacted in case of subsequent problems.

5. Monitoring for contamination is then performed, assay of residual vial content is checked, and appropriate data recording is completed.

6. Any materials revealing I-131 contamination are transferred to shielded storage for decay and eventual disposal when decay reduces activity to background levels.

7. Personnel involved in the procedure are then monitored for evidence of contamination on gloves or protective clothing, and appropriate decontamination performed if indicated.

B. Inpatient administration (all doses of 30mCi or more).

1. Refer to parts 1, 2, 3, 6, and 7 of Outpatient administration protocol. These provisions are also applicable to inpatient administration.

2. A room designated as suitable by radiation safety is prepared, nursing personnel are briefed and supplied with dosimeters, and arrangements are made for disposable supplies, and utensils during the radiation safety isolation period.

3. The patient is installed in the room and briefed by the Chief, Nuclear Medicine, and radiation safety personnel.

4. The shielded unopened dose is transferred to the room and properly prepared on spill tray facilities for administration. At this time all necessary absorber materials and disposable supplies are on hand and in place.

5. The dose is opened using remote handling devices, a plastic soda straw is inserted, and the patient is allowed to drink the vial contents. Three successive cool water washes will be introduced into the dose vial, and the patient will drink the contents to each successive wash through the straw from the vial. This ensures maximum dose benefit to the patient, and minimum residual activity in the vial. The vial is then closed and maintained inside the primary shielding for assay of residual content.

6. Exposure rates at appropriate distances are then determined, tags, and signs are posted, and final instructions are issued to nursing care personnel regarding nursing care time instructions, visitors, restrictions, occupancy factors for adjacent areas, and emergency procedures. Phone numbers for radiation safety prsonnel will be posted on the door of the patient's room and on the patient's chart. (Refer to NCRP Report #37 for additional guidelines.)

7. Radiation safety prsonnel operating in accordance with Appendix K, NRC Liense Guide 10.8 and NCRP #37 and #48 will monitor the patient and based on diminishing levels of radiation, and other appropriate factors will modify restrictions as indicated until levels of radiation diminish to a point permitting discharge of the patient, or removal of restrictions.

8. After the patient has vacated the room, radiation safety personnel will perform all necessary monitoring survey, and decontamination procedures necessary to prepare the room for re-occupancy. Contaminated materials will be packaged and transferred to shielded storage areas to hold for decay and subsequent disposal after background levels have been reached.

9. Refer to Bioassay Protocol for determination of proper interval for performance of bioassay on personnel.

C. Administration of P-32 (soluble phosphate).

1. Administration of P-32 as the soluble phosphate is performed by intravenous injection, and will be under the direct supervision of the Chief, Nuclear Medicine.

2. Since P-32 is a Beta emitter, resulting in low level radiation intensity in proximity to the patient, radiation safety efforts will be directed toward proper handling of any contaminated biological excretory products and their subsequent storage, decay and disposal.

3. Provisions of Appendix K, NRC License Guide 10.8, and NCRP Reports #37 and #48 will govern care and handling of these patients.

D. Administration of P-32 and Au-198 (colloidal form).

1. Administration of the colloidal forms of P-32 and Au-198 will be in accordance with the recommendation of the specific supplier. Introduction techniques will vary to the extent that specific target cavities require differing introductory routes and techniques. In all cases a preplan will be formulated under the direction of the Chief, Nuclear Medicine, with regard for minimizing both the possibility of contamination of facilities, and radiation exposure to personnel

Administration will be under the direct supervision of the Chief, Nuclear Medicine, with radiation safety personnel on hand and prepared to assist.

2. The applicable provisions of Appendix K, NRC License Guide 10.8, and NCRP Reports #37 and #48 will be followed.

3. Radiation safety personnel in addition to standard monitoring techniques will be particularly alert to detect the presence of contamination as a result of leakage from needle, wound, or operative sites.

4. Any contaminated materials detected at the end of the administration procedure, or confinement period will be packaged and transferred to shielded storage areas for decay to background levels prior to disposal.

D. It is noted that P-32 is a Beta-emitter and does not give rise to significant external radiation to personnel in proximity to the patient. The secondary radiation (bremsstrahlung) is measurable but dose rates are insignificant. It is however useful to some extent for monitoring of contamination.

VAMC Biloxi, MS 39531
Radiation Safety Procedures, Nuclear Medicine (115)

BIOASSAY PROTOCOL

(Personnel Involved with I-131 Therapy)

GENERAL: Bioassay will be performed on all personnel who are involved in the administration of therapeutic doses of NaI-131 to patients. This will include physicians, nuclear medicine, radiation safety, and as appropriate, nursing care personnel, as directed by the Radiation Safety Officer, or Deputy RSO. The method employed will be determination of thyroidal I-131 accumulation by scintillation counting over the neck, unless an alternate method (assay of biological fluid) is directed by the Chief, Nuclear Medicine, for a specific case.

TECHNIQUES:

(1) A scintillation probe with gamma spectrometer properly calibrated to encompass the 364 Kev photopeak of I-131 will be used. Room background will be determined.

(2) Counting over the thyroid, and the distal portion of the thigh will be accomplished, and results recorded. An appropriate I-131 standard will be counted in the thyroid phantom, and results recorded.

(3) If counts obtained over the neck exceed two times background, the thyroid uptake of I-131 will be calculated according to the following formula:

$$\frac{\text{Neck cpm} - \text{Thigh cpm}}{\text{T o Std cpm (corrected for decay)}} \times 100 = \text{Thyroid Uptake (\%)}$$

(4) Quantification of thyroidal activity may be done using the following formula:

$$\frac{\text{Activity of Standard (uCi)} \times \text{Thyroid Uptake (\%)}}{100} = \text{Activity in Thyroid (uCi)}$$

(5) Bioassay determinations will be done at 18-36 hrs. after the I-131 administration procedure, and if measurable uptake is

detected, follow up measurements will be performed at intervals specified by the Radiation Safety Officer, or Deputy RSO to determine rates of clearance. Baseline bioassay determinations performed prior to I-131 therapy procedures may be directed by the Chief, Nuclear Medicine, or the RSO.

(6) If bioassay reveals measurable I-131 levels in personnel, the Chief, Nuclear Medicine, and radiation safety personnel will evaluate methods and procedures, and will institute modifications or new procedures to preclude uptake of I-131 by personnel involved.

(7) A permenent record of bioassay results will be maintained by Radiation Safety Personnel.