

EXHIBIT A

FORM NRC-313M (8-78) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION APPLICATION FOR MATERIALS LICENSE - MEDICAL	Approved: 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 Samaritan Hospital 1515 Charles Ave. St. Paul, MN 55104 TELEPHONE NO.: AREA CODE () _____	1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED (If different from 1.a.) INCLUDE ZIP CODE Same <div style="border: 1px solid black; padding: 5px; display: inline-block;"> RECEIVED TYPE 01100 Date Check Rec'd 8/5/85 Received By </div>		
2. PERSON TO CONTACT REGARDING THIS APPLICATION Joseph R. Giganti, Ph.D. TELEPHONE NO.: AREA CODE () 612 347-4187	3. THIS IS AN APPLICATION FOR: (Check appropriate item) a. <input type="checkbox"/> NEW LICENSE b. <input checked="" type="checkbox"/> AMENDMENT TO LICENSE NO. 22-16613-01 c. <input type="checkbox"/> RENEWAL OF LICENSE NO. _____		
4. INDIVIDUAL USERS (Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.) Quentin Anderson, M.D.	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.) Quentin Anderson, M.D.		
6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE			
RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	
10 CFR 31.11 FOR IN VITRO STUDIES			
10 CFR 35.100, SCHEDULE A, GROUP I		AS NEEDED	
10 CFR 35.100, SCHEDULE A, GROUP II		AS NEEDED	
10 CFR 35.100, SCHEDULE A, GROUP III			
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED	
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED	
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
I-125	sealed source ion exchange (AECL C234)	200 mCi. each (250 mCi. total)	Bone mineral scanner radiation source (NR-430-D-102-S)
Gd-153	Gd ₂ O ₃ sealed source	1000 mCi. each (1300 mCi. total)	Bone mineral scanner radiation source (NR-430-D-101-S)

 FORM NRC-313M
 (8-78)

 8511190358 851001
 REG3 LIC30
 22-16613-01 PDR

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. 1 Date: 1980

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

24. PERSONNEL MONITORING DEVICES				
TYPE <small>(Check appropriate box)</small>		SUPPLIER	EXCHANGE FREQUENCY	
a. WHOLE BODY	FILM			
	TLD			
	OTHER <i>(Specify)</i>			
b. FINGER	FILM			
	TLD			
	OTHER <i>(Specify)</i>			
c. WRIST	FILM			
	TLD			
	OTHER <i>(Specify)</i>			
d. OTHER <i>(Specify)</i>				

25. FOR PRIVATE PRACTICE APPLICANTS ONLY				
a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL				
NAME OF HOSPITAL MAILING ADDRESS CITY <div style="display: inline-block; width: 100px; border-bottom: 1px solid black;"></div> STATE <div style="display: inline-block; width: 100px; border-bottom: 1px solid black;"></div> ZIP CODE <div style="display: inline-block; width: 100px; border-bottom: 1px solid black;"></div>			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 <small>(This item must be completed by applicant)</small>	
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 <small>(See Section 170.31, 10 CFR 170)</small> (1) LICENSE FEE CATEGORY: 7A (2) LICENSE FEE ENCLOSED: \$ 120.00	b. APPLICANT OR CERTIFYING OFFICIAL <i>(Signature)</i> <div style="text-align: center; margin-top: 10px;"> (1) NAME <i>(Type of Print)</i> LYLE M. AUSTIN (2) TITLE ADMINISTRATOR c. DATE 7/25/85 </div>

CURRICULUM VITAE

NAME:	Quentin N. Anderson, M.D.		
Present Address:	401 Janalyn Circle Golden Valley, Minnesota 55416		
Marital Status:	Married, Three Children		
Birth Date:	June 18, 1937		
Birth Place:	Minneapolis, Minnesota		
Education:			
High School:	1951-1955	North Branch, Minnesota	
Undergraduate:	1955-1958	University of Minnesota Minneapolis, Minnesota	Degree: B.A
Graduate:	1959-1962	University of Minnesota Minneapolis, Minnesota	DEGREE: M.D.
Internship:	1962-1963	Philadelphia General Hospital	
(Rotating)		Philadelphia, Pennsylvania	
Fellowship			
Residency:	1965-1969	Veterans Administration Hospital Minneapolis, Minnesota	
Board Certified:	June, 1969	American Board of Radiology	
	September, 1970	American Board of Nuclear Medicine	
Medical License:	Minnesota, Wisconsin		
Practice:	1969-present	Metropolitan Medical Center Department of Radiology 900 South 8th Street Minneapolis, Minnesota	NRC License 22-13859-01
		Clinical Staff University of Minnesota Hospitals Minneapolis, Minnesota	
Professional Membership:	Radiological Society of North America American College of Radiology American Society of Nuclear Medicine Minnesota Radiological Society Minnesota State Medical Association Hennepin County Medical Association		

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE
CHRISTINE NELSON ANDERSON	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
Radiology		JUNE 1969
Nuclear Medicine		SEPT 1970

4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING	
		LECTURE/ LABORATORY COURSES (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D
Radiology	U.O.F. MILITARY MEDICAL 1965-1969		
a. RADIATION PHYSICS AND INSTRUMENTATION	U.O.F.M.		
b. RADIATION PROTECTION			
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
Tc	- 50 millies	U. OF MANN. VET.	1965 → Present	Chemical
I 125	- 1 millies	ADMIN 4050R		
I 131	- 300 millies	METRO MED CENTER		
P82	- 30			
Yb 169	- 5			
XE 133	- 45			

5 100

2 yrs experience - 5 100

PRECEPTOR STATEMENT

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		KEY TO COLUMN C PERSONAL PARTICIPATION SHOULD CONSIST OF: 1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage. 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. 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	
Quentin N. Anderson		
900 South Eighth St.		
Minneapolis	MN	55404

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

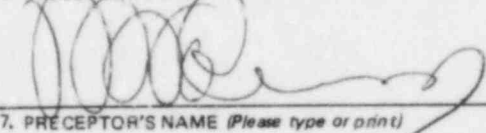
ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
I-131 or I-125	DIAGNOSIS OF THYROID FUNCTION	900	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	50	
	LIVER FUNCTION STUDIES	200	
	FAT ABSORPTION STUDIES	—	
	KIDNEY FUNCTION STUDIES	200	
	IN VITRO STUDIES	—	
OTHER			
I-125	DETECTION OF THROMBOSIS	—	
I-131	THYROID IMAGING	800	
P-32	EYE TUMOR LOCALIZATION	—	
Se-75	PANCREAS IMAGING	—	
Yb-169	CISTERNOGRAPHY	50	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	200	
OTHER			
Tc-99m	BRAIN IMAGING	200	
	CARDIAC IMAGING	150	
	THYROID IMAGING	800	
	SALIVARY GLAND IMAGING	75	
	BLOOD POOL IMAGING	200	
	PLACENTA LOCALIZATION	50	
	LIVER AND SPLEEN IMAGING	1200	
	LUNG IMAGING	800	
	BONE IMAGING	2,000	
OTHER			

12
x 3
30 x

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 (Additional information or comments may be submitted in duplicate on separate sheets.)
A	B	C	D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES	20	
P-32 (Colloidal)	INTRACAVITARY TREATMENT	—	
I-131	TREATMENT OF THYROID CARCINOMA	50	
	TREATMENT OF HYPERTHYROIDISM	250	
Au-198	INTRACAVITARY TREATMENT	0	
Co-60 or Cs-137	INTERSTITIAL TREATMENT	15	
	INTRACAVITARY TREATMENT	—	
I-125 or Ir-192	INTERSTITIAL TREATMENT	—	
	TELETHERAPY TREATMENT	300	
Sr-90	TREATMENT OF EYE DISEASE	25	
	RADIOPHARMACEUTICAL PREPARATION	—	
Mo-99/ Tc-99m	GENERATOR	—	
Sn-113/ In-113m	GENERATOR	—	
Tc-99m	REAGENT KITS	—	
Other			

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

— 2,00 hours — 1965-1969
 — Resection resumed — name 1969 to present date

4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:	5. PRECEPTOR'S SIGNATURE
a. NAME OF SUPERVISOR Merle K. Loken, MD	
b. NAME OF INSTITUTION University of Minnesota	
c. MAILING ADDRESS Mayo Building	7. PRECEPTOR'S NAME (Please type or print) MERLE K. LOKEN, MD
d. CITY Minneapolis MN 55455	8. DATE 7/19/85
5. MATERIALS LICENSE NUMBER(S)	

FORM MRC-313M-SUPPLEMENT B
(8-78)

PRECEPTOR STATEMENT

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

FULL NAME

JOSEPH MILO IELAND

STREET ADDRESS

1326 W 47th Street

CITY

Minneapolis,

STATE

Mn.

ZIP CODE

55409

KEY TO COLUMN C

PERSONAL PARTICIPATION SHOULD CONSIST OF:

1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.

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.

3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
I-131 or I-125	DIAGNOSIS OF THYROID FUNCTION	3	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	2	
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES	1	
	IN VITRO STUDIES	1	
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	20	
	CARDIAC IMAGING		
	THYROID IMAGING	1	
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING	30	
	LUNG IMAGING	20	
	BONE IMAGING	30	
OTHER			

PRECEPTOR STATEMENT (Continued)

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

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES		
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA	2	
	TREATMENT OF HYPERTHYROIDISM	2	
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT		
	INTRACAVITARY TREATMENT		
I-125 or Ir-192	INTERSTITIAL TREATMENT		
Co-60 or Cs-137	TELETHERAPY TREATMENT		
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR (elutions)	2	
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS	2	
Other			

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

Inclusive dates of training: July 1972 through July 1975

Approximate hours of training: 150 hours

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

5. PRECEPTOR'S SIGNATURE

a. NAME OF SUPERVISOR

Merle K. Loken, MD

b. NAME OF INSTITUTION

University of Minnesota Hospital

c. MAILING ADDRESS

Mayo Building

d. Minneapolis, Min. 55455

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

Merle K. Loken, MD, PhD

8. DATE

5. RADIOISOTOPE LICENSE NUMBER(S)
22-00210-22

X: 5/9/82

PRECEPTOR STATEMENT

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

FULL NAME

JOSEPH MILO MELAND

STREET ADDRESS

1326 W. 47th Street

CITY

Minneapolis,

STATE

Mn.

ZIP CODE

55409

KEY TO COLUMN C

PERSONAL PARTICIPATION SHOULD CONSIST OF:

1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.

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.

3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
I-131 or I-125	DIAGNOSIS OF THYROID FUNCTION	6	venograms, renal flow, G.I. bleed, testicular, thor. flow
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	2	
	LIVER FUNCTION STUDIES	0	
	FAT ABSORPTION STUDIES	0	
	KIDNEY FUNCTION STUDIES	100	
	IN VITRO STUDIES		
OTHER	¹³¹ I-NP-59 Adrenal	1	
I-125	DETECTION OF THROMBOSIS	5	
I-131	THYROID IMAGING	10	
P-32	EYE TUMOR LOCALIZATION	0	
Sr-75	PANCREAS IMAGING	0	
Yb-169	CISTERNOGRAPHY	0	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	30	
OTHER	²⁰¹ Tl myocardial	10	
Tc-99m	BRAIN IMAGING	6	
	CARDIAC IMAGING	100	
	THYROID IMAGING	6	
	SALIVARY GLAND IMAGING	2	
	BLOOD POOL IMAGING	200	
	PLACENTA LOCALIZATION	10	
	LIVER AND SPLEEN IMAGING	100	
	LUNG IMAGING	30	
	BONE IMAGING	100	
OTHER	hepatobiliary	20	

PRECEPTOR STATEMENT (Continued)

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

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES	0	
P-32 (Colloidal)	INTRACAVITARY TREATMENT	0	
I-131	TREATMENT OF THYROID CARCINOMA	1	
	TREATMENT OF HYPERTHYROIDISM	2	
Au-198	INTRACAVITARY TREATMENT	0	
Co-60 or Cs-137	INTERSTITIAL TREATMENT	0	
	INTRACAVITARY TREATMENT	0	
I-125 or Ir-192	INTERSTITIAL TREATMENT	0	
Co-60 or Cs-137	TELETHERAPY TREATMENT	0	
Sr-90	TREATMENT OF EYE DISEASE	0	
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR (elutions)	10	
Sn-113/ In-113m	GENERATOR	0	
Tc-99m	REAGENT KITS	5	
Tc-99m	HSA-99mTc cisternography	2	
	¹¹¹ In WBC's	10	

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

--Three months of training from 7/72 through 7/75.

Approximate hours of training: 480 hours

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

6. PRECEPTOR'S SIGNATURE

a. NAME OF SUPERVISOR

Donovan Reinke, MD

X

b. NAME OF INSTITUTION

Veteran Administration Med. Ctr.

7. PRECEPTOR'S NAME (Last, first, or initial)

Donovan Reinke, MD

c. MAILING ADDRESS

54th & 48th Ave.

d. CITY

Minneapolis, Mn. 55417

8. DATE

X

May 16, 1983

5. MATERIALS LICENSE NUMBER(S)

22-01859-01

PRECEPTOR STATEMENT

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

FULL NAME

JOSEPH MILO HIELAND

STREET ADDRESS

1326 W 47th Street

CITY

Minneapolis,

STATE

Mn.

ZIP CODE

55409

KEY TO COLUMN C

PERSONAL PARTICIPATION SHOULD CONSIST OF:

1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.

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3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
I-131 or I-125	DIAGNOSIS OF THYROID FUNCTION	3	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	2	
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES	1	
	IN VITRO STUDIES	1	
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	20	
	CARDIAC IMAGING		
	THYROID IMAGING	1	
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING	30	
	LUNG IMAGING	20	
	BONE IMAGING	30	
OTHER			

PRECEPTOR STATEMENT (Continued)

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

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES		
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA	5	
	TREATMENT OF HYPERTHYROIDISM	15	
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT		
	INTRACAVITARY TREATMENT		
I-125 or Ir-192	INTERSTITIAL TREATMENT		
Co-60 or Cs-137	TELETHERAPY TREATMENT		
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR		
Sr-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS	1	
Other In-113		4	

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

Experience: July 1977 through present date

Formal training hours (estimated): 80 hours

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

a. NAME OF SUPERVISOR

Quentin M. Anderson, MD

b. NAME OF INSTITUTION

Metropolitan Medical Center

c. MAILING ADDRESS

900 South Eight Street

d. CITY

Minneapolis, Mn. 55404

5. MATERIALS LICENSE NUMBER(S)

22-13859-01

6. PRECEPTOR'S SIGNATURE

X Quentin M. Anderson, MD

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

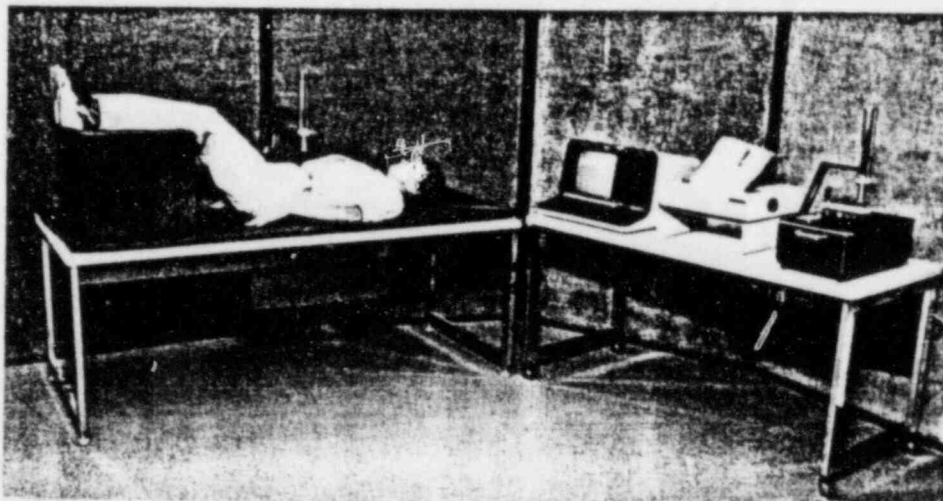
Quentin M. Anderson, MD

8. DATE

X 5 May 1983

LUNAR RADIATION CORPORATION

DP3 SPINE/FEMUR SCANNER



DESCRIPTION

The DP3 Spine/Femur scanner is the most widely used system for monitoring the axial skeleton in the world today. Used by nearly 90% of existing U.S. facilities, the DP3 has set the standard for dual-photon measurements of the spine and proximal femur and is particularly well-suited for diagnosis and monitoring of osteoporosis.

COMPONENTS

- Rectilinear Scanner Module
- Scanner Table
- Computer Console Table
- Calibration Standard
- Epson FX-80 Printer (optional)
- SP2 Forearm Scanner (optional)
- Northstar Advantage Computer
 - (640 X 240 pixel display)
 - dual DSDD disk drives; 27 scans/diskette

SOFTWARE

LUNAR'S sophisticated software makes measurements easy and precise. Automated analysis ensures fast results, but overrides allow the operator to make adjustments if necessary. Correction factors incorporated in the software make measurements independent of tissue cover or position of the bone in the beam path. Calibration to standards allows utilization of existing normal databases and inter-unit comparisons. Intelligent software locates bones of interest and tracks them eliminating positioning problems and dependence on large scan areas. This technique gives lower patient radiation dose, max-

imum precision, high anatomical resolution, and fast scan times. Scan programs for lumbar spine and proximal femur are standard (typical scan time is 15 minutes). Programs feature automatic location of baselines, bone edges and regions of interest.

RESULTS

Results are graphically displayed, stored on diskette for later analysis, and printed out. Bone mineral content (g), area (cm²), and density (g/cm²) are calculated for each region of interest. For the lumbar spine values are given for each vertebra and for various combinations. For the proximal femur values are given for the femoral neck, Wards triangle and the trochanter. All data are compared to a normal U.S. database after adjusting for age, body size, sex and race.

RADIATION/LICENSING

- NRC or state licensing required for a 1 Ci sealed source of 153-Gd.
- NRC device registration number NR-430-D-101-S
- FDA 510K approval (K802180A)
- Dose to patients — under 12 mrem
- Dose to operator — < 0.1 mrem/day
- Source life — 12-18 months typical; up to 24 months

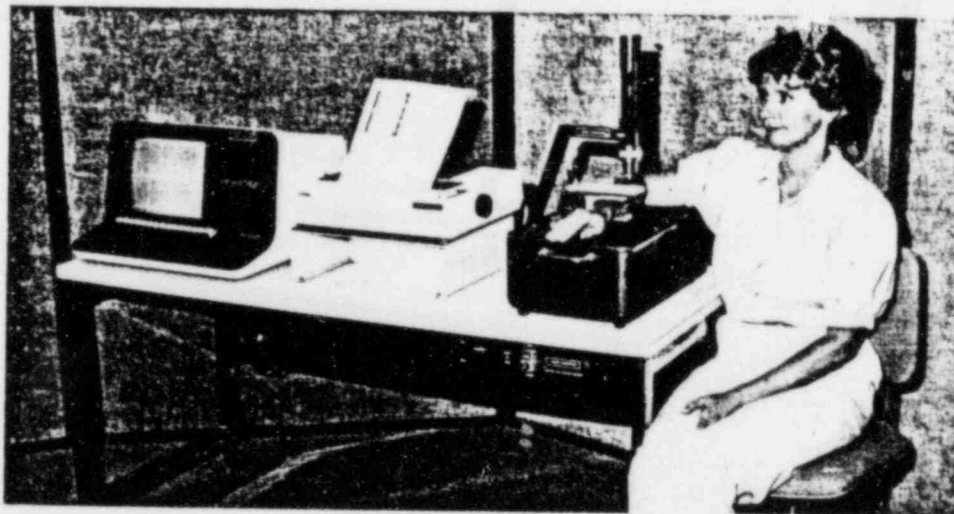
POWER/SPACE

- 110V/60Hz or 220V/50Hz, 630 W
- Single phase, grounded
- Recommended space: 8' x 10'

CONTROL NO. 7 9434

LUNAR RADIATION CORPORATION

SP2 RECTILINEAR FOREARM SCANNER



DESCRIPTION

The SP2 Rectilinear Forearm Scanner is the industry's most advanced system for determining bone mineral content using single photon absorptiometry (^{125}I). The SP2 is a completely automated scanner that indicates bone density on infants, adults and small animals. The rectilinear scan used by the SP2 allows bone width, distance between bones or anatomical landmarks to serve as the basis for accurate repositioning. Rectilinear scanning minimizes anatomical variation which is the major source of precision error. Scans can be done at the usual shaft and distal sites and at the exclusive ULTRADISTAL site (75% trabecular bone).

COMPONENTS

- Rectilinear Scanner Module
- Scanner Software
- Calibration Standard
- Tissue Equivalent Bolus
- Epson FX-80 Printer (optional)
- Computer Console Table
- Northstar Advantage Computer
 - (640 X 240 pixel display)
 - dual DSDD disk drives; 55 scans/diskette

SOFTWARE

LUNAR'S sophisticated software makes system operation easy by using menus and

operator prompting. Scan procedures are completely automated but allow for operator override to ensure the most precise results. Total scan time is approximately 10 minutes. Quality control programs are included.

RESULTS

Results are graphically displayed, stored on diskette for later analysis, and printed out. Bone mineral content (g), bone width (cm) and BMC/W (g/cm^2) are calculated for each site. All data are compared to a normal U.S. database after adjusting for age, body size, sex and race.

RADIATION/LICENSING

- NRC or state licensing required for a 200 mCi sealed source of ^{125}I
- NRC registration number NR-430-D-102-S
- FDA 510K approval (K802181A)
- Dose to patients — typically under 10 mrem
- Dose to operator — ≤ 0.1 mrem/day
- Source life — 6 months
- Source capsule C324 from Atomic Energy of Canada

POWER/SPACE

- 110V/60Hz or 220V/50Hz, 575 W
- Single phase, grounded
- Recommended space: 6' x 6'

LUNAR RADIATION CORPORATION

The leader in bone measurement

916 WILLIAMSON STREET
MADISON, WI 53703
(608) 258-8545

CONTROL NO. 7 943 4