



# St. Anthony's Medical Center

10010 KENNERLY ROAD  
ST. LOUIS, MISSOURI 63128



Department of Radiology  
John Wm. Fries, M.D. F.A.C.R. Director

John L. Bircher, M.D., F.A.C.R.  
Robert W. Smith, M.D.  
Daniel A. Abodeely, M.D.  
J. Michel Gennaoui, M.D.

Marvin A. Cook, M.D.  
Edward R. Habert, M.D.  
Jose G. Vijungco, M.D.  
Edward W. Szoko, M.D.

April 16, 1981

Medical Licensing  
U.S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, IL

Good Day,

Please amend our by-product material license number 24-01041-04 to include 133 Xenon.

Supporting information for use of 133 Xenon:

1. We expect to study no more through 25 patients per week using an average activity of 10 mCi Xe133 per patient. A 0.5 curie limit of .5 Ci is derived.
2. A diagram is enclosed, showing the pharmacy (Room 2494B) where the Xe will be stored, and scan room 2494 where the studies will take place. Another diagram is also enclosed which shows the supply and exhaust vents, accompanied by calculations of the airflow rates. No air is recirculated by this system. In the scan room where Xe will be used, a negative pressure of 75ft<sup>3</sup>/min will be maintained with 475ft<sup>3</sup>/min air supplied and 550ft<sup>3</sup>/min exhausted continually.
3. The apparatus which will be used is described in the brochure entitled: "Atomic Products"-models 130-330, 127-313 and 136-250.
4. In case of an accidental release of Xe 133, the air supply flow will be turned off, increasing the ventilation exhaust rate from 75ft<sup>3</sup>/min to 500ft<sup>3</sup>/min.
5. Concentration of Xe in air of scan room is estimated as follows:

max. activity to be used per week:

$$\frac{10 \text{ mCi} \times 25 \text{ pt.}}{\text{ft.}} \quad \frac{\text{Ci}}{\text{wk}} = .25 \text{ wk}$$

$$A = \text{ft.} \quad \text{wk} = .25 \text{ wk}$$

estimated fraction of Xe lost overall:

$$f = .2$$

CONTROL NO. 5043

net airflow rate:

$$V = 75 \frac{\text{ft}^3}{\text{min}} \times 6.8 \times 10^7 \frac{\text{ml/wk}}{\text{ft}^3/\text{min}} = 5.1 \times 10^9 \frac{\text{ml}}{\text{wk}}$$

average concentration of Xe during week:

$$\frac{Af}{V} = \frac{.25 \text{ Ci/wk} \times .2}{5.1 \times 10^9 \text{ ml/wk}} = 9.8 \times 10^{-12} \frac{\text{Ci}}{\text{ml}} \quad (< 1 \times 10^{-5} \frac{\text{mCi}}{\text{ml}})$$

6. The Xe used in these studies will normally be removed by absorption on charcoal traps (Atomic Products model 127-313). However, in case of an excessive overall leakage of 20%, as assumed in item 5, the amount of Xe vented into unrestricted areas will not exceed  $3 \times 10^{-7} \text{ mCi/ml}$ :

$$A = .25 \frac{\text{Ci}}{\text{wk}} \times 52 \frac{\text{wk}}{\text{yr}} = 1.3 \frac{\text{Ci}}{\text{yr}}$$

$$f = .2$$

exhaust rate from rooms 2494, 2494A and 2494B:

$$V = (550 + 400 + 525) \frac{\text{ft}^3}{\text{min}} \times 1.5 \times 10^6 \frac{\text{ml/yr}}{\text{ft}^3/\text{min}} = 2.2 \times 10^{13} \frac{\text{ml}}{\text{yr}}$$

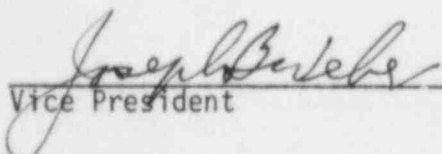
average concentration of Xe during year:

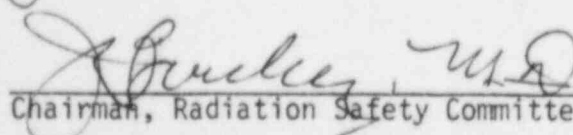
$$\frac{Af}{V} = \frac{1.3 \text{ Ci/yr} \times .2}{2.2 \times 10^{13} \text{ ml/yr}} = 1.2 \times 10^{-13} \frac{\text{Ci}}{\text{ml}}$$

Xe exhaust from the trap will be monitored (model 136-250) and saturated filters replaced and disposed of with other radioactive waste.

Thank you, if you desire additional information do not hesitate to contact us.

Sincerely,

  
Vice President

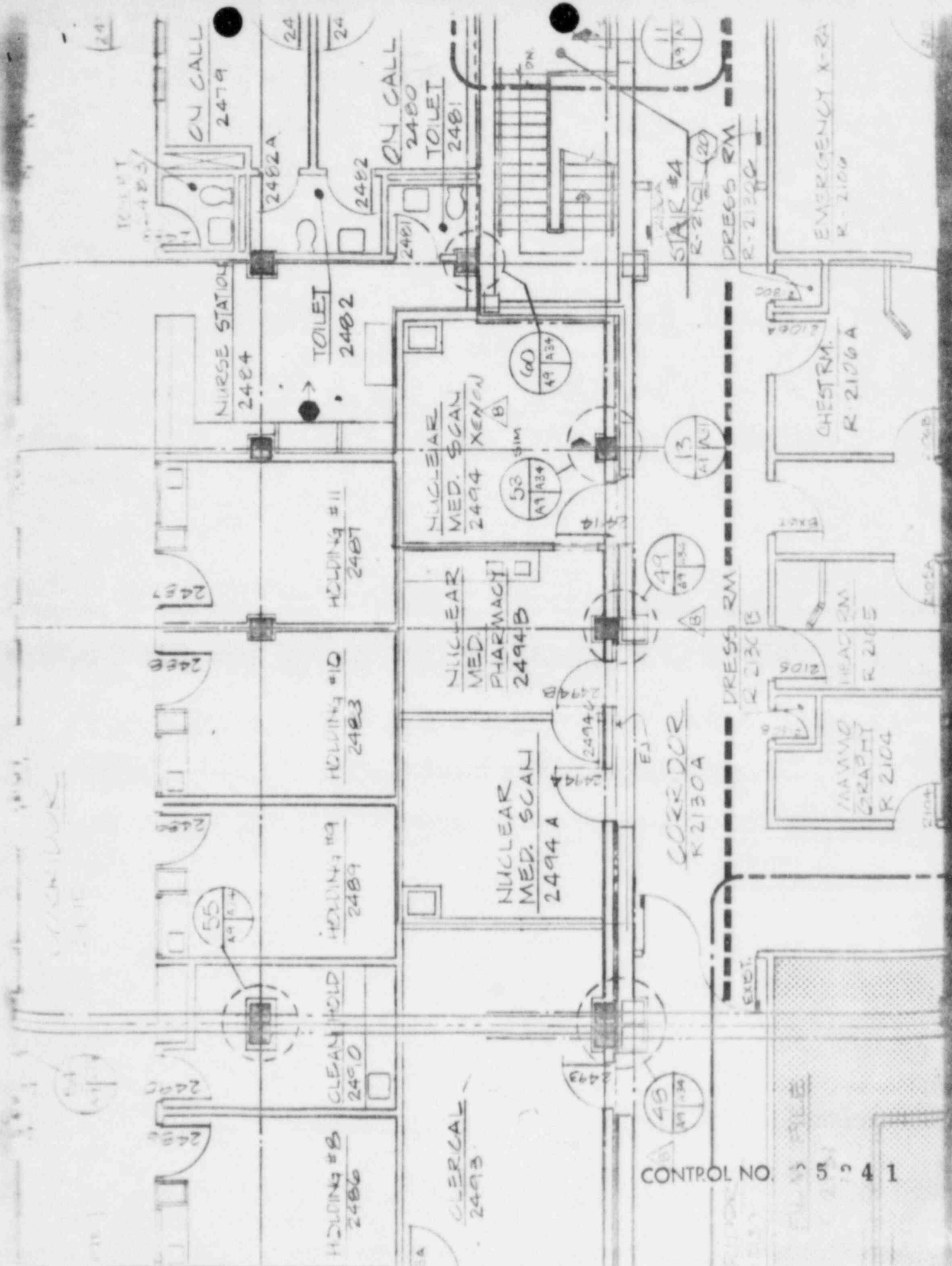
  
Chairman, Radiation Safety Committee

State of Missouri )  
County of St. Louis ) ss.:

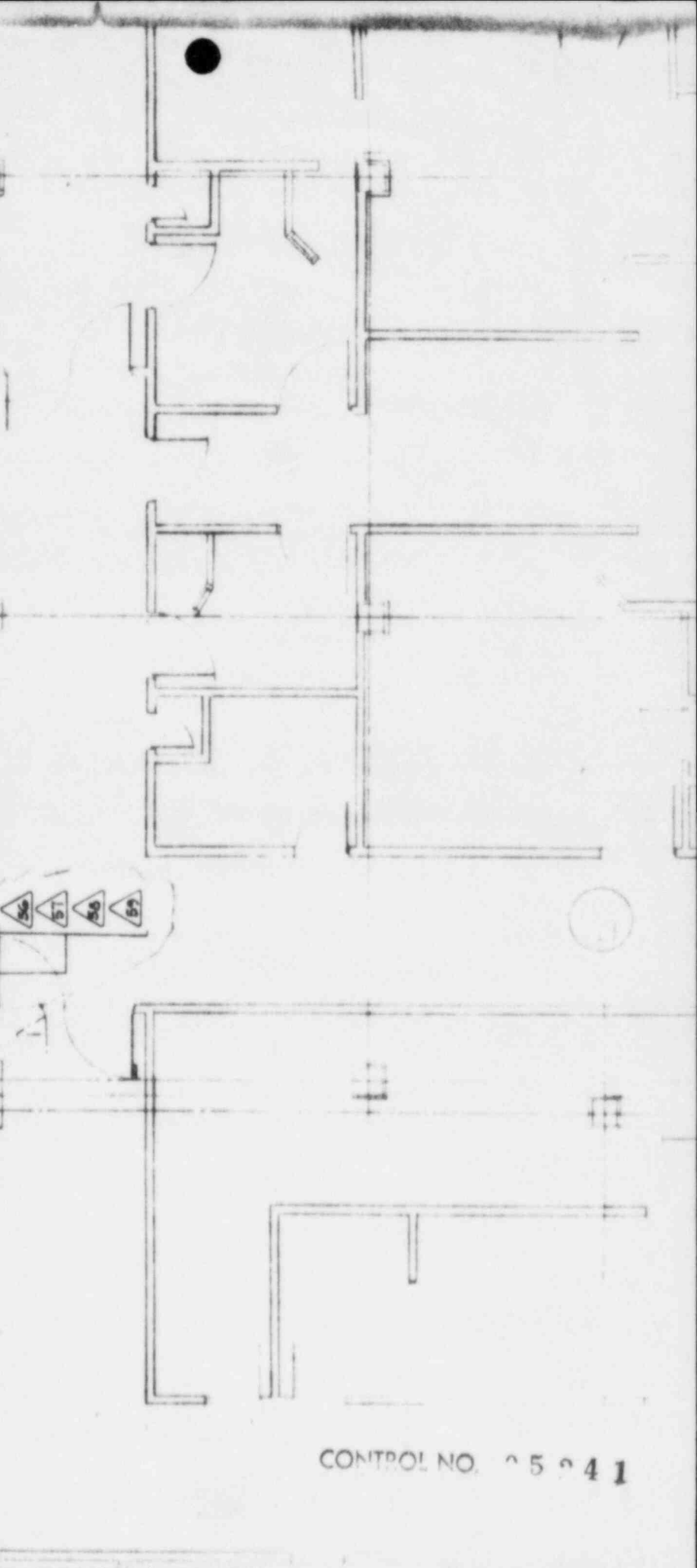
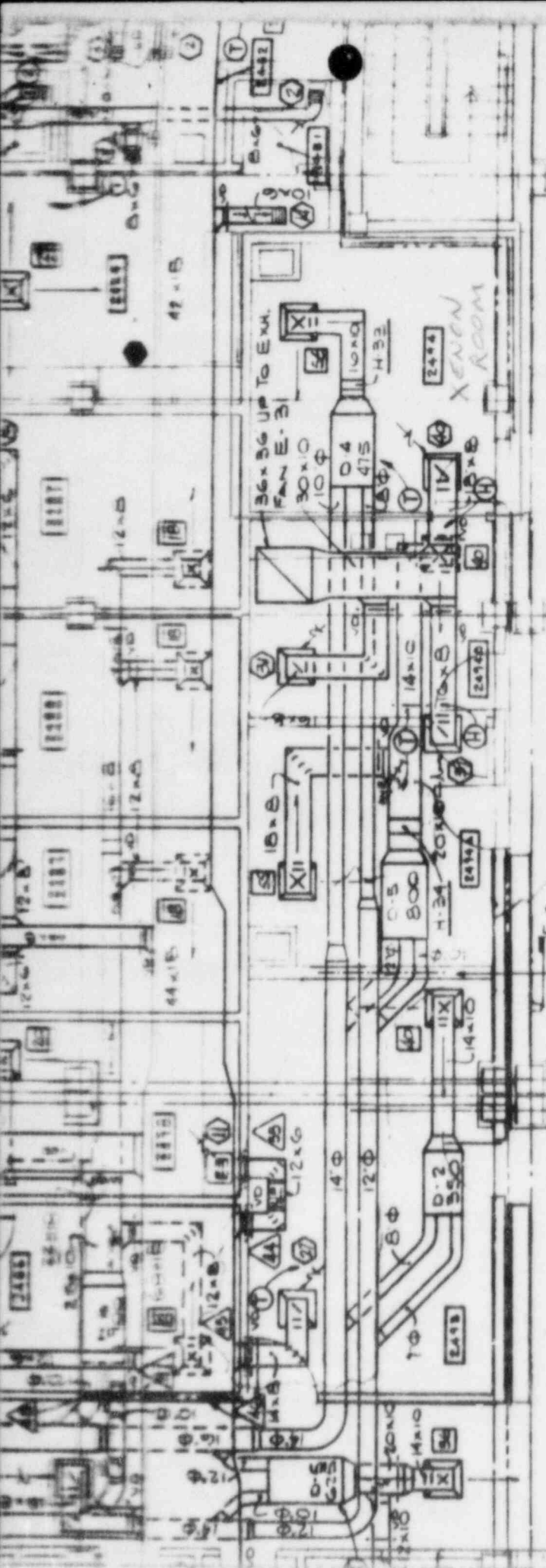
On this 4th day of August 1981, before me personally appeared Joseph B. Weber and John L. Bircher, M.D., known to me to be the individuals who executed the foregoing instrument.

  
Notary Public

CONTROL  
SUSAN B. MUELLER  
NOTARY PUBLIC - STATE OF MISSOURI  
ST. LOUIS COUNTY  
MY COMMISSION EXPIRES FEB. 15, 1983



CONTROL NO. 5 2 4 1



CONTROL NO. 5 4 1

Location SECOND FLOOR

Date

Supply  
Air

Exhaust

Return  
Air

THESE 3 ROOMS COMPRISE NUCLEAR MEDICINE SUITE

→ 2414 14.5'x13' = 189 $\phi$ x9' = 1700 FT<sup>3</sup>x $\frac{9}{60}$  = 425 CFM

NUCLEAR

XENON ROOM

MED.

(40)

(1) TXS-24x24-14"p - 475 CFM (50) (1) TXR-24x24-16"p - 550 CFM

2424B 10x13 = 130 $\phi$ x9' = 1170 FT<sup>3</sup>x $\frac{9}{60}$  = 390 CFM

NUCLEAR

Radiopharmacy

MED.

(31)

(1) TXS-24x24-14"p - 350 CFM (40) (1) TXR-24x24-14"p - 400 CFM

2414A 13x13 = 162 $\phi$ x9' = 1521 FT<sup>3</sup>x $\frac{9}{60}$  = 380 CFM

NUCLEAR

Imaging Room

MED.

(39)

(1) TXS-24x24-14"p - 450 CFM (55) (1) TXR-24x24-14"p - 525 CFM

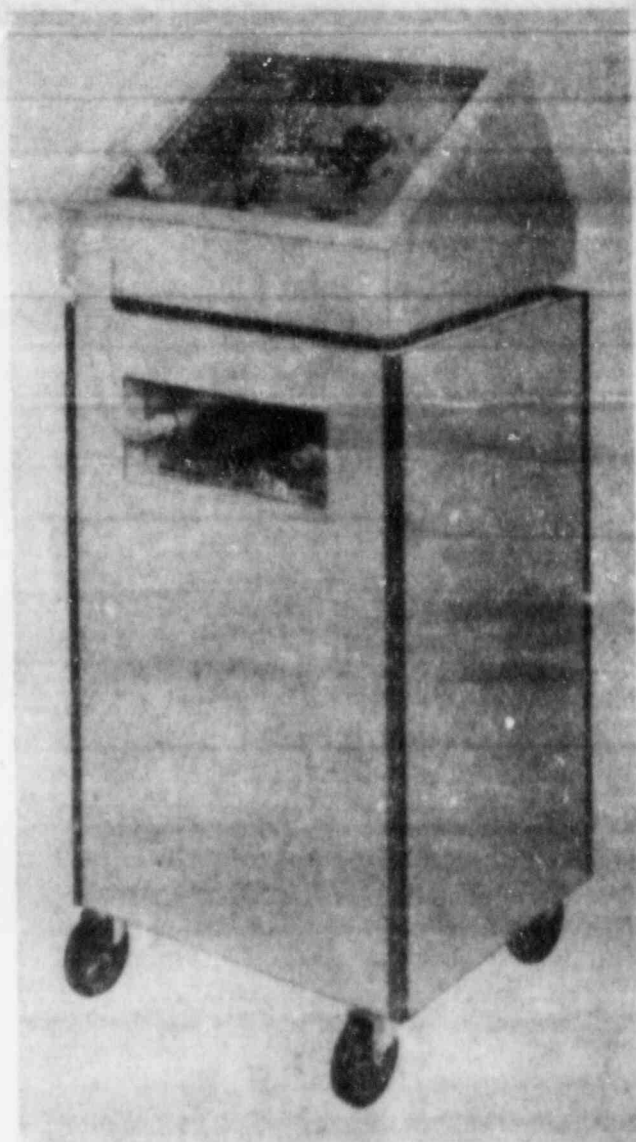


COMBINE The Model 130-330 XENON DELIVERY UNIT and The Model 127-313 XENON GAS TRAP into a FULL FUNCTION ECONOMY

## XENON SYSTEM

for  
less than \$2000

- EASY TO USE
- SAFE
- OVERALL SIZE 18" x 19" x 49"
- EFFICIENT
- ACCEPTS ANY OUTSIDE XENON SOURCE
- ACCEPTS ANY OUTSIDE SOURCE OF OXYGEN
- SPECIAL ULTRA SENSITIVE CHECK VALVE INSURES RESISTANCE FREE BREATHING
- MINIMUM LENGTH AIRWAY CIRCUIT FOR UNIFORM GAS MIXTURE
- OBSERVABLE BREATHING BAG FOR OXYGEN REPLENISHMENT
- VARIABLE LENGTH MOUTHPIECE SECTION FOR PATIENT COMFORT
- COMPLETE LEAD SHIELDING
- EASY MOBILITY
- INTERCHANGEABLE BREATHING BAG
- CARBON DIOXIDE TRAP
- MOISTURE TRAP
- EASY STERILIZATION
- CHARCOAL CARTRIDGE, YEAR GUARANTEE
- EXCEEDS NRC REQUIREMENTS
- AUTOMATIC TIMER
- ADJUSTABLE AIR FLOW CONTROL



### ECONOMY XENON SYSTEM

130-330 XENON DELIVERY UNIT.....	\$ 995.00
127-313 XENON GAS TRAP.....	\$ 995.00

\* Maximum permissible concentration in a controlled area per Title 10 CFR 20, Appendix B, Table I, Column 1, is  $1 \times 10^{-5}$   $\mu\text{Ci}/\text{cm}^3$ .

FOR MORE INFORMATION ON A SIMILAR SYSTEM SEE Secker-Walker R, Barbier J, Wiener N, Alderson P: A  $^{133}\text{Xe}$  System For Studies Of Regional Ventilation. *Journal of Nuclear Medicine*, Vol. 15, No. 4, April 1974.

### TYPICAL STUDY PROCEDURE

1. Adjust valves to close system circuit.
2. Connect outside oxygen source to inlet port.
3. Press button to add oxygen to breathing bag and circuit.
4. Add xenon at mouthpiece or into breathing bag inlet port.
5. Patient breathes to equilibrium.
6. Adjust valves to open circuit, patient inhales ambient air, exhaled air is directed to trap during washout.
7. Set trap timer on-off switch to desired wash-out time.
8. Adjust trap pump/air flow to accommodate patients breathing pattern.
9. System automatically stops when study is complete.

CONTROL NO. 5 2 4 1

# XENALARM XENON TRAP MONITOR

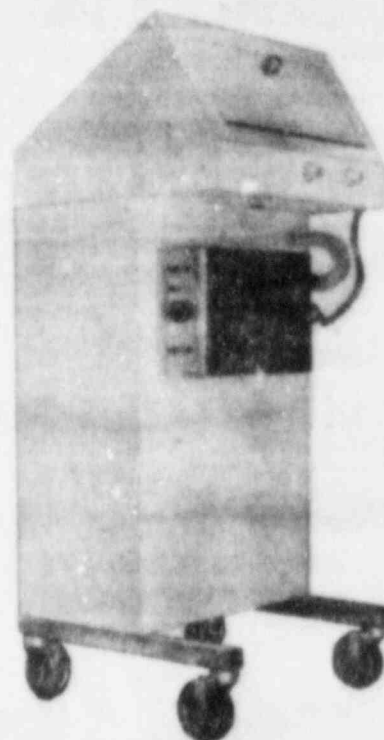
- Simple, sensitive, compact unit immediately alerts user to excess concentrations of radioactive xenon.
- Visual and aural alarms.



Placed at the exhaust port of any xenon gas trap, the Xenalarm monitors the xenon exhaust level and automatically trips a visual and aural alarm when concentrations of radioactive xenon exceed  $1 \times 10^{-2}$  uCi/ml. NRC and State agencies require that the xenon concentration in controlled areas does not exceed  $1 \times 10^{-5}$  uCi/ml averaged over one year based on a 40 hour work week. Xenalarm allows an exhaust rate in excess of the limit as the exhaust is diluted in the room and still further diluted by virtue of the required room ventilation.

The detector is a sensitive end window G-M tube inserted directly in the exhaust stream. The system measures both beta and gamma emissions of xenon.

A "beeper" audio alarm and a flashing red light warn of excessive radioactive xenon. The audio alarm may be turned off at any time by a simple "off-on" switch. Should the alarm activate during or after a study, the charcoal cartridge in the trap should be changed immediately after the completion of the study.



The "Test" button permits manual activation of the alarm system to ascertain its operation. A method to calibrate the unit with a known  $^{137}\text{Cs}$  source is provided.

The complete unit measures 8-1/2"W x 3-11/16"H x 13-3/16"D.

➤ 136-250 Xenalarm Xenon Trap Monitor ..... \$695.00

CONTROL NO. 05041

(8-78)

# TRAINING AND EXPERIENCE AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER

Jose G. Vijungco, M.D.

2. STATE OR TERRITORY IN  
WHICH LICENSED TO  
PRACTICE MEDICINE

Missouri &amp; Illinois

## 3. CERTIFICATION

SPECIALTY BOARD  
ACATEGORY  
BMONTH AND YEAR CERTIFIED  
CRadiology (American  
Board of Radiology)Diagnostic and  
Therapeutic

December 1974

## 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
a. RADIATION PHYSICS AND INSTRUMENTATION	Presbyterian St. Luke's Hospital & St. Louis University	1970-1974 200 hrs	
b. RADIATION PROTECTION	Presbyterian St. Luke's & St. Louis University	1970 1974 60	
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Presbyterian St. Luke's ( Chicago ) & St. Louis University	40	
d. RADIATION BIOLOGY	Presbyterian St. Luke's ( Chicago ) & St. Louis University	40	
e. RADIOPHARMACEUTICAL CHEMISTRY	Presbyterian St. Luke's ( Chicago ) & St. Louis University	30	

## 5. EXPERIENCE WITH RADIATION (Actual use of Radioisotopes or Equivalent Experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
<sup>137</sup> Cesium	10 mCi.	AS ABOVE	3 yrs.	Brachytherapy
<sup>60</sup> Co	1400 Ci.	AS ABOVE	"	Teletherapy
<sup>131</sup> I	100-150 mCi.	"	"	Therapeutic
<sup>99m</sup> Tc	1000 mCi.	"	"	Diagnostic
<sup>32</sup> P	10-15 mCi.	"	"	Therapeutic
<sup>57</sup> Co	10 microcurie	"	"	Diagnostic
<sup>198</sup> Au	100-150 mCi.	"	"	Therapeutic



## 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

Jose G. Vijungco

STREET ADDRESS

10010 Kennerly Road

CITY

STATE

ZIP CODE

St. Louis,

Mo.

63128

## 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	15	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	3	
	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	10	
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING	100	
	CARDIAC IMAGING	6	
	THYROID IMAGING	50	
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING	4	
	PLACENTA LOCALIZATION	5	
	LIVER AND SPLEEN IMAGING	150	
	LUNG IMAGING	50	
	BONE IMAGING	100	
OTHER			

# PRECEPTOR STATEMENT (Continued)

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

ISOOTOPE	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 (Solute)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES		
P-32 (Colloid)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA		
	TREATMENT OF HYPERTHYROIDISM		
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT	15	
	INTRACAVITARY TREATMENT	30	
I-125 or Ir-192	INTERSTITIAL TREATMENT		
Co-60 or Cs-137	TELETHERAPY TREATMENT	500	
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR	3	
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS		
Other			

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

April - June 1973

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

a. NAME OF SUPERVISOR  
Dr. Robert Donati Dr. Erica George

b. NAME OF INSTITUTION  
VA Cochran

c. MAILING ADDRESS  
#15 N. Grand Blvd.

d. CITY  
St. Louis, Mo. 63106

e. MATERIALS LICENSE NUMBER(S)

## 5. PRECEPTOR'S SIGNATURE

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

James W. Fletcher, M.D.  
Chief, Nuclear Medicine Service

8. DATE

July 23, 1981

# TRAINING AND EXPERIENCE AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER  J. M. Gennaoui, M.D.		2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE Missouri & Oklahoma		
3. CERTIFICATION				
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C		
AMERICAN BOARD OF RADIOLOGY	Diagnostic Radiology	June 1979		
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	
a. RADIATION PHYSICS AND INSTRUMENTATION	St. Louis University Hospitals	160/2	2 hr.	
b. RADIATION PROTECTION	St. Louis University Hospital & John Cochran VA Medical Center	40		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	St. Louis University Hospital & John Cochran V.A. Medical Center	36		
d. RADIATION BIOLOGY	St. Louis University Hospital	12		
e. RADIOPHARMACEUTICAL CHEMISTRY	St. Louis University Hospital	40		
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 99m	1000 mCi.	AS ABOVE	3 months during	Imaging of
I-131	100-150 mCi.	"	3 years of	thyroid, lung
Ga 67	12 mCi.	"	training	brain, liver
Tl 201	1.5 mCi.	"	"	abscess, lymphoma
Yb	1 mCi.	"	"	heart
				Cisternogram

# 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		<b>KEY TO COLUMN C</b> <b>PERSONAL PARTICIPATION SHOULD CONSIST OF:</b> 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		
JAD MICHEL GENNAOUI		
STREET ADDRESS		
12931 Huntercreek Road		
CITY	STATE	ZIP CODE
St. Louis	MO	63131

## 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		
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES	8	
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING	1	
Yb-169	CISTERNOGRAPHY	1	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	5	
OTHER			
Tc-99m	BRAIN IMAGING & Flow	104 + 99	
	CARDIAC IMAGING	11	
	THYROID IMAGING	5	
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING & Flow	108	
	LUNG IMAGING V/Q	44	
	BONE IMAGING	41	
OTHER	Cardiac Muga	3	

CONTROL NO. 75241

# PRECEPTOR STATEMENT (Continued)

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

A	B CONDITIONS DIAGNOSED OR TREATED	C NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION	D COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.)
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES		
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA		
	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	TELE THERAPY TREATMENT		
Sn-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR		
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS		
Other			
Tc-99m	Bone Marrow	1	
Ga	Survey	4	
Tc-99m	Meckel's Scan	1	
Tl-201	Myocardial	3	
I-131	Triple Renal		
Tc-99m DTPA	Triple Renal	9	
Tc-99m	Triple Renal		

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

Period of 10-1-77 through 11-15-77

Approximately 250 hours and approximately 150 hours of formal teaching.

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

a. NAME OF SUPERVISOR  
James W. Fletcher, M.D.

b. NAME OF INSTITUTION  
VA Medical Center

c. MAILING ADDRESS  
Nuclear Medicine Service (115JC)

d. CITY  
St. Louis, Missouri 63125

e. MATERIALS LICENSE NUMBER(S)  
24-00144-05

### 5. PRECEPTOR'S SIGNATURE

*James W. Fletcher M.D.*

### 6. PRECEPTOR'S NAME (Please type or print)

James W. Fletcher, M.D.

### 7. DATE

May 28, 1981



## 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

JAD MICHEL CENNAOLI

STREET ADDRESS

12431 HUNTERCREEK Rd

CITY

STATE

ZIP CODE

ST LOUIS, MO, 63131

## 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	2	
	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	1	
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY	1	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING	132	
	CARDIAC IMAGING	9	
	THYROID IMAGING	2	
	SALIVARY GLAND IMAGING	2	
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING	113	
	LUNG IMAGING	45	
	BONE IMAGING	52	
OTHER			

CONTROL NO. 25241

# 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		
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA		
	TREATMENT OF HYPERTHYROIDISM		
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		
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS		
Other			

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

Period of 11-16-77 to 10-31-77

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

a. NAME OF SUPERVISOR

JOHN L. BIRCHER, M.D.

b. NAME OF INSTITUTION

ST. LOUIS CITY HOSPITAL

c. MAILING ADDRESS

1515 LAFAYETTE AVE

d. CITY

ST. LOUIS, MO. 63104

5. MATERIALS LICENSE NUMBER(S)

24-00061-04

6. PRECEPTOR'S SIGNATURE

*[Signature]*

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

JOHN L. BIRCHER, M.D.

8. DATE

11 JUNE 1981

CONTROL NO. 5241

## EXPERIENCE IN NUCLEAR MEDICINE

### A. Clinical Experience

1. John Cochran V.A. Medical Center  
October-November 1977 Dr. Fletcher Dr. 230 hrs.
2. St. Louis City Hospital  
November-December 1977 Dr. Bircher 230 hrs.
3. St. Anthony's Medical Center  
July 1980 to May 1981 360 hrs.

### B. Didactic Training

1. St. Louis University Hospital  
Mathematics and Physics of Radiation 2 hr wk. 110 hrs.  
Dr. Nalesnik  
October 1976 to July 1977
2. St. Louis University Hospital  
Physics of Isotopes 2 hr.wk. 50 hrs.  
July 1977 to Jan. 1978
3. John Cochran V.A. Medical Center  
Dr. Donati Dr. Fletcher 2 hr.wk. 24 hrs.  
Dr. Hernandez - Pol  
Radiopharmaceuticals Clinical Applications  
Jan. 1978 - March 1978
4. St. Louis University 12 hrs.  
Dr. Nalesnik  
Radiobiology  
March 1978 - mid April 1978
5. St. Louis University 3 hr. wk. 24 hrs.  
Physics Review Course with Dr. Nalesnik  
Board preparation  
Mid April 1978 to June 10, 1978
6. St. Louis University 1 hr wk 20 hrs.  
Radiology lectures: Nuclear Medicine series  
July 1978 to May 1979

(B-78)

**TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER**

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER  Edward W. Szoko, M.D.	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE MO.
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## 3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
Diagnostic Radiology		6/81

## 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
a. RADIATION PHYSICS AND INSTRUMENTATION	University of Missouri Health Sciences Center (7/78-6/81) Columbia, Missouri 65201	250 hrs/ 2 hrs	2 hrs
b. RADIATION PROTECTION	University of Missouri Health Sciences Center (7/78-6/81) Columbia, Missouri 65201	40 hrs	-----
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	University of Missouri Health Sciences Center (7/78-6/81) Columbia, Missouri 65201	50 hrs	-----
d. RADIATION BIOLOGY	University of Missouri Health Sciences Center (7/78-6/81) Columbia, Missouri 65201	40 hrs	-----
e. RADIOPHARMACEUTICAL CHEMISTRY	University of Missouri Health Sciences Center (7/78-6/81) Columbia, Missouri 65201	50 hrs	-----

## 5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
I-131	200mCi	University of Missouri Health Sciences Center	3 months during 3 year Radiology training program	Rx for metastatic thyroid cancer
I-123	400uCi	Harry S. Truman V.A. Hospital		Thyroid imaging
Tc-99m	20mCi			Brain imaging
Ca-67	6mCi			Whole Body Image
Xe-133	10mCi	Columbia, Missouri 65201		Lung image
Tl-201	1.5mCi			Heart image
Yb-169	1mCi			Cisternogram

FORM NRC-313M Supplement A

(B-78)

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I-125 100uCi

Thrombosis detection

CONTROL NO. 541

## 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

Edward W. Szoko, M.D.

STREET ADDRESS

St. Anthony's Medical Center  
10010 Kennerly Road

CITY

St. Louis

STATE

Missouri 63128

ZIP CODE

## 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	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
I-131 or I-125	DIAGNOSIS OF THYROID FUNCTION	58	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	5	
	LIVER FUNCTION STUDIES	0	
	FAT ABSORPTION STUDIES	0	
	KIDNEY FUNCTION STUDIES	125	
	IN VITRO STUDIES	0	
OTHER	I-131 Whole Body Scan	12	
I-125	DETECTION OF THROMBOSIS	3	
I-131	THYROID IMAGING	5	
P-32	EYE TUMOR LOCALIZATION	0	
Se-75	PANCREAS IMAGING	0	
Yb-169	CISTERNOGRAPHY	5	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	33	
OTHER	I-123 Thyroid imaging	40	
Tc-99m	BRAIN IMAGING	92	
	CARDIAC IMAGING	23	
	THYROID IMAGING	3	
	SALIVARY GLAND IMAGING	1	
	BLOOD POOL IMAGING	83	
	PLACENTA LOCALIZATION	0	
	LIVER AND SPLEEN IMAGING	216	
	LUNG IMAGING	61	
	BONE IMAGING	250	
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	0	
P-32 (Colloidal)	INTRACAVITARY TREATMENT	0	
I-131	TREATMENT OF THYROID CARCINOMA	3	
	TREATMENT OF HYPERTHYROIDISM	10	
Au-198	INTRACAVITARY TREATMENT	0	
Co-60 or Cs-137	INTERSTITIAL TREATMENT	0	
	INTRACAVITARY TREATMENT	0	
I-125 or Ir-192 Co-60 or Cs-137	INTERSTITIAL TREATMENT	0	
	TELETHERAPY TREATMENT	0	
Sr-90	TREATMENT OF EYE DISEASE	0	
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR	25	
Sn-113/ In-113m	GENERATOR	-----	
Tc-99m	REAGENT KITS	30	
Other			
Tc-99m	PIPIDA Gallbladder	43	
Ga-67	Whole Body	63	
Tl-201	Heart	8	
Tc-99m (MAA)	Venogram	11	

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

7/1/78 - 6/30/81

660 hours

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

a. NAME OF SUPERVISOR

Richard A. Holmes, M.D.

b. NAME OF INSTITUTION

University of Missouri Med Center

c. MAILING ADDRESS

Department of Radiology

d. CITY

Columbia, Missouri 65201

e. MATERIALS LICENSE NUMBER(S)

24-152-35; 24-513-32

## 5. PRECEPTOR'S SIGNATURE

Richard A. Holmes, M.D.

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

Richard A. Holmes, M.D.

g. DATE

June 30, 1981