SERAGEN

SERAGEN INC.
54 Clayton Street
Boston, MA 02122
Tel. (617) 265-6004
Telex: 288 946

December 27, 1985

US Nuclear Regulatory Commission
Region 1
Nuclear Material Section B
631 Park Avenue
King of Prussia, PA 19406

Gentlemen:

We wish to renew Seragen, Inc.'s NRC license # 20-19478-01. Except as noted below, our radiation program at our Lexington and Boston Facilities will conform to our amendment No. 04, docket no. 030-17755, in accordance with application dated July 3, 1980; letters dated October 15, 1980, December 19, 1980, January 30, 1981, September 10, 1981, November 2, 1981, and March 4, 1982; letter received June 1, 1982; and letters dated November 2, 1982, March 14, 1983, and October 31, 1984.

A. RADIOACTIVE MATERIAL POSSESSION LIMITS

As requested in our letter dated October 31, 1984, we wished the quantities listed to be added to our authorized amounts. This was done for all isotopes except ^{125}I and ^{131}I. We therefore request that maximum possession limits for these isotopes be 200 mCi for ^{125}I and 10 mCi for ^{131}I.

B. CORPORATE ADDRESS

The corporate offices of Seragen, Inc. are located at the 128 Spring Street, Lexington facility. We request that the licencee address for Seragen be changed to:

Seragen, Inc.
Ledgemont Research Center
128 Spring Street
Lexington, MA 02173

C. LEXINGTON FACILITY

1. Equipment Purchased

We wish to acknowledge purchase of the following equipment.
Ludlum model 3 GM survey meter plus NaI low energy probe.
LKB 1212 beta scintillation counter.
Nuclear Chicago 1186 gamma counter.
To date only ^{14}C, ^{3}H and small quantities of ^{125}I have been used at this facility. Also the cesium irradiator covered under a separate license (20-20784-01) will not be purchased in the near future, therefore the other equipment referenced in our letter dated October 31, 1984 has not been purchased.

2. Facility Description

Due to the low level of use of radioactive materials at this facility, our proposed room use outline and floor plan submitted in the October 31, 1984 letter has changed. Radioisotopes are restricted to the basement and room 410 is designated as the radioisotope lab. An updated floor plan is enclosed.

3. Radiation Protection Officer

We wish to name Patricia Bacha as the Radiation Protection officer for this facility. Her NRC form 313 M Supp A is enclosed.

4. Authorized Users or Supervisors

Authorized users or supervisors for this facility are Thomas Hageman, Corey Waters and Karen Parker. NRC Form 313M Supp A is enclosed for Karen Parker. Forms were enclosed for Thomas Hageman and Corey Waters with letter dated October 31, 1984.

D. BOSTON FACILITY

1. Equipment Purchased

We have purchased a packard Multi Prias 2 detector gamma counter. The packard tricarb model 3003 gamma counter has been removed from service.

We have purchased an additional packard Tri Carb model 2003 liquid scintillation counter.

2. Facility

Facility use remains as described in letter received June 1, 1982. Additional security is provided in that the door to the facility is locked at all times. No entry is possible without ringing a doorbell. Non-employees in the building must be escorted at all times.

3. Radiation Protection Officer

We wish to designate Paul Marinelli as the radiation protection officer for this facility. His NRC form 313M Supplement A is enclosed. Additionally he has served as assistant radiation protection officer for this facility for the past three years.

4. Authorized Users or Supervisors

We wish to delete Paula Jacobs and Ravindra Patel as authorized users or supervisors. We wish to designate Dr. Sheila Magil, Carl Saras, Robert Wills, and Paul Marinelli as authorized users or supervisors.

E. LIAISON

The radiation protection officers are responsible for work at their own facilities and report through appropriate channels to the corporate officers at 128 Spring Street, Lexington, MA 02173.

Respectfully submitted,

Paul Marinelli

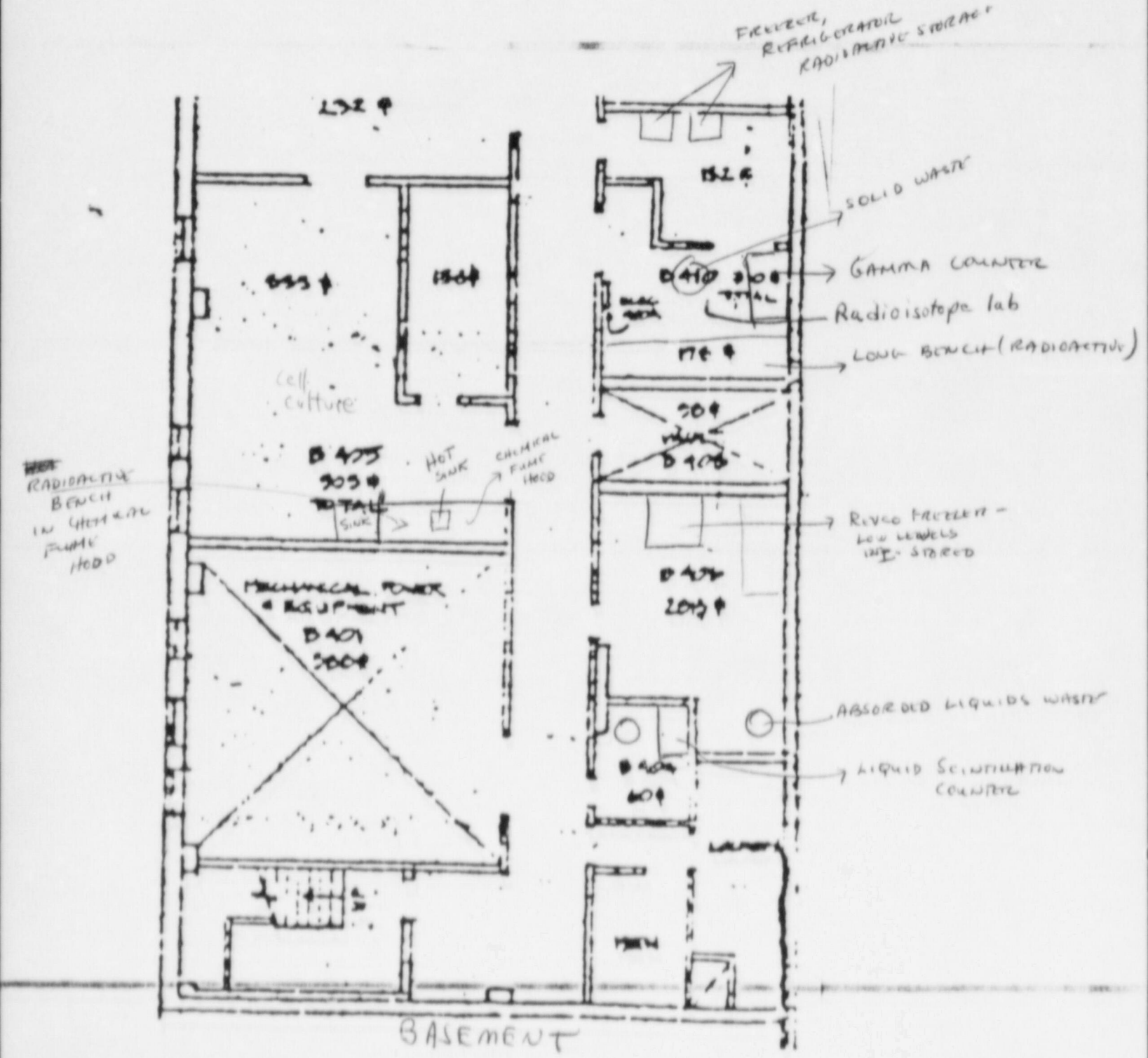
Paul Marinelli

PM/kc

Enclosures

SERAGEN, INC.
128 SPRING ST
LEXINGTON, MA 02173

Seragen, Inc.
Ledgemont Research Center
128 Spring Street
Lexington, MA 02173



FORM NRC-313M-SUPPLEMENT A (8-78) U.S. NUCLEAR REGULATORY COMMISSION

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
Patricia Bacha	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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	TYPE AND LENGTH OF TRAINING: SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	Harvard Univ. Radiation Safety Program 1978 New England Med. Ctr. 1983/84	15 2	 40
b. RADIATION PROTECTION	Harvard Univ. Radiation Safety Program 1978 New England Med. Ctr. 1983/84	15 2	 40
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Harvard Univ. Radiation Safety Program 1978 New England Med. Ctr. 1983/84	15 2	 40
d. RADIATION BIOLOGY	Harvard Univ. Radiation Safety Program 1978 New England Med. Ctr. 1983/84	15 2	 40
e. RADIOPHARMACEUTICAL CHEMISTRY	Harvard Univ. Radiation Safety Program 1978 New England Med. Ctr. 1983/84	15 2	 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
^{3}H	200 μCi	Harvard/New Eng.Med.Ctr.	1975-1985	cell labeling
^{14}C	250 μCi	Harvard/New Eng.Med.Ctr.	1975-1985	cell labeling, enzyme assays
^{125}I	2 m Ci	New England Med. Ctr.	1979-1985	protein labeling, RIA
^{131}I	1 m Ci	New England Med. Ctr.	1982-1983	radiothyroidectomy
^{35}S	250 μCi	Harvard	1977-1978	cell labeling
^{32}P	1 m Ci	Harvard	1976	cell labeling

FORM NRC-313M-SUPPLEMENT A (8-78) — U.S. NUCLEAR REGULATORY COMMISSION

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
Karen Parker	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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	UCHC annual 1972 - 81 NYU 1970	10 2	40 10
b. RADIATION PROTECTION	UCHC annual 1972 - 81 NYU 1970	10 2	40 10
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	UCHC annual 1972 - 81 NYU 1970	10 2	40 10
d. RADIATION BIOLOGY	UCHC annual 1972 - 81 NYU 1970	10 2	40 10
e. RADIOPHARMACEUTICAL CHEMISTRY	UCHC annual 1972 - 81 NYU 1970	10 2	40 10

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

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
^{125}I	10 mCi	UCHC, VAMC Newington CT	10 Years	labelling, RIA
^{3}H	2 mCi	NYU environmental research center	2 Years	cell incorp
^{14}C	2 mCi	"	"	of amino acid "
^{63}Ni	10 mCi	UCHC Farmington CT	3 Years	animal distr. studies

FORM NRC 313M SUPPLEMENT B
(6-78)

U. S. NUCLEAR REGULATORY COMMISSION

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

STREET ADDRESS

CITY | STATE | 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 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		
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME		
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING		
	CARDIAC IMAGING		
	THYROID IMAGING		
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING		
	LUNG IMAGING		
	BONE IMAGING		
OTHER			

FORM NRC-313M-SUPPLEMENT A (8-78) U.S. NUCLEAR REGULATORY COMMISSION

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
Paul Marinelli	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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	Boston Univ Sch Public Health University of Lowell Clin. Chem Labs Training Seragen Lab Training	40 7 2 1	 40 40
b. RADIATION PROTECTION	Boston Univ Sch Public Health University of Lowell Clin. Chem Labs Training Seragen Lab Training	40 7 2 1	 40 40
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Boston Univ Sch Pub Health University of Lowell Clin Chem Labs Training Seragen Lab Training	40 7 2 1	 40 40
d. RADIATION BIOLOGY	Boston Univ Sch Public Health University of Lowell Clin. Chem Labs Training Seragen Lab Training	40 7 2 1	 40 40
e. RADIOPHARMACEUTICAL CHEMISTRY	Clin. Chem Labs Training Seragen Lab Training	2 1	40 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
^{125}I	15m Ci	Clin Chem Labs/Seragen	1981-1985	Labelling, assays
^{3}H	1m Ci	Clin Chem Labs/Seragen	1981-1985	Assays
^{57}Co	3u Ci	Clin Chem Labs	1981	Assays
^{137}Cs	1m Ci	BU Sch Public Health	1982	Calibration
^{226}Ra	1m Ci	BU Sch Public Health	1982	Calibration
^{14}C	10u Ci	University of Lowell	1985	Assay, autoradiography

FORM NRC-313M-SUPPLEMENT A (8-78) U.S. NUCLEAR REGULATORY COMMISSION

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

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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			
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

FORM NRC-313M-SUPPLEMENT A (8-78) U.S. NUCLEAR REGULATORY COMMISSION

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
Dr. Sheila Magil	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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	MIT Radiation Safety Course Seragen Lab Training	2 1	
b. RADIATION PROTECTION	MIT Radiation Safety Course 1978/79 University of Minn. 1973	2 25	5
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	University of Minn. 1973	5	5
d. RADIATION BIOLOGY	University of Minn. 1973	5	5
e. RADIOPHARMACEUTICAL CHEMISTRY	Carnegie-Mellon University 1971	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
^{3}H	200 u Ci	CMU, Univ. Minn, MIT	1971-1981	Cell Culture RIA
^{14}C	200 u Ci	University of Minn.	1976-1978	Cell Culture
^{32}P	1m Ci	MIT	1978-1981	Radioenzymatic Assays

FORM NRC-313M-SUPPLEMENT A (8-78) U.S. NUCLEAR REGULATORY COMMISSION

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

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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			
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

FORM NRC-313M-SUPPLEMENT A (8-78) U.S. NUCLEAR REGULATORY COMMISSION

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
Carl R. Saras	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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	NEN Rad. Safety Course 1980 NEN Rad. Safety Course 1981 Seragen lab training 1984	10 5 1	16 40
b. RADIATION PROTECTION	NEN Rad. Safety Course 1980 NEN Rad. Safety Course 1981 Seragen lab training 1984	10 5 1	16 40
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	NEN Rad. Safety Course 1980 NEN Rad. Safety Course 1981 Seragen lab training 1984	10 5 1	16 40
d. RADIATION BIOLOGY	NEN Rad. Safety Course 1980 NEN Rad. Safety Course 1981 Seragen lab training 1984	10 5 1	16 40
e. RADIOPHARMACEUTICAL CHEMISTRY	Seragen lab training 1984		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
^{125}I	5m Ci	Seragen, Inc.	1 year	labelling, assays
^{3}H	1m Ci	NEN labs/Seragen, Inc.	3 years	assays, waste processing
^{14}C	1m Ci	NEN labs	1 year	waste processing

FORM NRC-313M-SUPPLEMENT B
(5-78)

U. S. NUCLEAR REGULATORY COMMISSION

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

STREET ADDRESS

CITY | STATE | 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 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		
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME		
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING		
	CARDIAC IMAGING		
	THYROID IMAGING		
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING		
	LUNG IMAGING		
	BONE IMAGING		
OTHER			

FORM NRC-313M-SUPPLEMENT A (8-78) — U.S. NUCLEAR REGULATORY COMMISSION

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
Robert Wills	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C

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	TYPE AND LENGTH OF TRAINING: SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	Belfairs School 1964 Paddington Tech College 1975 Middleton St George Coll 1970 Beth Israel Hospital 1980	8 15 15	4 8 40
b. RADIATION PROTECTION	Belfairs School 1964 Paddington Tech College 1975 Middleton St George Coll 1970 Beth Israel Hospital 1980	8 15 15	4 8 40
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Belfairs School 1964 Paddington Tech College 1975 Middleton St George Coll 1970	8 15 15	4 8
d. RADIATION BIOLOGY	Belfairs School 1964 Paddington Tech College 1975 Middleton St George Coll 1970 Beth Israel Hospital 1980	8 15 15	4 8 40
e. RADIOPHARMACEUTICAL CHEMISTRY	Beth Israel Hospital 1980 Seragen Lab Training 1983	 1	40 8

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

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
^{238}U	1u Ci	Middleton St George Coll	6 months	Crystallography
^{234}Th	5u Ci	Middleton St George Coll	6 months	Disintegrations studies
^{3}H	2m Ci	Beth Israel Hospital	2 years	Animal Studies
	10u Ci	South End Hospital	6 years	Assays
	1m Ci	Seragen Inc.	3 years	Cell Labelling, assays
^{125}I	10u Ci	South End/Seragen Inc.	9 years	Assays

FORM NRC-313M-SUPPLEMENT B
(5-78)

U. S. NUCLEAR REGULATORY COMMISSION

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

STREET ADDRESS

CITY | STATE | 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 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		
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME		
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING		
	CARDIAC IMAGING		
	THYROID IMAGING		
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING		
	LUNG IMAGING		
	BONE IMAGING		
OTHER			