

MEDI-PHYSICS, INC., RICHMOND, CALIF, SUBSIDIARY OF HOFFMANN-LA ROCHE INC.

December 11, 1985

U.S. Nuclear Regulatory Commission Materials License Section Region III 799 Roosevelt Rd. Glen Ellyn, IL 60137

ATTN: Bruce S. Mallett, Ph.D.

Re: License #12-13813-01

Medi-Physics, Inc. requests amendment of License #12-13813-01 as follows:

1) Add to Condition 12 the following individuals:

Gary A. Baker Mark A. Fraser Christ Phillip Kanoles Kenneth K. Kuhnle Hal R. Westreich

Training and experience summaries are attached.

Please delete David J. Gallaher from Condition 12.

2) Under Item 9.C. Authorized Use, please change to "For possession, research and development, and distribution to persons authorized to possess the licensed material pursuant to the terms and conditions of a specific license issued by the NRC or an Agreement State.

Please find enclosed a check for one hundred and twenty dollars (\$120.00) to cover the amendment fee required pursuant to 10CFR, Part 170.

I would greatly appreciate your approving this amendment as soon as possible. If there are any questions regarding this request please contact me at (312)398-8400.

Sincerely,

MEDI-PHYSICS, INC.

Lenda Mid

Linda McLean

Radiation Safety Officer

Arlington Heights

8604090378 860221 REG3 LIC30 12-13813-01 PDR Check to 48584

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#### Curriculum Vitae

#### Gary Allan Baker

#### EDUCATION

B.S. Chemistry, University of California, Berkeley

#### WORK EXPERIENCE

1971 to Present	Medi-Physics, Inc.
06/85 - Present	Manager, Development and Engineering, Arlington Heights Facility, Il
1984 - 06/85	Manager, Product Development and Planning, Corporate Headquarters, Richmond, Ca. (Also served as alternate Radiation Safety Officer, State of California Lic. No. 2067-60.)
1981 - 1984	Technical Advisor, Corporate Office, Emeryville, Ca.
1976 - 1981	Radiopharmaceutical Production Manager, Emeryville Facility, Ca. (Also served as alternate Radiation Safety Officer, State of California Lic. No. 2067-60.)
1971 - 1976	Research Chemist, Emeryville Facility, Ca

#### PRESENTATIONS

Lamb JF, Khentigan A, Baker GA, et al: Rubidium 8lm in evaluation of regional myocardial perfusion. First World Congress of Nuclear Medicine, Tokyo, October 1974

Lamb JF, Baker GA, Winchel HS: Stable isotope use in the commercial production of radiopharmaceuticals. American Nuclear Society, Winter Meeting, Washington, DC, October 1974

#### PUBLICATIONS

Baker GA, Lum DJ, Smith EM, et al: Significance of radiocontaminants in I-123 for dosimetry and scintillation camera imaging. J Nucl Med Vol 17 8:740-743, August 1976

Lamb JF, Baker GA, Goris ML, et al: Production and clinical evaluation of a commercial Kr 8lm gas generator and its delivery system. Clinical and Experimental Applications of Kr 8lm, Hammersmith, London, June 1977

Revised Dec. 1985 DMF No. 3746

## STATEMENT OF TRAINING AND EXPERIENCE

(Use additional sheets as necessary)

Instruction: Every individual proposing to use radioactive material is required to submit a Statemen Training and Experience in duplicate to the address given above. Physicians should request Form RH 200 when applying for human use authorizations.  Mgr. Development and Engineering								
1.	Na	one of proposed user: Gary A. Baker Position title Alternate Radiation Safety Office Safety Office Safety Office Position title Alternate Radiation Safety Office Position Safety Office Posit						
		dress: 1919 Ygnacia Valley Road, No. 80						
	To	be included on Lic. No. 2067-60 in name of Medi-Physics, Inc.						
2.	Des	scription of proposed use						
		evelopment of manufacturing and test methods.						
3.	Tra	uning:						
	a.	High School Graduate: Yes X No						
	b.	College or University: Name and location University of Colifornia at Berkeley						
		Years completed 4 Degree BS Course of study Chemistry						
	c.	Education specifically applicable to use of radioactive material						
		Nuclear Engineering Nuclear Chemistry Radiochemistry						
		회사 중에 있는 이번 내가 되는 사람들이 되는 것이 되는 것이 되었다.						
4.	Exp	perience:						
	a.	List experience with radioactivity beginning with most recent						
		(1) Dates: From 1981 to Present						
		Title and duties: manager, Development and Engineering: Responsible for Development						
		of Manufacturing and Test Methods						
		Employer: Medi-Physics, Inc. Address: Emeryville, CA 94608						
		(2) Dates From 1976 to 1981						
		Title and duties: Mgr. of Radiopharmaceutical Production: Responsible for scheduling,						
		planning, training and manufacturing.						
		Employer: Same Address: Same						
		(3) Dates: From 1973 to 1976						
		Title and duties: Research Chemist: Responsible for product R and D.						
		Employer: Same Address: Same						

b. Radioactive materials previously used. Cite typical radioisotopes in appropriate box and key to Part 4.a above:

#### Quantities Handled

	Microcuries	Millicuries	Curies	Kilocuries
Sealed sources	The state of the s	Ra226, Co57,Sr85	Cs137	
Unsealed alpha emitters	Hg203, Mn54, Bo			
Unsealed beta- gamma emitters		Cr51, Ce(Pr)144 K43, F18	Hg195, T1201, Rb81 Mo99, Tc99m, 1123 Ga67, In!!!, Xe!33	
Neutron sources				

c. Describe procedures similar to those proposed in Part 2 with which you have had experience. Indicate months of years for each and key to Part 4.a above.

Experience in development 4 a (1) and 4 a (3) Experience in manufacturing 4 a (1), 4 a (2), and 4 a (3)

Experience in testing 4 a (1) and 4 a (3)

- d. Indicate which types of facilities you have used and key to Part 4.a.
  - (x) Ordinary Chemical laboratories
  - (x) "Controlled Area" (Type B) laboratories
  - (x) Glove boxes
  - (x) Shielded glove boxes
  - (x) Caves with remote manipulators
  - ( ) Field operations with portable equipment
- 5. Certificate:

I hereby certify that all information contained in this Statement is true and correct.

Hung la. Bale
Signature of proposed user

8/1.5/85 Date

### STATE OF ILLINOIS DEPARTMENT OF PUBLIC HEALTH

KLM.003.01

## APPLICATION FOR RADIOACTIVE MATERIALS LICENSE

Supplement B - Training and Experience TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEMS 4 AND 5 ON FORM IDPH.KLM.001 FORMAL DURATION ON THE JOB WHERE EXPERIENCE WAS GAINED COURSE OF TYPES OF TRAINING (Check Answer) AND INSTRUCTOR (S) TRAINING (Check Answer) (Markowitz Edelstein Principles and practices of radiation '71 thru WYes INO Yes W No Univ. Calif, Berk (W. E. Pritchard '71 thru Yes No X Yes No T. L. Vaughn) MPI Emvl 181 Yes ONo Yes | No Yes No Yes No Yes No OYes ONo Yes No Yes No Racioactivity measurement standardization and monitoring techniques and 71 thru X Yes ONO Yes No 174 Univ. of Calif, Berk (same) 71 thru X Yes No Yes No '81 MPI Emvl (same) TYes TNo Yes No TYes THO Yes No Tes No Yes No 71 thru Mathematics and calculations basic to the XYes No Yes No 174 Univ. of Calif, Berk (same) use and measurement of radio activity . . . thru Yes No Yes No '81 MPI Emvl (same) Yes No Yes No Yes No Yes No Yes No Yes No Yes Dh: Yes No 71 thru X Yes No Univ. of Calif, Berk (same) Yes No 174 Biological effects of radiation ..... '71 thru Yes No Yes No '81 MPI Emvl (same L Yes No Yes No Yes No Yes No Yes No TYes ONo Cies UNO-Yes ONO CONTROL NO. 80342 Yes No OYes ONo

PADIOACTIVE PATERIALS	MAXIMUM AMDUNT	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR(S)	DURATION OF EXPERIENCE	TYPE OF USE
C-11	2000mCi	MPI Emvl WEP	4 yrs	R&D
N-13	100mCi	n n, n	1 yr	R&D
0-15	100mCi	n n	1 yr	R&D
F-18	8000mCi	n n n	4 yrs	Radiopharm
Na-22	10mC;	" "	14 yrs	Sealed Sources
			14 yrs	R/P by Product
Na-24 P-32	lmCi	U C, Berk Prussin	3 mo	Beta Scurce
			3 yrs	R/P by Product
K-42	lmCi	MPI Emvl WEP	3 yes	R/P
K-43	100mCi	" " "		Sealed R/P & Sources
Cr-51	300mCi	" " "	2 yrs 14 yrs	Sealed Sources
Co-57	25mCi			R/P by Product
Zn 62	200mCi		14 yrs	R/P by Product
Zn 65	100mCi	" " "	14 yrs	
Ga 66	500mCi	и и и	14 yrs	R/P by Product
Ga 67	20,000mCi	n n n	14 yrs	R/P
Ga 68	500mCi		14 yrs	R/P by Product
Ge 68	500mCi		1 yr	R&D
Se 75	100mCi	0 0	3 yrs	R/P
Br 77	10mCi		10 yrs	R/P by Product
Kr 81m	4000mCi	и и и .	10 yrs	R/P
Rb 81	4000mCi	п п п	10 yrs	R/P
Rb 82M	500mCi		10 yrs	R/P by Product
	25mCi		14 yrs	Sealed Sources
Sr85 Mo99	400 C1	п п п	14 yrs	R/P by Product
		" " "	14 yrs	R/P
Tc99m	400 C1		14 yrs	R/P
· Inll1	15 C1	" " "		R/P
Inll3m.	100mC1	" " "	1 yr	R/P by Product
In114m	15mC1	и и и	14 yrs	

PADIOACTIVE	MAXIMUM . AMOUNT	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR(S)	DURATION OF EXPERIENCE	TYPE OF USE
Sn113	100mCi	MPI Emvl WEP	- 1 yr	R/P
Sn117m	10mCi	n n × n	1 yr	R&D
Sb117	200mCi		1 yr	R&D Sealed Source
Tc123m	100µCi	n 'n n	2 yr	prep .
1123	3000mCi		13 yrs	R/P
1124	20mCi	0 0 0	13 yrs	R/P by Product
1125	10mCi	п п п .	13 yrs	R&D
1126	1 mCi		13 yrs	R/P by Product
1130	100mCi	i	13 yrs	R/P by Product
1131	50mCi		13 yrs	R&D
Xe133	200 Ci	и и и	13 yrs	R/P
Cs137	150 Ci	" " "	13 yrs	Sealed Source
Ce(Pr)144		Univ of Cal Berk	3 mos	Training Purposes
Eu152	10mCi	MPI Emvl WEP	10 yrs	Sealed Sources
Eu154	5mCi	" " "	10 yrs	n "
Ta 182	10mCi	n n n	1 yr	R&D
Au 198	1 mCi		1 yr	Sealed Source
Hg195 →	500mCi		3 yrs	R&D
Au195m			3 yrs	R&D
T1 201	2000mCi 100mCi	п п	3 yrs	RAD
At 211 Ra 226	5mCi	n n n	14 yrs	Sealed Sources
Am237	25µCi	и и и	14 yrs	Sealed Sources
Amzor				
				9

#### David Bolenbaugh

- Currently Development Engineer at Medi-Physics Arlington Heights Facility. Projects include design and improvement of Cyclotron and Target Systems currently in use on two 40 MEV proton cyclotrons now in operation and one 70 MEV proton cyclotron to be operational in 1986.
- Relocated to MPI Arlington Heights in 1985 from MPI Emeryville Cyclotron.
- Shut down and dis-assembled 22 MEV proton Cyclotron in Emeryville Calif. during Dec. 1984 to April 1985 to prepare cyclotron for removal from site.
- Was lead Cyclotron Operator, prior to shut down, responsible for day to day operation, repair and training of Emeryville cyclotron. Due to staff reduction, prior to cyclotron shutdown, assisted with chemical target processing, handled shipment of bulk radioactive product, and assisted with health physics monitoring and equipment calibration.
- Prior to staff reduction was Lead Cyclotron Operator during, 7 day/week Radio-Pharmaceutical production on 22 MEV cyclotron.

Education - 1979 University of California BA in Physics

Licensed user of Radioactive Materials by State of California, Department of Public Health, License number 2067-60.

IDPH.KLM,003.01 (1/74)

#### STATE OF ILLINOIS DEPARTMENT OF PUBLIC HEALTH

KLM.003.01

# APPLICATION FOR RADIOACTIVE MATERIALS LICENSE Supplement B - Training and Experience

TRAINING AND EXPERIEN	CE OF EACH INDIVIDUAL NAMED IN IT	EMS 4 AND 5 0	N FORM IDPH.	KLM.001
TYPES OF TRAINING	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (S)	DURATION OF TRAINING	ON THE JOB (Check Answer)	FORMAL COURSE (Check Answer)
Principles and practices of radiation protection	Univ. of Calif. Berkeley B.A. Physics 1979	973-1979	☐ Yes ☑ No	D Yes □ No
	Medi-Physics Emeryville T. Vaughn, S. Souza, E.	980-1985	ØYes □No.	☐ Yes Ø No
	Russel	1	☐ Yes ☐ No	Yes No
			☐ Yes ☐ No	☐Yes ☐No
		L	Yes No	□Yes □No
			Yes No	☐Yes ☐No
Rumoactivity measurement standardization and monitoring techniques and instruments	Univ. of Calif	1973-1979	☐ Yes 📭 No	ØYes □No
in triuments	MPI Emeryville (same)	1980-1985	☐ Yes ☐ No	□ Yes □ No
			□Yes □No	□Yes □No
			□ Yes □ No	□Yes □No
			☐ Yes ☐ No	☐ Yes ☐ No
Mathematics and calculations basic to the use and measurement of radio activity	Univ. of Calif (same)	1973-1979	Yes No	ØYes ☐ No
			□ Yes □ No	Yes No
			Yes No	☐ Yes ☐ No
			Yes No	☐ Yes ☐ No
			□ Yes □ No	□ Yes □ No
			Yes No	☐ Yes ☐ Nc
Biological effects of radiation	Univ. of Calif (same)	1973-1979	Ø Yes □ No	Yes PNo
			Yes No	Yes No
			Yes No	□ Yes □ No
			□ Yes □ No	☐ Yes ☐ No
			☐ Yes ☐ No	□Yes □No
	CONTROL NO. 80342		Yes No	☐ Yes ☐ No
			□ Yes □ No	□Yes □No

-ADIOACTIVE	MAXIMUM		AND INST	RUCTOR(S)	DURATION OF EXPERIENCE	TYPE OF USE
AM-241	5mCi	MPI S. So	Emeryvi uza, T.	lle E. Russe Vaughn,	2 yrs	Instrument Calibration
BR-77	10mCi	"	-11		l yr	Cyclotron Development
CO-57	10mCi	"	11		2 yrs	Instrument Calibration
CO-60	10mCi			п	2 yrs	
C <sub>S</sub> -137	133 Ci	"		11	2 yrs	
EU-152	25mCi	"	"	· _ n	2 yrs	" "
F-18	100mCi	"		. "	1 yr	Isotope Production
GA-67	10 Ci	"	" -		5 yrs	n n
I-123	1000mCi	• н	11	"	5 yrs	" "
J-12n	25mCi	"			5 yrs	n n · · ·
IN-111	10 Ci			n	5 yrs	11 11
Kr-81M		"	"		5 yrs	n n
Na-22	5mCi	"	"	'n	2 yrs	Instrument Calibration
RA-226	5mCi	"	"	"	2 yrs	" "
Rb-81	2 Ci	"			5 yrs	Isotope Production
Rb-82M	250mCi	"	"	,,	5 yrs	п п
TA-182	100mCi	"	"	"	5 yrs	Cyclotron
Xe-133	5 Ci	"	"		6 mo	Filling Syst
Zn-65	200mCi	"	"	"	5 yrs	Cyclotron
				MEET S		
					F Garage T	
		-				

SUSAN L. FROULA 1315 S. Mitchell Avenue Arlington Heights, IL 60005

OBJECTIVE To be State Certified as a USER with the goal of obtaining a supervisory position in the radiopharmaceutical industry.

EDUCATION 1978-1982 Loyola University of Chicago. Bachelor of Science degrees in Biology and Psychology. Considerable laboratory experience in the subjects of Biology, Chemistry, Physics, and Psychology. Studies also included Calculus, Statistics, experimentation and research methods. Cumulative grade point average 3.3/4.0. Advanced placement credit in Spanish equivalent to two years of college work. Received a total of 154 credit hours (minimum required 128).

1974-1978 Rolling Meadows High School, Rolling Meadows, Illinois, Emphasis on Mathematics and the Sciences. Advanced placement courses in Biology Calculus, and Spanish. National Honor Society, Seven Semester Honor Pin, Spanish Honor Society, Senior Spanish Award. Grade point average 4.8/5.0.

EXPERIENCE 1982
present Production Technician II, for the manufacture of radiopharmaceuticals. Chemical processing of cyclotron bombarded targets; formulation and filling of final products; calibration of dispensing pumps, ion chambers, and rapid assay devices; and material preparation. Inventory Control of raw materials, assisting in the development of a computerized inventory system, and utilization of automated order entry.

1980-1982 All Cargo Express, Inc., Elk Grove Village, Illinois. Billing and payroll secretary.

1978-1980 Easkin-Robbins Ice Cream, Woodfield Mall, Schaumburg, Illinois. Member of Sales Staff, responsible for ordering many supplies.

ACTIVITIES Offices held were President and Vice President of Spanish Club.

Member of American Field Service, Drill Team, and Intramural

Bowling. Interests include piano, tennis, and downhill skiing.

REFERENCES Available upon request.

## STATE OF ILLINOIS

KLM.003.01

SUSAN FROULA

# APPLICATION FOR RADIOACTIVE MATERIALS LICENSE Supplement B - Training and Experience

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEMS 4 AND 5 ON FORM IDPH.KLM.001

TRAINING AND EXPERIEN	ICE OF EACH INDIVIDUAL NAMED IN I			The second second second
TYPES OF TRAINING	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (\$)	DURATION OF TRAINING	(Check Answer)	COURSE (Check Answer)
Principles and practices of radiation protection	Medi-Physics (MPI): R. Allen	4 Hrs.	□ Yes □ No	™Yes □No
	MPI: T. Vaughn	10 Hrs.	Yes No.	ĕYes □No
	MPI: Licenses Users	2 Yrs.	⊠ Yes □ No	☐ Yes □ No
			☐ Yes ☐ No	☐Yes ☐No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
Russ pactivity measurement standardization an importoring techniques and instruments	Medi-Physics: R. Allen	4 Hrs.	⊠Yes □ No	27 Yes □ No
	MPI: T. Vaughn	10 Hrs.	¥Yes □ No	¥ Yes □ No
	MPI: Licensed Users	2 Yrs.		☐ Yes 🙀 No
			□Yes □No	☐ Yes ☐ No
			□Yes □No	☐ Yes ☐ No
Mathematics and calculations basic to the use and measurement of radioactivity	Medi-Physics: R. Allen	4 Hrs.		X Yes □ No
	MPI: T. Vaughn	10 Hrs.	K∏Yes ☐ No	Yes No
	MPI: Licensed Users	2 Yrs.	K Yes □ No	□ Yes 反 No
			☐ Yes ☐ No	☐ Yes ☐ No
			Yes No	☐ Yes ☐ No
			Yes No	☐ Yes ☐ No
Biological effects of radiation	MPI: R. Allen	4 Hrs.	Yes No	⊗ Yes □ No
	MPI: T. Vaughn	2 Mrs.	☑ Yes ☐ No	▼ Yes ⊃ No
1		9	Yes No	☐Yes ☐ No
. /			Yes No	`□ Yes □ No
			□ Yes □ No	☐ Yes ☐ No
. \			□Yes □No	□Yes □No
			☐ Yes ☐ No	☐ Yes ☐ No

#### TRAINING AND EXPERIENCE SUMMARY

Mark A. Fraser

#### EDUCATION

University of Illinois, Champaign-Urbana 96 Hrs. toward Bachelor of Science in Chemistry

Elmhurst College, Elmhurst, Illinois Currently enrolled to complete Chemistry degree

#### EMPLOYMENT.

Medi-Physics, Inc. Arlington Hts., TL Feb. 1982 - July 1983 Production Tech I July 1983 - December 1984 Production Tech II January 1985 -Chemist I

#### SUMMARY OF QUALIFICATIONS

#### Cyclotron Products

- Radioisotope dissolution processing through to radiochemical form

#### Radioisotopes as follows:

- 203Tl Thallium to 201Tl Thallous Chloride Bulk
- Zinc 68 to Gallium 67 bulk
- Cadmium 112 to Indium 111 bulk
- 124 Tellurium to I123 Sodium Iodide bulk

#### Radiochemical processing to final radiopharmaceutical dispensing

- Thatlous Chloride to Thallous Chloride radiopharmaceutical unit dose
- · Gallium 67 to Neoscan 67 unit dose
- Indium 111 to Indium DTPA unit do 3, Indium Chloride unit dose, and Indium Oxine unit dose.
- Sodium Iodide to Sodium Iodide oral capsules, Sodium Iodide oral solutions and Perfusamine unit dose

Training and supervision of other Production Technicians on processing all radiochemicals and radiopharmaceuticals.

Maintenance and repair of radiopharmaceutical dispensing systems

Perform recoveries of enriched isotopes for cyclotron targets

- 124 Tellurium for 123 Iodine
- 203 Thallium for 201 Thallium
- 68 Zinc for 67 Gallium
- 112 Cadmium for 111 Indium

#### STATE OF TELINOIS DEPARTMENT OF PUBLIC HEALTH

KLM.003.01

APPLICATION FOR RADIOACTIVE MATERIALS LICENSE Supplement B - Training and Experience

TRAINING AND EXPERIEN	NCE OF EACH INDIVIDUAL NAMED IN I	TEMS 4 AND 5 C	N FORM IDPH.	
TYPES OF TRAINING	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (5)	DURATION OF TRAINING	ON THE JOB (Check Answer)	COURSE (Check Ansert)
Principles and practices of radiation protection	Medi-Physics (MPI): R. Allen	3 Hrs.	MYes □ No	ØYes □No
	MPI: T. Vaughn	12 Hrs.		€ Yes □ No
	MPI: Licensed Users	2.7 yrs.	⊗ Yes □ No	☐ Yes 反 No
			☐ Yes ☐ No	□Yes □No
			Yes No	☐Yes ☐No
			Yes No	Yes No
Rumoactivity measurement standardization an monitoring techniques and	MPI: R. Allen	3 Hrs.		K) Yes □ No
instruments	MPI: T. Vaughn	12 Hrs.	Yes ONo	√Yes □No
	MPI: Licensed Users	2.7 Yrs.	AYes □ No	☐Yes ₩ No
			☐Yes ☐No	□Yes □No
			□Yes □No	☐ Yes ☐ No
Mathematics and calculations basic to the use and measurement of radioactivity	MPI: R. Allen	3 Hrs.	© Yes □ No	A Yes □ No
	MPI: T. Vaughn	12 Hrs.	₽Yes □No	Q Yes □ No
	MPI: Licensed Users	2.7 Yrs.	€ Yes □ No	□Yes € No
			Yes No	□ Yes □ No
			OYES ONO	□ Yes □ No
			□Yes □No	□ Yes □ Nc
Biological effects of radiation	MPI: R. Allen	3 Hrs.	□XYes □ No	⊠ Yes □ No
	MPI: T. Vaughn	2 Hrs.	☑ Yes ☐ No	ØYes ⊒No
1			☐ Yes ☐ No	□Yes □No
. /			□Yes □No	Yes CNo
			□Yes □No	□Yes □No
			Yes No	□Yes □No
			□Yes □No	□Yes □No

10PH.KLM.003.02 (1/74)

EXPERIENCE WITH RADIATION. (Actual use of radioactive materials or equivalent experience.)

" EXPERIENCE	WITH RADIATION	. (Actual use of redirective majority	1	1
- ADIOACTIVE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR(5)	DURATION OF EXPERIENCE	TYPE OF USE
1-123	5 Ci	MPI: T. Springer	2.7 years	Radiopharmaceut ical Production
Ga-67	8 Ci	MPI: C. Anderson	2.0 years	"
T1-201	6 Ci	MPI: T. Springer	3.0 years	"
In-111	6 Ci	MPI: C. Anderson	2.0 years	"
Zn-65	100 mCi	MPI: T. Springer	2.0 years	"
Ra-226	10 mCi	MPI: T. Springer	2.7 years	Sealed Sources
Co-57	50 mCi	MPI: T. Springer	2.7 years	"
Cyclotron Produced Radioactivity	1 Ci	MPI: T. Springer	2.7 years	Production
	NOTE:	Instructors for above experient Production Managers and licent at the Arlington Heights faci	sed users	
	-			
			*	×.
Commission in the commission of the			Andread to the second of the s	

#### Christ Phillip Kanoles

Degree: B.A. in Biology, 1981 from Northwestern University in

Evanston, Ill.

Work: Medi-Physics, Inc., Arlington Hts, Ill.

Technician in Quality Control Department from July. 1981 to Oct. 1985. Development Assistant in Development and Engineering Department as of Oct. 1985.

Involved in the day to day use of radioactive materials. Several isotopes are handled in amounts of more than one Curie (movement of bulk material within the facility, sample removal) as well as amounts less than one Curie (physical and chemical testing of samples, movement of samples and final product dose units within the facility).

A large number of sealed source isotopes (less than 100 uCi each) were used within the Quality Control Department for instrument calibration purposes.

# NRC 3131 ITEM 16 RADIATION SAFETY TRAINING

Christ Phillip Kanoles

TYPES OF TRAINING	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (S)	DURATION OF TRAINING	ON THE JOB (Check Answer)	FORMAL COURSE (Check Answer)
Principles and practices of radiation protection	Medi-Physics, Inc. by Health Physics Dept.	4.75 yrs	ØYes □No	□Yes ØNo
			OYes ONO.	☐ Yes ☐ No
			□ Yes □ No	Yes No
			□ Yes □ No	□Yes □No
	-		Yes No	□Yes'□No
			Yes No	Yes No
Rutioactivity measurement standardization and monitoring techniques and	Medi-Physics, Inc. by Health Physics Dept	4.75 yrs	ØYes □ No	OYes ANO
instruments	by hearth rhysics hepe		□ Yes □ No	□Yes □No
			□ Yes □ No	Yes No
			□Yes □No	□ Yes □ No
			□ Yes □ No	□ Yes □ No
Mathematics and calculations basic to the use and measurement of radioactivity	Medi-Physics, Inc. by Health Physics Dept	4.75 yrs	ØYes □ No	□ Yes ☑ No
	College Level Physics and Chemistry Courses	1 yr	□Yes ØNo	ØYes □No
	Northwestern University, Evanston III		☐ Yes ☐ No	□Yes □No
			□ Yes □ No	□Yes □No
			□ Yes □ No	□Yes □No
. \			□Yes □No	□Yes □Nc
Biological effects of radiation	Medi-Physics, Inc.	4.75 yrs	ØYes ONo	□Yes ØNo
	by Health Physics Dept		Yes No	□ Yes □ No
			Yes No	□ Yes □ No
1			Yes No	□Yes □No
			Tes No	☐Yes ☐ No
1			Yes No	□ Yes □ No
			Yes No	OYes ONo

## WORK EXPERIENCE WITH RADIATION

-ADIOACTIVE PATERIALS	MAXIMUM	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (5)	DURATION OF EXPERIENCE	TYPE OF USE
T1 201	4 Ci	Medi-Physics, Inc.	4.75 yrs	Quality Contr sampling & te
Ga67	8 Ci	HH 7	4.75 yrs	""
I123	0.5 Ci	nn n	4,75 yrs	
In111	5 Ci	nn	3 yrs	1111
Tc99m	20Ci	1111	2 yrs	nn n
Rb81	1 Ci	""	2 yrs	""
I131	5 mCi		One Occasion	Quality Contro Research Sealed calibra
Co 57	75uCi	***	4.75 yrs	tion Sources
Co <sup>60</sup>	nn .		""	
Cs137	""			
Ce 139		""		""
Eu152	0.0	""	""	nn l
Ra <sup>226</sup>			111	
Na <sup>22</sup>	""	""	3 yrs	""
Mn <sup>5u</sup>		""	11.11	
Sr85	nn -		1111	nn .
Y88	n r	1111	ин	""
CD109		""	1111	""
Mg <sup>203</sup>	11.11	""	""	""
Am 241	ип	1111	nn 🚑	""
				-
•				

#### KENNETH K. KUHNLE

Education:

A. S. Triton College (2 yrs) Northern Illinois University (2 yrs)

Work Experience: Medi+Physics (Start 5-9-82 to Present)

Lab Tech I 1-1/2 yrs Lab Tech II 1-1/2 yrs Development & Engineering Lead Tech

Description of Duties:

As a lab tech I., I was responsible for processing raw materials after bombardment by the cyclotron. Also dispensing of final product radiopharmaceutical.

As a Tech II, in addition to my duties I was also responsible for training other technician in handling and processing radio-active materials.

In Development and Engineering I'm responsible for developing new processes so they are usable in production.

### NRC 3131 ITEM 16 RADIATION SAFETY TRAINING

TYPES OF TRAINING	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (S)	DURATION OF TRAINING	ON THE JOB	FORMAL COURSE (Check Answer
Principles and practices of radiation protection	Rich Allen, Terry Vaughn Linda McLean, Arlington Hts.	3 yr 51	No Yes No	Yes Q N
	Production Supervisor		OYes ONO	OYes ON
			□Yes □No	OYes ON
			□Yes □No	□Yes □No
	•		Yes No	OYes O No
	•	Carl I	Yes No	OYes ONe
Rutioactivity measurement standardization and monitoring techniques and instruments.	Health Physics Staff Production Supervisors/	3.yr 5mo	Ø Yes □ No	□Yes ØNo
The state of the s	Arlington Hts, Il		☐ Yes ☐ No	□Yes □No
			OYes ONO	OYes ONO
			OYes ONo	□Yes □No
			□ Yes □ No	□ Yes □ No
Mathematics and calculations basic to the use and measurement of radioactivity	Northern Ill. Univ. Dekalb Il		□Yes □No	OYES ONO
	Analitical Geometry	4 mo	□ Yes ② No	Ø Yes □ No
	Calculus N.I.U.	8 mo	O Yes ON No	Q Yes □ No
	Physics N.I.U.	8 mo	O Yes O No	Ø Yes □ No
	Medi+Physics '	NA	MYes   No	O Yes ON No
. \			OYes ONo	OYES ONE
liological effects of radiation	Medi+PHysics Arl. Hts, II. Linda McLean	1 day	ØYes □ No	□ Yes ® No
	Book (The Genetic Effects of Radiation) Authors:	NA.	☐ Yes @ No	BYes DNo
1	Isaac Asimov T. Dobzhansky	*	OYes ONo	□Yes □ Ne
1	Medi+Physics	3 yr 5mo	MYes ONO	☐Yes INNo
.	Book (Your Body and Radia-		□Yes □No	OYes ONo
	N. Frigerio	NA	OYES BYNO	CAYes ONO
	CONTROL NO. 80342		DYO ON	TYES THO

PADIOACTIVE PATERIALS	MAXIMUM	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (5)	DURATION OF EXPERIENCE	TYPE OF USE
Ra <sup>226</sup>	75 uCi	Medi+Physics/Arl Hts. II	3 yr 5 mo	Instrument Ca
Rb 81m/Kr 8	lu 5Ci	""	1 yr	Production
T1 <sup>201</sup>	10 C1	1111	3 yr 5 mo	Production
Pb <sup>201</sup>	R/hr 1000		3 yr 5 mo	Production
IN111	5 C1	nn ' nn	2 yr +	Production
Ga <sup>67</sup>	15 Ci	""	3 уг	Production
I <sup>123</sup>	. 3 Ci		3 yr	Production
		•		
			*	
		,		
	•		The second second	

#### CURRICULUM VITAE

#### HAL R. WESTREICH

EDUCATION:

M.S., University of Connecticut, Storrs, CT. 1976 B.A., Rutgers University, New Brunswick, NJ. 1974

EXPERIENCE:

E.R. Squibb and Sons, New Brunswick, NJ 3/80 - 10/85 Analytical Research Chemist; Analytical method development utilizing spectroscopic, thermal, chromatographic, electrochemical, particle sizing, automated, and classical techniques. Worked on customer and manufacturing problems and complaints. Experience with computers and statistics 3/77 - 3/80 Analytical Chemist. Analytical testing of materials and products in Quality Control.

FMC Corporation, Cartaret and Princeton, NJ. Summers 1971, 1972, 1973 Analytical Technician. Analytical testing of materials.

University of Connecticut, Storrs, CT 1/74 - 12/76 Teaching assistant and Research Assistant IDPH.KLM,003.01 (1/74)

#### STATE OF ILLINOIS DEPARTMENT OF PUBLIC HEALTH

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KLM.003.01

## APPLICATION FOR RADIOACTIVE MATERIALS LICENSE Supplement B - Training and Experience

TRAINING AND EXPERIEN	CE OF EACH INDIVIDUAL NAMED IN IT	EMS 4 AND 5 0	N FORM IDPH.	(LM.001
TYPES OF TRAINING	WHERE EXPERIENCE WAS GAINED AND INSTRUCTOR (S)	DURATION OF TRAINING	ON THE JOB (Check Answer)	FORMAL COURSE (Check Answer)
Principles and practices of radiation protection	Crystal Derect generation x-ray (radiation U. of	y 1 week	Ø Yes □ No	□ Yes ⊠ No
	Connecticut; Dr. R. Lloyd		Yes No.	□Yes □No
			☐ Yes ☐ No	□ Yes □ No
			☐ Yes ☐ No	☐Yes ☐No
			□Yes □No	□Yes □No
			Yes No	□ Yes □ No
instruments	Rutgers University; Princi- pals of Analytical Chemistr	1 Semeste	Yes 12 No	⊠ Yes ☐ No
	Dr. S. Zenchelski		Yes No	□Yes □No
			☐ Yes ☐ No	□Yes □No
			□Yes □No	□Yes □No ~
			☐ Yes ☐ No	☐ Yes ☐ No
use and measurement of radioactivity	Rutgers Univ; Principals of Analytical Chemistry;	1 Semeste	r □Yes ⊠No	2 Yes ☐ No
	Dr. S. Zenchelsky		☐ Yes ☐ No	□ Yes □ No
			□ Yes □ No	□Yes □No
			□Yes □No	☐ Yes ☐ No
			□Yes □No	☐ Yes ☐ No
			□Yes □No	☐ Yes ☐ Nc
Biological effects of radiation		P-THE	Yes No	☐ Yes ☐ No
			□ Yes □ No	Yes No
			☐ Yes ☐ No	□ Yes □ No
1/4			Yes No	□ Yes □ No
			□Yes □No	□Yes □No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	□Yes □No

AMOUNT	U. of Conn; Dr. R. Lloyd	3 months	Use of x-ray generation for producin crystal defe
		The second secon	for producin
			crystal defe
	area a secondar		
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