NRC FORM 374
(7-94)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

301403

Licensee	
1. Phoenix International Life Sciences, Inc.	3. License Number 34-26734-01
2. 5642 Hamilton Avenue Cincinnati, OH 45224	4. Expiration Date January 31, 2002
	5. Docket or Reference No. 030-34172

6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License
A. Any byproduct material identified in 10 CFR 35.100	A. Any radiopharmaceutical identified in 10 CFR 35.100	A. As needed

9. Authorized Use:

A. Medical use described in 10 CFR 35.100 limited to carbon-14 and hydrogen-3 human research studies.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at 5642 Hamilton Avenue, Cincinnati, Ohio.

11. Licensed material shall be used by, or under the supervision of, Pearl J. Compaan, M.D.

12. The Radiation Safety Officer for this license is Pearl J. Compaan, M.D.

13. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.

14. Notwithstanding the requirements of 10 CFR 35.22, the licensee is not required to establish a Radiation Safety Committee.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
34-26734-01

Docket or Reference Number
030-34172

15. The licensee shall possess and use byproduct material for human research use in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35.

16. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.

17. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated June 5, 1996; and

B. Letters (with attachments) dated January 2, 1997 and January 10, 1997.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date January 30, 1997

By Patricia J. Pelke
Materials Licensing Branch, Region III

COPY

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE:
STATUS CODE: 3
FEE CATEGORY:
EXP. DATE: 0
FEE COMMENTS:
DECOM FIN ASSUR REQD?

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: PHOENIX INTER. LIFE SCIENCES, INC.
RECEIVED DATE: 960606
DOCKET NO: 3034172
CONTROL NO.: 301403
LICENSE NO.:
ACTION TYPE: NEW LICENSEE

2. FEE ATTACHED
AMOUNT: 1300
CHECK NO.: 955

3. COMMENTS

SIGNED D. Hersey
DATE 6-12-96

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED /✓/)

1. FEE CATEGORY AND AMOUNT: 7C A1300

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:
AMENDMENT
RENEWAL
LICENSE ✓

3. OTHER

SIGNED SC
DATE 6/13/96

RECEIVED
JUN 24 1996
REGION III

Log Jun 6 III
Remitter
Check No. 955
Amount A1,300
Fee Category 7C
Type of Fee APP
Date Check Rec'd 6-12-96
Date Completed 6-13-96
By: SC

1996 JUN 12 AM 11:03

NRC FORM 313 U. S. NUCLEAR REGULATORY COMMISSION

(10-94)
10 CFR 30, 32, 33
34, 35, 36, 39 and 40

APPLICATION FOR MATERIAL LICENSE

APPROVED BY OMB: NO. 3150-0120
EXPIRES 6-30-96

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 9 HOURS. SUBMITTAL OF THE APPLICATION IS NECESSARY TO DETERMINE THAT THE APPLICANT IS QUALIFIED AND THAT ADEQUATE PROCEDURES EXIST TO PROTECT THE PUBLIC HEALTH AND SAFETY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0199

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD.
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [X] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [ ] C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip code)*

Phoenix International Life Sciences, Inc.
5642 Hamilton Ave.
Cincinnati, Ohio 45224

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Phoenix International Life Sciences, Inc
5642 Hamilton Ave.
Cincinnati, Ohio 45224

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Ruth E. Stevens, Ph.D.

TELEPHONE NUMBER

(513)541-8658, Ext 7150

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*

FEE CATEGORY 7C

AMOUNT ENCLOSED $ 1300.00

13. CERTIFICATION *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
President: Patricia O'Connor		5 June 96

FOR NRC USE ONLY

RECEIVED
JUN 06 1996
REGION III

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED $	CHECK NUMBER	COMMENTS
					301403
APPROVED BY				DATE	

NRC FORM 313 (10-94)

PRINTED ON RECYCLED PAPER

PHŒNIX INTERNATIONAL

PHŒNIX INTERNATIONAL LIFE SCIENCES INC. (U.S.)
5642 Hamilton Avenue
Cincinnati, Ohio 45224
TEL. : (513)541-8658, Fax: (513)541-2819

June 5, 1996

U.S. NUCLEAR REGULATORY COMMISSION
Region III
Material Licensing Section
799 Roosevelt Road
Glen Ellyn, IL 60137

Gentlemen:

Enclosed are two copies of NRC Form 313 and associated attachments, an Application for a Specific Material License by Phoenix International Life Sciences, Inc. to conduct medical research using compounds labeled with byproduct materials carbon-14 and/or tritium. This application addresses only the specific authorization to receive, store, and administer such materials to human volunteers and to process and ship radioactive biological samples obtained in such studies, not the authority to test drug substances *per se*. The license fee for $1300.00 (ck# 955) has also been enclosed.

In performing studies in human volunteers, Phoenix International Life Sciences, Inc. acts as a contract research organization on behalf of clients whose authority to test experimental drugs in a research context is regulated by the United States Food and Drug Administration under an Investigational New Drug (IND) exemption, Product License Application (PLA), Abbreviated New Drug Application (ANDA), or similar regulatory authority, as described in 21 CFR. Radiolabeled experimental drugs to be tested by Phoenix International Life Sciences, Inc. under this license will be supplied by organizations sponsoring research under appropriate licensure from NRC and/or other governing authorities.

All correspondence relating to this license application should be addressed to:

Ruth E. Stevens, Ph.D.
Radiation Safety Officer
PHOENIX INTERNATIONAL LIFE SCIENCES, INC. (U.S.)
5642 Hamilton Avenue
Cincinnati, OH 45224
Telephone: (513) 541-8658 Fax: (513) 541-2819

x 7150

or (Consultant to Phoenix International Life Sciences, Inc.)

Harold D. Doshan, Ph.D.
PHARMACONSULT ASSOCIATES
18 Griffith Road
Riverside, CT 06878
Telephone: (203) 637-4721

Yours truly,

Ruth E. Stevens

PHOENIX INTERNATIONAL LIFE SCIENCES, INC.
Ruth E. Stevens, Ph.D.
Radiation Safety Officer

ITEM 5: RADIOACTIVE MATERIAL / ITEM 6: PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

BYPRODUCT MATERIAL§ (Item 5.a)	AMOUNT*	PURPOSE† (Item 6.a)
Tritium ^{3}H	As needed	Medical Use (Human Pharmaceutical Research)
Carbon ^{14}C	As needed	Medical Use (Human Pharmaceutical Research)

§ **Item 5.a**. Material in § 35.100 pharmaceutical agents (solid or liquid dosage forms) chemically incorporating ^{3}H and/or ^{14}C radiolabels. Test articles supplied to Phoenix International Life Sciences, Inc. by clients in accordance with U.S. FDA requirements under Investigational New Drug (IND) exemptions (21 CFR Part 312) or related FDA regulations.

* Estimated maximum quantities on site at any given time, including biological samples (i.e., blood, plasma, and excreta) from prior studies, ≤ ca. 20 mCi of each isotope. Individual quantities (human doses) of radiolabeled material not to exceed 200 µCi/dose, consistent with 10 CFR § 35.57(c).

† **Item 6.a.** To be used for metabolism/excretion studies as described in 10 CFR § 35.100.

ITEM 7: INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE

7.1 Authorized Users for Medical Use

All use of byproduct materials in human volunteers will be for research purposes, not for therapeutic treatment. All authorized users will oversee the use of all byproduct materials and applications listed above in Items 5 (5.a) and 6 (6.a).

See also Form 313 Supplement(s) A, listed as ATT 7.2.1, 7.2.2,.... 7.2.n

7.2 Authorized Users for Nonmedical Use

N/A

7.3 Radiation Safety Officer

Ruth E. Stevens, Ph.D: Please see attached Curriculum Vitae (ATT 7.4.)
B.A., Health Education, 1981, University of Washington, Seattle, WA.
Post-baccalaureate, Chemistry/Business, 1983-1985, SOSC, Ashland, OR.
Ph.D., Biopharmaceutics/Pharmacokinetics, 1992, O.S.U, Corvallis, OR.
4-credit class, Radioactive Tracer Methods, 1988, O.S.U., Corvallis, OR
3-credit class, Chemical Kinetics, 1989, Oregon State Univ., Corvallis, OR
205-hour class, Nuclear Medicine and Radioisotope Techniques Course, National Naval Medical Center, Bethesda, Maryland, Sept. 11- Nov. 3, 1995.

See also Form 313 Supplement A, listed as ATT 7.3.

ITEM 8: TRAINING OF INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

8.1 Training Program

We will establish and implement the model training program that was published as Appendix A to Regulatory Guide 10.8, Revision 2, and have appended a table ATT 8.1 that identifies the groups of workers who will receive training and the method and frequency of training.

8.2 Other Training Program

N/A

ITEM 9: FACILITIES AND EQUIPMENT

9.1 Annotated drawings

See drawings, Attachment ATT 9.1.

9.2 Survey Instrument Calibration

We have developed a survey instrument calibration procedure for your review that is appended as ATT 9.2.

9.3 Dose Calibrator Calibration

N/A

9.4 Personnel Monitoring Program

We have developed an exposure monitoring program for your review that is appended as ATT 9.4.

9.5 Imaging Equipment QA

N/A

9.6 Other Equipment and Facilities

N/A

ITEM 10: RADIATION SAFETY PROGRAM

10.1 Radiation Safety Committee/Radiation Safety Officer

We have proposed a modification to the "Radiation Safety Committee Charter and Radiation Safety Officer Delegation of Authority" that was published in Appendix F to Regulatory Guide 10.8, Revision 2, attached as ATT 10.1.

10.2 ALARA Program

We will establish and implement the model ALARA program that was published in Appendix to Regulatory Guide 10.8, Revision 2.

10.3 Leak Test

N/A

10.4 Safe Use of Radiopharmaceuticals

We have developed rules for the safe use of radiopharmaceuticals for your review that are appended as ATT 10.4.

10.5 Spill Procedures

We have developed spill procedures for your review that are appended as ATT 10.5.

10.6 Ordering and Receiving

We have developed a procedure for ordering and receiving radioactive material for your review that is appended as ATT 10.6.

10.7 Opening Packages

We have developed a package opening procedure for your review that is appended as ATT 10.7.

10.8 Unit Dosage Records

We have developed a procedure for unit dosage record system for your review that is appended as ATT 10.8.

10.9 Multidose Vial Records

N/A

10.10 Mo-99 Concentration Records

N/A

10.11 Implant Source Use Records

N/A

10.12 Area Survey Procedures

We have developed survey procedures for your review that are appended as ATT 10.12.

10.13 Air Concentration Control

N/A

10.14 Radiopharmaceutical Therapy

N/A

10.15 Implant Therapy

N/A

10.16 Other Safety Procedures

N/A

ITEM 11: WASTE MANAGEMENT

11.1 Waste Disposal

We have developed a procedure for waste disposal for your review that is appended as ATT 11.1.

11.2 Other Waste Disposal

N/A

ATT 7.2.1.

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Hisham H. Arar, M.D.	OH10

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
Medicine		

4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE
a. RADIATION PHYSICS AND INSTRUMENTATION	① Biology Training Masters Degree University of Dayton 1987-1989		
b. RADIATION PROTECTION		20-30 hr	10-20 hr
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	② Post Doctoral Fellowship Dept. of Ophthalmology Univ of Cincinnati 1993-94		
d. RADIATION BIOLOGY			
e. RADIOPHARMACEUTICAL CHEMISTRY			4-8 hr

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

ISOTOPE	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
^{32}P	50-100 μCi	Univ. of Cincinnati	4-8 hours	In-Situ Hybridization
^{125}I	5-10 μCi	Univ. of Dayton	6 months work full-time	Lymphocyte Proliferation Assay

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Cindy Phurrough, R.Ph.	

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: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE
a. RADIATION PHYSICS AND INSTRUMENTATION			
b. RADIATION PROTECTION	University of Alabama 1975	3 yrs Daily use	5-10 hrs
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	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
^{3}H ^{131}I	≤ 1 mCi 4-10 mCi	univ. of Alabama Dept. of Microbiology	1975 to 1978 3 yrs daily use	Biochemical assays of labelled biological samples

ATT 7.2.3

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Molly Jo Seeck, B.S., JD	

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
B.S. in Nursing		1981
Juris Doctorate		1986

4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE
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	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
C_{14}	$\leq$ 500 uCi	Meriter Hospital Madison, WI	100 hours 1988 - 1994	Drug Administration Blood, urine & feces handling

ATT 7.2.4.

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Stan Howard, BBA, MBA	

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: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED, ON-THE-JOB EXPERIENCE
a. RADIATION PHYSICS AND INSTRUMENTATION	① Univ. of Colorado School of Engineering		
b. RADIATION PROTECTION	2 years course work 1958-1960		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	② last half 1962 U.S. Nuclear Training Ctr Vallejo, California	6 months	
d. RADIATION BIOLOGY	③ Idaho Falls, Idaho Nuclear Reactor First part of 1963	6 months	
e. RADIOPHARMACEUTICAL CHEMISTRY			

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

ISOTOPE	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
Uranium		Idaho Falls, Idaho Nuclear Reactor	6 months	Nuclear Perpulsion/ pow

ATT 7.2.5

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Sonya Silletti, B.S.	

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: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED, ON-THE-JOB EXPERIENCE
a. RADIATION PHYSICS AND INSTRUMENTATION	See attached memo	1	2
b. RADIATION PROTECTION	8/1994	1	1
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Radiation Safety Office Univ of Cincinatti	1	1
d. RADIATION BIOLOGY		1	
e. RADIOPHARMACEUTICAL CHEMISTRY			

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

ISOTOPE	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
^{3}H ^{14}C	$\leq$ 1mCi $\leq$ 800μCi	Univ. of Cincinnati	24 hr	Binding Experiments

University of Cincinnati

Radiation Safety Office
Radiation Safety Lab
University of Cincinnati
PO Box 670591
Cincinnati OH 45267-0591

Phone (513) 558-4110
Fax (513) 558-9905

January 4, 1995

Sonya Silletti
218-82-5091

Radiation Safety records indicate that you successfully completed the following training courses while employed at the University of Cincinnati:

Instructions Concerning Prenatal Radiation Exposure - 8/93 ← Should be '94'

Basic Radiation Worker Training - 8/94

Advanced Radiation Worker Training - 8/94

If further information is required please call Joan Hutton at (513) 558-4110.

Victoria R. Morris, M.S., CHP
Radiation Safety Officer

ATT 7.2.6. Elyse Jarard

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Elyse Jarard, B.S.	

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: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE
a. RADIATION PHYSICS AND INSTRUMENTATION	please see attached		
b. RADIATION PROTECTION	please see attached		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	please see attached		
d. RADIATION BIOLOGY	please see attached		
e. RADIOPHARMACEUTICAL CHEMISTRY	please see attached		

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

ISOTOPE	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
^{32}P ^{3}H ^{14}C ^{35}S	1mCi 250 uCi 250uCi 1mCi	University of Cincinnati Medical Center	Unknown - over a 9-year period of research laboratory experience	Research

University of Cincinnati

Radiation Safety Office
Radiation Safety Lab
University of Cincinnati
PO Box 670591
Cincinnati OH 45267-0591

Phone (513) 558-4110
Fax (513) 558-9905

January 4, 1995

Elyse Jarard
279-80-2293

Radiation Safety records indicate that you successfully completed the following training courses while employed at the University of Cincinnati:

Retraining: Contamination Control - 10/91

Retraining: Contamination Detection - 8/92

New Waste Procedures - 11/92

Retraining: Contamination Detection 9/93

Retraining: Waste Procedures - 9/94

Instructions Concerning Prenatal Radiation Exposure - 1/95

Advanced Radiation Worker Training - 1/95

If further information is required please call Joan Hutton at (513) 558-4110.

Victoria R. Morris, M.S., CHP
Radiation Safety Officer

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Ruth E. Stevens, Ph.D.	

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: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE
a. RADIATION PHYSICS AND INSTRUMENTATION	Medical Officer's Course in Nuclear Medicine and Radioisotope Techniques, Class 9601 11 Sept - 13 Oct 1995 National Naval Medicine Ctr. Bethesda, MD.	109	
b. RADIATION PROTECTION		22	
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY		24	
d. RADIOBIOLOGY		24	
e. RADIOPHARMACEUTICAL CHEMISTRY		26	

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

ISOTOPE	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
^{14}C	$\leq 500 \mu Ci$	Oregon State Univ. Radioisotope Course	1988: 4 hrs	laboratory Project
^{137}Cs ^{99m}Tc	10 mCi	National Naval Ctr Bethesda, MD	1995: 8 hrs	laboratory Project.

Ruth E. Stevens, Ph.D.

OFFICE: Director of Pharmacokinetics/Pharmacodynamics
Phoenix International
5642 Hamilton Ave.
Cincinnati, Ohio 45224
wk: 513-541-8658 ext. 7150
FAX: 513-541-2819

EDUCATION:

1977-1981 University of Washington, Seattle, Washington; Bachelor of Arts. Health Education Specialist.

1983-1985 Southern Oregon State College, Ashland, Oregon; Post-baccalaureate Chemistry/Business.

1986-1992 Oregon State University, Corvallis, Oregon;
Ph.D. Biopharmaceutics/Pharmacokinetics.
Minor: Statistics.

Thesis Title: Pharmcokinetic Modeling of Theophylline and Dyphylline And Pharmcodynamics of Ibuprofen Input Rate on Antipyresis. Advisors: Dr. James Ayres (Oregon State University), and Dr. CT Viswanathan (Food and Drug Administration (FDA). One-third of the thesis research was completed as a "graduate student in residence" at the FDA concurrent with full employment as a pharmacokinetic reviewer.

PROFESSIONAL HISTORY:

April 1996- Present Director of Pharmacokinetics/Pharmacodynamics, Phoenix International, Cincinnati, Ohio. Responsible for the pharmacokinetic scientific integrity of Phase I research services. Supervisors the Institution Review Board Coordinator and Clinical Report Supervisor and staff. Responsible for the selection of staff to include hiring, firing, and discipline; provide technical training of procedures and development of staff; performance reviews and salary administration; provide mentoring and development opportunities to senior staff; and frequent liaison with President, clients, and consultants.

June 1995- 1996 Food and Drug Administration Pharmacokinetic Team Leader, FDA, Division of Medical Imaging and Radiopharmaceutical products. Responsibilities include but not limited to the following: assigns and reviews pharmacokinetic reviews of team members; assures that requirements for production and accuracy are met; recommends (informal) performance rating

for team members; plans work to be performed by team members, sets and adjusts short-term priorities, and prepares schedules for the completion of work; assigns work to team members based upon priorities, selective consideration of difficulty and requirements of assignments and the capabilities of the team members; gives advice, counsel, and instruction to team members on work matters; and finds ways to improve production and increase the quality of the pharmacokinetic work of the team.

1990-1995 Food and Drug Administration Pharmacokinetic Reviewer, FDA, Responsible for reviewing and evaluating a broad range of pharmacokinetic data which are received from the pharmaceutical industry in support of bioavailability protocols submitted with Investigational New Drug Applications (IND's) and New Drug Applications (NDA's). As such, the review of the adequacy of submitted data include the interpretation of the biochemical, pharmacological and biopharmaceutical aspects of drug bioavailability for both the active drug substance and metabolite(s) as they were determined in clinical studies for the given application. Additional duties require the interpretation and critical evaluation of analytical, statistical and pharmacokinetic data with the aid of specialized data analysis computer software, with subsequent submission of an evaluation in a succinct technical report which becomes part of the approval decision for that particular drug entity. The data evaluation also employs working knowledge of Gas Chromatography (GC), High Performance Liquid Chromatograph (HPLC), Scintillation Spectrometry, Mass Spectrometry, and Nuclear Magnetic Resonance Spectrometry procedures. The job requires independent interaction with other FDA review personnel (medical officers, pharmacologists, statisticians, microbiologists, chemists, and consumer safety officers), academicians and pharmaceutical industry scientists to discuss scientific, technical and regulatory matters that surface during the review of assigned submissions. As needed, information and guidance on FDA policies on the biopharmaceutic, pharmacokinetic and pharmacology aspects contained in applications under review is provided. Primary drug review has been for the following Medical Divisions; Anti-Infective's, Pilot Drug Evaluation Staff (i.e., Analgesics, Anti-Inflammatory, and Drugs of Abuse) and Medical Imaging, Radiopharmaceuticals and Surgical & Dental Products. In addition, research was conducted at the FDA biopharmaceutics lab in order to complete requirements for doctoral thesis.

1988-1990 Teaching Assistant, Oregon State University, College of Pharmacy Responsible for lecture series and preparation of final exam questions on Theophylline, Caffeine, Codeine, Morphine, Demerol and Benzodiazepines. Responsible for lecture series on one-compartment and two-compartment open pharmacokinetic models for Undergraduate Pharmacy students. Responsible for grading exams in Pharmacy Management. Oregon State University, Chemistry Department: Responsible for recitation, laboratory instruction, and grading for undergraduate inorganic chemistry students.

June-Sept.
1988 and 1989

FDA Pharmacokinetic Reviewer Intern (2 summers), FDA, Division of Biopharmaceutics, Rockville, Maryland. FDA Pharmacokinetic Reviewer in the Division of Biopharmaceutics. Responsible for the review and evaluation of all studies for two New Drug Applications in Anti-Infective's Medical Division. Responsible for the re-analysis of data for a New Drug Application (NDA) drug to be presented at the first NDA day (July 8, 1988). In conjunction with an FDA statistician, investigated case of large intra- and inter-subject variability (CV's greater than 58%). In a subsequent project, responsibility included the examination of pharmacokinetic parameters (AUC, Tmax, Cmax, and Mean Dissolution Time) in order to determine if a correlation existed between *in vitro* dissolution and *in vivo* bioavailability for a hypoglycemic agent.

PUBLICATIONS:

Klecker, RW., Jamis-Dow, CA., Egorin, MJ., Erkmen, K., Parker, RJ., Stevens, RE., Collins, JM. Effect of Cimetidine, Probenecid, and Ketoconazole on the Distribution, Biliary Secretion, and Metabolism of [H^3]Taxol in the Sprague-Dawley Rat. Drug Metabolism and Disposition, 1994, vol. 22, no. 2, page 254-258.

RE Stevens, EB Pearson, TW Riebold, NB Modi, P Veng-Pedersen, JM Christensen, JW Ayres. Theophylline and Dyphylline in CSF and Plasma When Administered Concomitantly Or Alone in Horses. (Completed peer review, under revision.)

RE Stevens, CT Viswanathan, GK Shiu, JW Ayres. Pharmcodynamics of Ibuprofen Input Rate On Antipyresis In Rats. (Completed peer review, under revision.)

ABSTRACT/POSTER PRESENTATIONS:

J Kiefer, RE Stevens, A Carlin, TM Ludden. Mefloquine and Valproic Acid Pharmacokinetics Following Coadministration To Rats. AAPS 9th Annual Meeting, San Diego, California, November 7-10, 1994.

RE Stevens, GK Shiu, CT Viswanathan, JW Ayres. Pharmacodynamics of Ibuprofen Input Rate on Antipyresis in Rats With Induced Fever. AAPS 7th Annual Meeting, San Antonio, Texas, November 15-19, 1992.

RE Stevens, EG Pearson, JW Ayres. Determination of Theophylline and Dyphylline Concentrations in CSF and Plasma When Administered Concomitantly and Alone in Horses. AAPS Regional Meeting, Reno, Nevada, February 25-28, 1990

PRESENTATIONS AT FDA'S ADVISORY COMMITTEE'S:

July 14, 1995 FDA, Rockville, Maryland, Presented at the Nonprescription Drugs and Arthritis Drugs Advisory Committees on the pharmacokinetics of Ketoprofen and related non-steroidal antiinflammatory drugs.

August 1, 1994 FDA, Silver Spring, Maryland, Holiday Inn, Presented at the Drug Abuse Advisory Committee on the pharmacokinetics of Nicotine Nasal Spray.

May 10, 1993 FDA, Rockville, Maryland, Presented at the Anti-Viral's Advisory Committee on the pharmacokinetics of Clarithromycin.

HONORS:

1995 Outstanding Evaluation Award: Awarded outstanding evaluation for both Pharmacokinetic leadership role and Pharmacokinetic review of New Drug Applications and Investigational Drug Applications.

1995 Special Act/Service Award: Outstanding achievements in Pharmacokinetic leadership role. October 1994-January 1995.

1994 Special Act/Service Award: Outstanding achievements in Pharmacokinetic leadership role. October 1993-January 1994.

1994 Special Act/Service Award: Recognition of extraordinary service on the FDA's, Center For Drug Evaluation and Research "Institutional Animal Care and Use Committee (IACUC)".

1992 Pharmacokinetics, Pharmacodynamics and Clinical Sciences Graduate Symposium Award Winner, sponsored by Eli Lilly and Company, AAPS 7th Annual Meeting, San Antonio, Texas, November 15-19, 1992.

APPOINTMENTS:

June 1995-present:	Acting Pharmacokinetic Team Leader in the Division of Medical Imaging and Surgical & Dental Products.
Jan. 1995-present:	Good Review Practice Committee for the Center For Drug Evaluation And Research.
Oct.1994-Jan.1995:	Pilot Drug Evaluation Staff acting Section Head Pharmacokineticist.
Oct.1993-Jan.1994:	Pilot Drug Evaluation Staff acting Section Head Pharmacokineticist.
1992-1995:	Institutional Animal Care and Use Committee Voting Member.

FDA RELATED TRAINING:

Advanced Pharmacokinetics
Basic Drug and Biologics Law
Topics in Clinical Trials

SPECIAL TRAINING:

Nuclear Medicine and Radioisotope Techniques Course, National Naval Medical Center, Bethesda, Maryland, Received 205 hours of training, Navy Radioactive Material Permit (NRMP) 19-00168-12NP, Sept. 11- Nov. 3, 1995.

Advanced Methods in Pharmacokinetics/Pharmacodynamics, University of California, San Francisco, California, April 3-7, 1995.

Pharmacokinetic/Pharmacodynamic Modeling, AAPS Short Course, San Diego, November 6, 1994.

Workshop on Mathematical Modeling Using The ADAPT II Pharmacokinetic package, FDA, Rockville, Maryland, June 14, 1993.

FDA/PMA Interactive Drug Development Course, Key Bridge Marriott, Arlington, Virginia, December 2-4, 1992.

Short Course In Population Pharmacokinetic Data Analysis Using The Nonmem System, Holiday Inn. Crowne Plaza, Rockville, Maryland, November 5-6, 1992.

AFFILIATIONS:

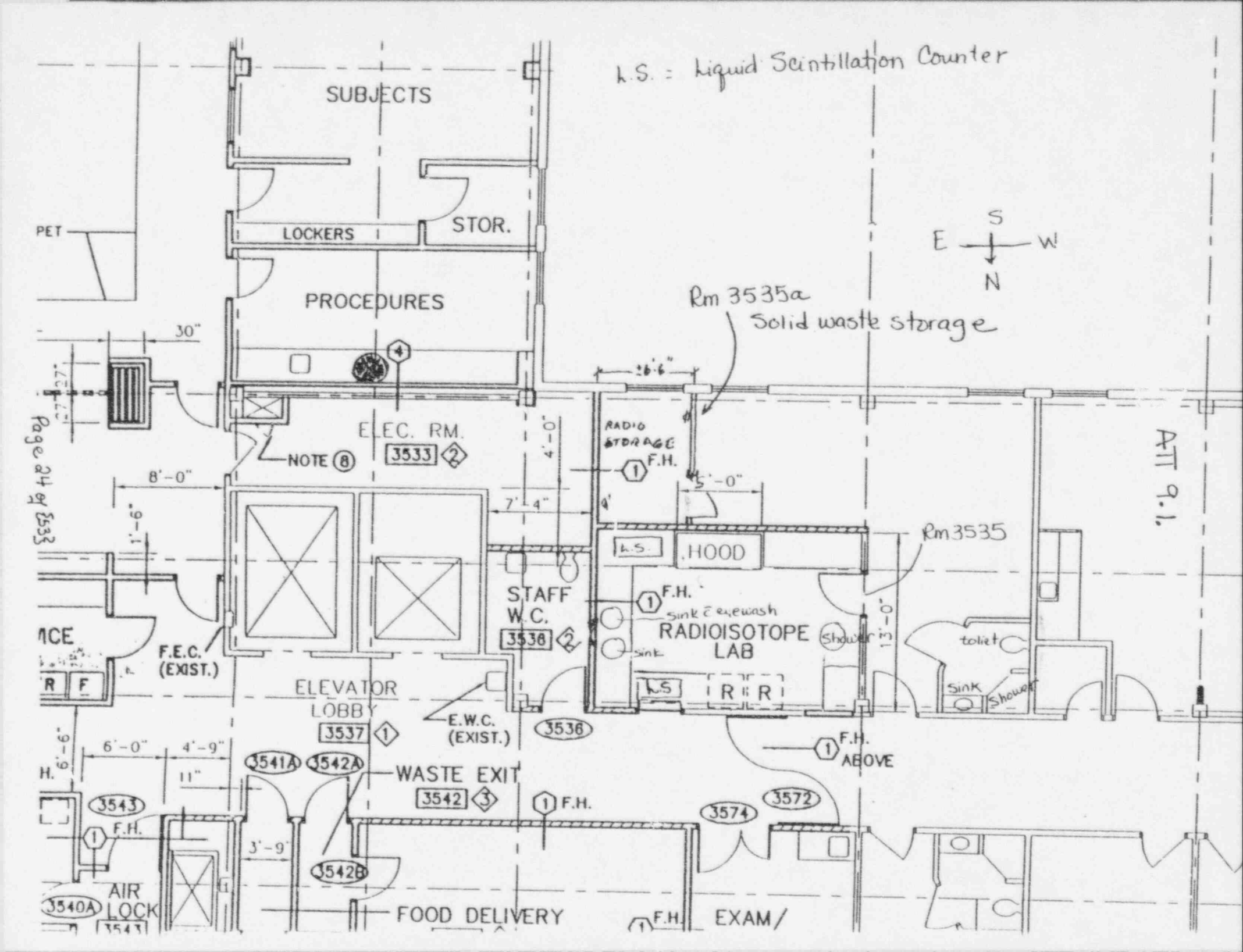
American Association of Pharmaceutical Scientists
Rho Chi (Pharmaceutical Honor Society)

ATTACHMENT __

ITEM 8: TRAINING OF INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

ATT 8.1 CLASSIFICATION OF STAFF WHO WILL RECEIVE RADIATION SAFETY TRAINING

STAFF CLASSIFICATION	TRAINING PROGRAM	TRAINING FREQUENCY
Authorized Users	a. One-day radiation safety course concluding with an exam to demonstrate degree of understanding.	a. One time, prior to use of radioisotopes.
	b. Annual Refresher Training: Training shall be provided in alternate years to authorized users and shall serve as an update to license conditions, review of basic radiation safety principles, units, and regulatory changes.	b. Annual.
Primary Staff Lab technicians Nurses	c. One-day radiation safety course concluding with an exam to demonstrate degree of understanding.	c. One time, prior to use of radioisotopes.
	d. Annual Refresher Training: Training shall be provided in alternate years to primary staff and shall serve as an update to license conditions, review of basic radiation safety principles, units, and regulatory changes.	d. Annual.
Ancillary Staff Administrative Nursing Housekeeping Security Shipping/Receiving	e. One-day radiation safety course concluding with an exam to demonstrate degree of understanding.	e. One time, prior to use of radioisotopes.


L.S. = Liquid Scintillation Counter
SUBJECTS
LOCKERS
STOR.
PET
PROCEDURES
Rm 3535a
Solid waste storage
S
E
W
N
30"
ELEC. RM.
3533
NOTE (8)
RADIO STORAGE
F.H.
8'-0"
7'-4"
4'-0"
5'-0"
Rm 3535
L.S.
HOOD
STAFF W.C.
3538
F.H.
sink & eyewash
RADIOISOTOPE LAB
shower
toilet
sink
Shower
F.E.C. (EXIST.)
ELEVATOR LOBBY
3537
E.W.C. (EXIST.)
3536
R
R
F.H. ABOVE
6'-0"
4'-9"
11"
3541A
3542A
WASTE EXIT
3542
F.H.
3543
3574
3572
3'-9"
3542B
AIR LOCK
3540A
3543
FOOD DELIVERY
F.H.
EXAM/
Page 24 of 2533
ATT 9.1.

ATTACHMENT ___

ITEM 9: FACILITIES AND EQUIPMENT

ATT 9.2: CALIBRATION OF RADIATION SURVEY INSTRUMENTS

The instrument used for performing radiation surveys will be a Bicron MHV surveyor M meter with a Bicron pancake GM probe (cast aluminum housing (MHV PGM). The MHV surveyor M has externally adjustable HV for use with scintillation probes on the cpm ranges. Internal components are laid out on modular circuit boards. Span, claibration plots (one for each range), and other internal controls are clearly marked.

The instrument used for counting wipe test samples will be a Packard Model 2100TR Liquid Scintillation Counter which performs its own Instrument Performance Assessment (IPA). The IPA test parameters to monitor; a) backgrounds, b) efficiencies, c) E^2/B and d) Chi-square values for both ^3H and ^{14}C. Automatically prints reports for all eight parameters including the date and time for each test. Auto Quality Assurance results may be transmitted via RS-232 to other computers for archiving.

a. Background: Checks for detector contamination or light leaks.
b. Efficiency: Test sensitivity of the detectors.
c. E^2/B: Figure Of Merit, tests the relationship between the detected energy of the standard and the ambient background.
d. Chi-square: Test the stability of the detectors.

Note: Phoenix survey meters will be designed to quantify only beta emissions from ^3H and ^{14}C; no alpha-, gamma-, X-ray, or neutron-emitting isotopes will be included in the license application.

ATT 9.4: EXPOSURE SURVEILLANCE OF STAFF WORKING WITH RADIOACTIVE MATERIALS

1. PURPOSE

To define the radiation exposure monitoring program employed to monitor workplace exposure of staff handling radioactive materials.

2. SCOPE

All personnel routinely or occasionally involved in the handling of radioactive materials.

3. BACKGROUND

The scope of monitoring of personnel exposure will be limited to those procedures necessary for the isotopes which Phoenix International Life Sciences, Inc. is licensed is handle. These are currently limited to the weak beta-emitter isotopes, tritium (^{3}H) and carbon-14 (^{14}C). Isotopes producing high energy ionizing photon emissions (gamma- and X-rays, neutrons) will not be employed and no procedures for monitoring such emissions will be required.

Since weak beta-emissions are poorly detected by film badges and thermoluminescence dosimeters, such badges will not be employed to monitor external exposure of personnel. Whenever an individual is likely to have been exposed systemically to materials containing radioisotopes, exposure will be assessed by bioassay (urine testing).

Current annual occupational limits for systemic exposure by ingestion (ALI, 10 CFR Part 20 Appendix B, 28 April 1995) are:

^{3}H: 80 mCi ^{14}C: 2 mCi

At this facility, no staff member is likely to become exposed to these quantities of radioactivity in a year. Action limits for bioassay monitoring have been set at values greater than twice background, irrespective of the route of systemic exposure to radioactive material.

4. PROCEDURES

4.1 BIOASSAY PROCEDURES

To determine the extent of systemic exposure to radioactive materials, staff working with radioisotopes may be required to provide routine urine samples at periodic intervals or whenever recommended by the RSO.

4.1.1 Bioassays will be performed whenever there is a possibility of specific systemic contamination of personnel. A urine and/or fecal sample, as appropriate, will be obtained at the earliest possible time following a report of possible systemic exposure.

4.1.2 If an initial urine sample exhibits slight activity, but higher than twice background, successive urine samples will be obtained at 24-hour intervals until levels have fallen below this action threshold. If the sampling interval encompasses non-working days, those samples will be delivered to the Radioisotopes Laboratory on the next regular workday.

4.1.3 If an initial urine sample exhibits appreciable activity, greater than 0.5 nCi/mL (>1100 dpm/mL), total urine will be collected, pooled at 24-hour intervals, and pooled samples will be counted. This process will continue until total 24-hour excretion declines to approximately twice background.

4.1.4 If the possibility of significant systemic exposure exists *and the radioactive material is known or believed to be excreted predominantly in feces*, cumulative fecal collections will be obtained and tested for radioactivity by standard methods.

4.1.5 Whether urine, feces, or both are collected (Sections 4.1.3 and/or 4.1.4), the amount of radioactivity recovered will be cumulated and reported as part of the annual limit of intake (ALI) for each such exposed individual.

4.1.6 In the event of deliberate or accidental systemic exposure to radioactive materials in excess of the standard dose designated for administration in the normal course of a clinical study, the sponsoring organization and FDA will be advised in accordance with FDA regulations and if deemed appropriate, efforts will be made to accelerate clearance of the material from the body in a manner consistent with its pharmacological and metabolic behavior. Cumulative 24-hourly collections of urine and feces will be obtained and counted until levels have fallen to approximately twice background.

ATTACHMENT __

ITEM 10: RADIATION SAFETY PROGRAM

ATT 10.1: OVERSIGHT OF RADIATION SAFETY/RADIATION SAFETY OFFICER DELEGATION OF AUTHORITY

1. PURPOSE

To establish authority for oversight and control of use of radioactive materials within Phoenix International Life Sciences, Inc. (U.S.).

2. SCOPE

All activities/facilities involving potential exposure to radioactive materials.

3. BACKGROUND/RATIONALE

The sole activity involving the use of radioactive materials by Phoenix International Life Sciences, Inc. is the conduct of clinical research studies with pharmaceutical agents in human volunteers. Such activities are governed, first and foremost, by regulations set forth in 21 CFR and associated guidances for current Good Clinical Practices and Good Laboratory Practices (cGCPs and cGLPs) under the jurisdiction of the United States Food and Drug Administration.

Included in FDA regulations is the requirement for review and approval of all such studies by a properly constituted Institutional Review Board (IRB). Phoenix utilizes such a board.

In light of the narrowly defined scope and extent of activities to be pursued under this license application, Phoenix International Life Sciences, Inc. proposes to delegate to the IRB those aspects of the safety of use of radiolabeled materials in human clinical subjects which might otherwise fall under the purview of a Radiation Safety Committee, as defined in NRC Regulatory Guide 10.8, Appendix F. Oversight for other aspects of the radiation safety program defined in NRC Regulatory Guide 10.8, Appendix F will be assigned to the RSO and senior management of Phoenix, as outlined below.

4. DUTIES OF THE IRB

Consistent with 21 CFR Parts 50, 56, and 312, the IRB will approve for conduct only those studies which are deemed acceptable with respect to, *inter alia*, the use of radioactive materials for the research purposes proposed.

5. ADMINISTRATIVE AUTHORITY FOR RADIATION SAFETY AND LICENSE PROGRAMS

The Radiation Safety Officer (RSO) shall assume responsibility for all aspects of activities authorized under this license except for those expressly assigned to the IRB (i.e., approval for conduct of individual studies). The RSO may draw upon licensed outside resources for support, independent assessments, quality assurance audits, or other evaluations. Whenever circumstances warrant, but no less than once annually, the RSO (and other appropriate staff members) will meet formally with senior management (e.g., the president of the facility) to review the status of all license activities; these will include the radiation safety, ALARA, and training programs, current subcontracts relating to the license, NRC or other regulatory inspections, and other pertinent issues regarding use of radioactive materials by Phoenix.

5.1.1 The RSO may delegate authority for oversight of specific tasks (e.g., receipt of radioactive materials by the facility, clean-up of spills, routine and for-cause surveys, etc.) to properly trained and qualified personnel.

5.1.2 Charge. The RSO (or qualified designees) shall:

(a) Ensure that licensed material will be used safely. This includes review as necessary of training programs, equipment, facility, supplies, and procedures;

(b) Ensure that licensed material is used in compliance with NRC regulations and the institutional license;

(c) Ensure that the use of licensed material is consistent with the ALARA philosophy and program;

(d) Establish a table of investigational levels for individual occupational radiation exposures; and

(e) Identify program problems and solutions.

5.1.3 Responsibilities. The RSO shall:

(a) Be familiar with all pertinent NRC regulations, the license application, the license, and amendments;

(b) Review the training and experience of the proposed users and supporting staff to determine that their qualifications are sufficient to enable the individuals to perform their duties safely and are in accordance with regulations and license;

(c) Review on the basis of environmental and personnel safety, and approve or deny, consistent with the limitations of the regulations, the license and the ALARA philosophy, all requests for authorization to use radioactive material within the institution;

(d) Prescribe special conditions that will be required during a proposed method of use of radioactive material such as requirements for bioassays, physical examinations of users, and special monitoring procedures;

(e) Review quarterly the summary report of occupational radiation exposure records of all personnel, giving attention to individuals or groups of workers whose occupational exposure appears to be excessive;

(f) Establish a program to ensure that all persons whose duties may require them to work in or frequent areas where radioactive materials are used (e.g., nursing, security, housekeeping, physical plant) are appropriately instructed as required in §19.12 of 10 CFR Part 19;

(g) Implement remedial action to correct any deficiencies identified in the radiation safety program;

(h) Maintain written minutes of all meetings with senior management as outlined under 5., above, identifying staff present, discussions, actions authorized, recommendations, and decisions that relate to all issues outlined here; and

(i) Ensure that, if required, the byproduct material license is amended prior to any changes in facilities, equipment, policies, procedures, or personnel.

ATT 10.4: A SUMMARY OF PROCEDURES FOR THE SAFE HANDLING AND USE OF RADIOACTIVE MATERIALS

1. PURPOSE

To provide a summary of procedures to follow when handling radioactive materials.

2. SCOPE

All personnel involved in the handling of radioactive materials.

3. APPLICABILITY

These procedures are applicable to all operations involving radioactive materials.

4. APPLICABLE DOCUMENTS

4.1 The Nuclear Regulatory Commission (NRC) and/or other regulations and the radioisotope licenses issued to Phoenix International Life Sciences, Inc. for the possession, importation and use of radioactive materials.

5. BACKGROUND

5.1 The following guidelines summarize some of the procedures to be followed in the clinical units and other areas where radioactive materials are handled. This is not a complete guide and is not intended to preclude common sense actions or special instructions from responsible persons. Certain specific procedures are described in related SOPs.

In order to adhere to specific requirements of individual study protocols, it may be necessary to deviate from established SOPs, while complying with regulations and the exercise of good judgment. If necessary, study-specific procedures will be prepared and approved before such deviations are undertaken.

5.2 The observation of these procedures will ensure the safety of staff members

with respect to radioactive materials, prevents the contamination of personnel and working environment and prevents cross-contamination between different projects involving radioactive materials, which could invalidate experimental results.

6. PROCEDURES

6.1 The Radiation Safety Officer (RSO) will ensure that all regulations are followed with respect to any work involving radioactive materials and that all relevant records are kept. Any accidents involving radioactive materials must be reported to the RSO ASAP.

6.2 Any work with radioactive materials that is to be done outside normally designated areas must be approved by the RSO.

6.3 All personnel who work with radioactive materials must have received the proper training in the safe handling of such materials.

6.4 Phoenix anticipates the use of radiolabeled drugs in studies on a periodic basis. The isotopic label will usually have been incorporated by the sponsoring organization in the test article being administered to study volunteers and will generally be supplied in labeled, individually prepackaged doses.

6.5 HANDLING OF RADIOACTIVE MATERIALS

6.5.1 Studies with radiolabeled materials will be undertaken in areas designed for such operations. When radiolabeled materials are present, appropriate signs will be posted on or near the doors of the involved areas.

6.5.2 All radioactive materials and contaminated labware, equipment, etc., must be marked (with, e.g., radioactivity label tape) until decontamination is confirmed.

6.5.3 Laboratory coats, disposable jump-suits, and/or other protective clothing must be worn while working with radioactive materials. Face masks will be worn if handling fine, powdery radioactive materials.

6.5.4 Disposable gloves will be worn for all operations with radioactive materials unless their use is not feasible.

6.5.5 No person will leave an area where radioactive materials are in use while wearing potentially contaminated gloves. Remove and discard gloves in the appropriate radioactive waste receptacle prior to touching anything that is

not potentially contaminated (e.g., door handles, telephones, solvent bottles, clean glassware, etc.). Always wash hands with radioactive decontaminant hand cleaner after working with radioactive materials.

6.5.6 Gloves, disposable protective gear and all other solid and liquid radioactive waste will be disposed of in the appropriate waste receptacles.

6.5.7 It is forbidden to eat, drink, smoke, or apply cosmetics in any designated laboratory area or to store food or personal effects in any area in which radioactive materials are used or stored. Avoid touching unprotected parts of the body (e.g., do not scratch nose, eyes, ears, etc.). When blowing your nose, use tissue paper and dispose of the waste tissue immediately.

6.5.8 Dispensing procedures, pipetting of liquids (blood, plasma and urine) and similar operations will be carried out in trays lined with absorbent liners or on benches covered with absorbent or impermeable materials. Disposable labware will be used whenever feasible and must be discarded in radioactive waste receptacles.

6.5.9 Pipetting of radioactive material by mouth is prohibited.

6.5.10 Upon completion of a study (or at more frequent intervals if deemed appropriate by the RSO), clean and test for residual contamination all areas in which radioactive materials have been used, collected or stored. Decontaminate as necessary.

ATT 10.5: PROCEDURES FOR THE CLEAN-UP OF SPILLS OF RADIOACTIVE MATERIALS AND/OR RADIOACTIVE CONTAMINATION OF PERSONNEL

1. PURPOSE

To describe the procedures to be followed in the event of an accident resulting in the spill of radioactive material and/or radioactive contamination of personnel.

2. SCOPE

Clinical Operations, Phoenix International Life Sciences, Inc.

3. APPLICABILITY

All work involving the handling of radioactive materials.

4. RESPONSIBILITY

It is the Study Manager's responsibility to ensure that all Clinical Operations staff involved in the handling of radioactive materials read and understand the procedures outlined in appropriate SOPs. The Radiation Safety Officer (RSO) is also responsible for training all other personnel (e.g., security, housekeeping, and shipping and receiving staff) peripherally involved with radioactive materials in procedures required when environmental contamination occurs.

The RSO and other qualified staff are responsible for clean-up of radioactive contamination. It is the Medical Director's responsibility to manage the health consequences for any persons systemically exposed to radioactive materials.

5. PROCEDURES

5.1 GENERAL INFORMATION ON RADIOACTIVE CLEAN-UP

5.1.1 Definitions:

A **minor** spill involves activity estimated to be not more than *ca.* 1 mCi (37 MBq), without contamination of personnel.

A **major** spill involves activity estimated to be above 1 mCi (>37 MBq), and/or contamination of personnel.

5.1.2 All spills of radioactive material must be reported promptly to the Radiation Safety Officer and the Study Manager; any lab personnel working in the vicinity must be alerted to an potential hazards. After thorough clean-up, the Study Manager must document the spill and any contamination of personnel on form 5.FRM within one working day. When completed, attach results of wipe test and submit the final report to the Radiation Safety Officer. Depending upon the extent of contamination and successful clean-up, it may be necessary for the Radiation Safety Officer to notify the Nuclear Regulatory Commission and/or other regulatory authorities.

5.1.3 Alert all appropriate personnel and cordon off any contaminated areas until spills have been contained and decontamination procedures have been completed.

5.1.4 The area and personnel will be monitored with a radiation survey meter to estimate the extent of the contamination.

5.1.5 All spills of radioactive materials will be cleaned up immediately and with caution so as not to spread the contamination. If necessary, a mask, disposable jumpsuit, and/or foot coverings, etc. should be worn when working with or cleaning up radioactive materials.

5.1.6 Label all contaminated equipment and the area as "contaminated" until results of wipe tests show that all is clean.

5.1.7 When cleaning up a radioactive spill, always start around the perimeter and work towards the center of the spill.

5.1.8 Any clothing that has been contaminated by the spill will be removed and disposed of in the appropriate waste containers.

5.1.9 Clean, survey and if necessary, wipe test the shoes of the lab personnel involved in the clean up if spill occurred on the floor.

5.1.10 Dispose of all material, gloves and masks used during the clean-up into the appropriate contaminated waste receptacles.

5.1.11 Decontaminate affected skin with RAD-CON (or equivalent) hand cleaner and copious amounts of water. Follow this with a soap and water wash. Avoid irritating the skin during the washing.

5.1.12 File all results from wipe tests of the spill in the current Wipe Test Binder. If Form 5.FRM was used (for a significant spill and contamination) put a copy with the wipe test results in the binder.

5.2 RADIOACTIVE CLEAN-UP OF AN AREA SPILL

5.2.1 If a relatively small spill has occurred, quickly wipe up the spill with Spill Control Pillows (or equivalent) or absorbent paper and then clean the spill area with methanol and/or RAD-CON surface cleaner or a solution of Contrad (or equivalent) liquid. Perform wipe tests of the area to ensure that the spill has been completely cleaned up.

5.2.2 With larger volumes of spilled material, especially liquids, it may be necessary to enlist the aid of other lab personnel so as to quickly and efficiently contain the spread of the liquid and to remove any equipment threatened by the spill. If necessary, outline the perimeter of the spill. Soak up the spill with Spill Control Pillows (or equivalent) or absorbent paper. Decontaminate with methanol and/or RAD-CON (or equivalent) surface cleaner or a solution of Contrad 70 (or equivalent).

After cleaning, divide the contaminated area and the immediately adjacent space into a grid with individual zones no larger than ca. one square foot. Prepare a labeled diagram of the grid and wipe test each zone completely to identify residual radioactivity. Repeat decontamination of affected zones until counts have returned to acceptable levels (less than twice background). If complete decontamination by this means is not possible, see procedures for dealing with persistent environmental contamination.

5.2.3 If any equipment becomes contaminated, clean it promptly, taking care not to damage it with excess methanol and/or RAD-CON (or equivalent) surface and/or Contrad liquid (or equivalent) cleaner. Perform a wipe test on the equipment.

5.2.4 If a solid is spilled, gather it into a pile using a spatula or similar device to transfer it to a suitable vessel and cap the vessel. Label the container with all pertinent information, including an estimate of the amount of radioactivity contained (e.g., 25 pCi), if known. Wipe-test the exterior of the container

to confirm the absence of contamination and then place in a second container (e.g., a sealable plastic bag) for disposal. *See Section 5.2.5, below, for exceptions.*

5.2.5 Dispose of all spilled radioactive material into the appropriate contamination waste receptacle unless otherwise notified by the Study Manager, RSO or other qualified designee. Document/estimate the amount of radioactivity disposed of, if known. *Note that spills of radioactive excreta (urine and feces) may be disposed of in the sanitary sewer as ordinary waste, along with biodegradable materials (e.g., tissues, Kimwipes, or the equivalent) used for clean-up.*

5.2.6 Clean up the area using methanol and RAD-CON (or equivalent) surface cleaner or a solution of Contrad 70 (or equivalent) liquid.

5.2.7 For hard to clean areas, re-apply the RAD-CON (or equivalent) or Contrad 70 (or equivalent) solution and leave it on for about 10 minutes before soaking it up. These decontaminating compounds are harsh and will damage and corrode certain materials. Do not soak equipment, plastic or painted objects.

5.2.8 Repeat the clean-up steps until the wipe tests show levels of radioactive contamination less than or equal to twice background.

5.3 RADIOACTIVE CLEAN-UP OF CONTAMINATED PERSONNEL OR STUDY VOLUNTEERS

5.3.1 Notify the Radiation Safety Officer and Project Manager as soon as safely possible.

5.3.2 If clothes and/or shoes have been contaminated, they will be removed and disposed of into the appropriate waste.

5.3.3 Any spill on the skin must be flushed immediately with copious amounts of water and then washed with RAD-CON (or equivalent) hand cleaner.

5.3.4 If contamination has been further complicated by the presence of a wound, care must be taken not to spread any contamination into the wound or to clean it thoroughly to minimize systemic contamination.

5.3.5 As soon as external contamination has been controlled, fill out a report, Form 5.FRM, and attach to it all wipe test results and any bioassays. Keep copies in the current wipe test binder.

5.3.6 If a person has been contaminated to an unacceptable extent (i.e., surface contamination refractory to complete removal by washing, or systemic contamination via a wound or otherwise), the Medical Director must be notified. The contaminated individual will provide a urine sample as soon as possible after exposure and at least one more sample within 24 hours after the incident. If systemic radioactivity persists, additional urine samples will be counted at appropriate intervals until radioactivity falls below twice background.

5.4 ROUTINE CLEAN-UP AFTER COMPLETION OF A STUDY

5.4.1 Upon completion of each study utilizing radiolabeled materials, the housing and bathroom areas used by study participants will undergo routine cleaning and will be checked to ensure the absence of residual radioactivity.

5.4.2 The Radioisotopes Laboratory will undergo routine cleaning and be checked for residual environmental radioactivity upon completion of processing of samples for each study.

5.4.3 Survey records, including a diagram defining areas of above-background radiation and the results of decontamination, will be completed and retained by the RSO each time these procedures are completed.

5.4.4 Sections within the generally restricted area which will not be exposed to radioactivity for a given study (e.g., wards for housing volunteers) may be segregated and need not be surveyed upon completion of that study.

5.4.5 Every effort will made to identify and correct unanticipated conditions which might result in excessive environmental contamination. A report will be filed documenting any significant condition identified and actions taken.

5.5 RADIOACTIVE CLEAN-UP OF CONTAMINATED EQUIPMENT AND WORK SURFACES

5.5.1 At the conclusion of a study, the study area and equipment must be checked for residual radioactivity by survey meter. Wipe tests will be performed on areas identified by survey as contaminated and these areas will be decontaminated. Any lab coat or clothing that has been substantially contaminated will be discarded into the solid radioactive waste.

5.5.2 Decontamination of reusable labware is done by soaking in a solution of Contrad-70 (or equivalent) for approximately 24 hours and then rinsing thoroughly with water and then methanol. Survey or wipe-test the decontaminated labware to confirm that it is free of radioactivity. Labware

not successfully decontaminated by washing will be disposed of as contaminated waste.

5.5.3 Contaminated surfaces, (e.g., lab benches, floors) will be decontaminated using Radcon Surface Cleaner (or equivalent) or methanol. While a study using radioactive materials is in progress, surveys (and if contamination is identified, wipe tests) will be done on at least a weekly basis to monitor contamination in areas where radioactive materials have been handled. Any area found to be contaminated (more than twice background level) must be cleaned and re-tested until acceptable decontamination is achieved.

ATT 10.6: PROCEDURE FOR ORDERING, RECEIVING AND SHIPPING RADIOACTIVE MATERIALS

1. PURPOSE

To describe the procedures to follow for ordering, shipping and receiving radioactive material at Phoenix International Life Sciences, Inc.

2. SCOPE

All incoming or outgoing radioactive material except radioactive waste disposal.

3. RESPONSIBILITY

(a) Radiation Safety Officer (RSO) or other, qualified designee.
(b) Study Manager(s) and study personnel.
(c) The Shipping and Receiving staff who receive incoming supplies or ship specimens from the facility.

4. BACKGROUND

The preponderant majority of radiolabeled materials will be delivered to Phoenix International Life Sciences, Inc. by client companies under FDA authorization in connection with a contract to conduct a clinical trial. On rare occasions, Phoenix personnel will order radioactive materials (e.g., calibration standards) directly from commercial suppliers.

4.1 APPLICABLE REGULATIONS

(a) United States Department of Transportation (DOT) regulations
(b) International Air Transport Association (IATA) Dangerous Goods Regulations.
(c) Procedures and regulations governing other (e.g., express courier) carriers.

4.2 Most radioactive materials received at Phoenix will bear an appropriate label. Unless excepted, radioactive materials shipped within the United States in accordance with Department of Transportation (DOT) regulations should bear **White I**, **Yellow II** or **Yellow III** labels.

4.2.1 In some cases, when limited quantities of radioisotopes of low activity are shipped, "*Excepted Package* (or "*Type A*"), *UN 2910*" or "*RADIOACTIVE SUBSTANCE, EXCEPTED QUANTITY*" is written on the waybill. In many such instances the only indication of radioactivity will be a notice found inside the package, e.g: "*This package conforms to the conditions and limitations for excepted radioactive material, limited quantity, UN 2910.*"

4.2.2 The NRC Transport Packaging of Radioactive Materials Regulations (INFO-0426) states: "*Any package shipped as "**Excepted Package - Limited Activity**" must be indicated as such by the shipper on the shipping documentation and the word "**radioactive**" must be visible on opening the package. All other packages must be categorized by radiation level and display radiation warning labels".* All radioactive shipments/samples will be handled with care no matter how low the activity.

5. PROCEDURES

5.1 Ordering Radioactive Materials

5.1.1 The Radiation Safety Officer (RSO) or a qualified designee must authorize each order for radioactive materials and ensure that the requested materials and quantities are permitted under the license for use by the requesting authorized user and that possession limits are not exceeded.

5.1.2 The RSO will establish and maintain a system for ordering and receiving radioactive materials. The documentation will include:

(a) Written records that identify the authorized user or department, isotope (^{3}H and/or ^{14}C), chemical and physical form, specific and total activity, and supplier.
(b) A properly completed order requisition, signed by the authorized user and countersigned by the RSO or authorized Manager.
(c) Confirmation that the material received was that ordered.

5.1.2 The words "*RADIOACTIVE MATERIAL - DELIVER TO RADIATION SAFETY OFFICER*" must appear on the purchase requisition to ensure that the package will be delivered to the Radioisotopes Laboratory upon arrival in the Shipping & Receiving Department.

5.2 Receipt of Radioactive Materials and Delivery to the RSO

5.2.1 The RSO or responsible Project Manager will advise the Shipping & Receiving Department of an expected delivery containing radioactive materials. Upon receipt of a radioactive shipment, the RSO or designee will be notified and during normal business hours, the *UNOPENED* package will be delivered to the Radioisotopes Laboratory.

5.2.2 Radioactive materials delivered at times other than normal business hours will be accepted by security or other designated personnel and delivered, *UNOPENED*, to the Radioisotopes Laboratory, using access keys supplied specifically for that purpose. Receipt and transfer of such materials will be documented, including time, by whom delivered and received, and any special comments, by receiving personnel. Any special handling procedures for experimental drugs (e.g., refrigeration or freezing) must be adhered to regardless of time of delivery.

5.2.3 For radiolabeled drugs furnished by clients, the Study Manager will coordinate arrangements with the sponsor (including designation of recipient, internal address, and proper labels and warnings on packaging) to facilitate RSO/Study Manager notification and delivery to the Radioisotopes Laboratory promptly upon arrival at the Shipping & Receiving Department, preferably during normal business hours.

5.2.4 **ALL** packages containing radioactive materials will be opened in accordance with procedures described in ATT 10.7.

5.2.5 If any package containing radioactive materials appears damaged upon receipt, or is opened outside the Radioisotopes Laboratory for lack of proper external labeling, appropriate quarantine and area/personnel surveillance and decontamination procedures will be initiated promptly by the RSO or designee (see ATT 10.7, below, and appropriate SOPs). The carrier representative will be advised, and if during normal business hours, will be surveyed and if necessary, decontaminated.

5.2.6 Suppliers and persons involved with a shipment that is found to have significant levels of external contamination will be notified by the RSO, Project Manager, or designee. All contaminated packaging must be disposed of appropriately as radioactive waste. Any arrangements for return and/or replacement will be dealt with by the Study Manager or RSO and the supplier.

5.3 Shipping of Radioactive Material from Phoenix International Life Sciences, Inc.

5.3.1 The RSO or qualified designee will authorize and certify all radioactive materials shipments (including, but not limited to, clinical supplies and biological samples derived from clinical studies) from Phoenix International Life Sciences, Inc., and will designate qualified individuals who will prepare radioactive samples for shipment.

5.3.2 Radioactive materials must be packaged according to all regulations governing dangerous and radioactive goods. Refer to the Department of Transportation (DOT) and/or NRC Transport Packaging of Radioactive Materials Regulations and the IATA Dangerous Goods Regulations.

5.3.3 Shipments of radioactive materials will be addressed to the RSO or other designated individual at the destination facility. A "*NOTIFICATION OF SHIPMENT CONTAMINATION CHECK*" (Form 327.FRM) and a inventory sheet will be placed inside the box. A copy of the shipping invoice will be sent to the designated recipient under separate cover (by fax, mail, etc.), indicating projected date of arrival.

ATT 10.7: SAFE PROCEDURES FOR OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS

1. PURPOSE

To describe the procedures for safe opening of packages containing radioactive material received by Phoenix International Life Sciences, Inc.

2. SCOPE

All incoming radioactive materials.

3. RESPONSIBILITY

(a) Radiation Safety Officer (RSO) or other, qualified designee.
(b) Study Manager(s) and study personnel.
(c) The Shipping and Receiving staff who receive incoming supplies.

4. BACKGROUND

It is anticipated that no package delivered to Phoenix International Life Sciences, Inc. under this license application will contain quantities of radioactive materials exceeding the Type A limits specified in 10 CFR §§20.1906, 71.4, and Part 71 Appendix A (September 25, 1995).

4.1 Maximum quantities of radioisotopes allowed in Type A packages are:

^{3}H: 1080 Ci ^{14}C: 54.1 Ci

5. PROCEDURES

5.1 **ALL** packages identified as containing radioactive materials which are delivered to the RSO will be monitored using a survey meter before opening. If the survey meter records surface radioactivity in excess of that specified by the DOT (or other relevant) labeling, a wipe test will be done on the entire packaging and contents.

5.1.1 Measure the exposure rate from the package at one (1) meter and at the package surface. The "transport index" noted on packages with DOT *Yellow II* or *Yellow III* labels is the approximate dose rate, in mrem/h, at one (1)

meter from the package surface (see 10 CFR §71.4); this should not exceed 200 mrem/h. The dose rate from packages with *White I* labels should be less than 0.5 mrem/h at the package surface (see 49 CFR §172.403).

5.2 Gloves, and if necessary, other protective gear, will be worn when opening packages containing radioactive materials.

5.3 The contents will be checked for breakage, leakage, evaporation, integrity of all seals, and agreement with any documentation accompanying the package as well as specifications of the original order, if applicable. All necessary information concerning the receipt of the shipment and the monitoring results will be documented on appropriate forms.

5.4 After checking for the absence of contamination, all descriptive paperwork from the package will be photocopied and filed in the appropriate binder located in the radioisotopes administrative area. Records of all incoming radioactive shipments must be kept by the RSO. Any inventory sheets or other relevant information received separately from the package must be photocopied and given to the RSO.

5.5 Using a survey meter, monitor all packing materials for contamination before discarding.

(a) If contaminated, treat as radioactive waste.

(b) If not contaminated, obliterate all radiation labels before discarding as non-radioactive waste.

ATT 10.8: PROCEDURE FOR ACCOUNTING FOR AND ADMINISTERING DOSES OF RADIOLABELED DRUGS

1. PURPOSE

To describe the procedures governing administration of test articles incorporating radioisotopes to volunteer subjects or patients.

2. SCOPE

All radioisotopically labeled doses.

3. RESPONSIBILITY

(a) Radiation Safety Officer (RSO) or other, qualified designee. (b) Study Manager(s) and study personnel.

4. BACKGROUND

All test articles received from study sponsors must be prepackaged as single unit doses, labeled in accordance with U.S. Food and Drug Administration IND (Investigational New Drug exemption) or related regulations. Adherence to FDA Good Clinical Practices (cGCPs) regulations requires careful and complete documentation of administration of and full accounting for all test articles administered to humans.

5. PROCEDURES

5.1 All dosing will conform to FDA cGCPs and individual protocol requirements, including documentation of:

(1) Drug name or designator
(2) Dose identifiers
(3) Lot number
(4) Supplier (generally the sponsoring client)
(5) Total quantity of radioactivity administered in each dose
(6) Date(s) of administration
(7) Subject or patient identifiers

5.2 The information recorded under § 5.1 will generally be recorded in Case Report Forms, Drug Dispensing Logs, or similar documents either supplied by the sponsoring client or generated by Phoenix International Life Sciences, Inc.

5.3 Records of human dosing with radiolabeled materials will be retained by Phoenix International Life Sciences, Inc. for periods specified under FDA regulations.

ATT 10.12 AREA SURVEY PROCEDURES

1. PURPOSE

To identify environmental contamination and, if necessary, decontaminate areas within the facility in which radioactive materials are used or stored.

2. SCOPE

All areas in which radioactive materials (including radioactive waste) are used or stored.

3. RESPONSIBILITY

(a) Radiation Safety Officer (RSO) or other, qualified designee. (b) Study Manager(s) and study personnel.

4. PROCEDURES

The action level for initiation of clean-up/decontamination procedures will be detection of radioactivity significantly greater than twice normal background, as measured either by radiation survey meter or wipe testing for removable radioactivity.

4.1 ROUTINE AMBIENT DOSE RATE SURVEYS

4.1.1 While radioactive materials are in use, all areas (e.g., Radioisotopes Laboratory) in which contamination may occur must be tested routinely with a radiation survey meter at the conclusion of each study (to protect against cross-contamination of study materials), but no less frequently than monthly unless no radioactive materials have been used in the area since the previous survey.

Exception: Housing areas and bathroom facilities used by volunteers participating in radioisotope studies need only be surveyed at the conclusion of each study.

4.1.2 Areas in which radioactive materials, including wastes awaiting disposal, are stored must be surveyed on a monthly basis with a radiation survey meter.

4.1.3 Notify the RSO immediately if unexpectedly high levels of ambient radiation are found.

4.2 ROUTINE REMOVABLE CONTAMINATION SURVEYS

4.2.1 If radiation survey meters detect any environmental contamination above the action level (greater than twice background), wipe testing will be performed. Routine wipe testing will not be required if the only current source of radioactivity consists of samples or unopened containers of dosage forms locked away and not accessed since the previous survey.

4.2.2 If survey meters indicate contamination, appropriate locations (e.g., doorknobs, exterior of waste storage containers, and work surfaces) within the radioactive waste storage area will be wipe-tested for removable radioactivity each time new waste is put into the storage area and decontaminated as needed.

4.2.3 Routine wipe testing of housing areas and bathroom facilities used occasionally for volunteers participating in radioisotope studies is not required. If there is reason to believe that environmental contamination has occurred or if radiation survey meters detect any contamination (significantly greater than twice background), wipe tests and decontamination will be performed.

4.2.4 Notify the RSO immediately if unexpectedly high levels of ambient radiation are found.

4.3 RECORDS

4.3.1 Records of all routine and *for cause* surveys and wipe tests will be entered on appropriate forms and maintained by the RSO in designated binders. Data to be recorded include:

- Date, area surveyed, survey method and equipment used.
- Name(s) of individual(s) performing the survey.
- Diagrams of areas surveyed, coded to correlate activity found with specific location scanned and/or wipe tested.
- Survey findings, in dose rate (e.g., mrem/hr) or contamination level (dpm/ft^2), as appropriate, keyed to the area diagram.
- Action taken in the event of excessive activity or removable contamination, and results of follow-up surveys indicating successful decontamination.

4.3.2 The RSO will review and initial survey reports within five (5) working days after the completion of a study or not less than once a year, and promptly in cases where action levels were identified.

ATTACHMENT __

ITEM 11: WASTE DISPOSAL

AT 11.1 MODEL PROCEDURE FOR WASTE DISPOSAL

1. PURPOSE

To provide procedures for disposal of radioactive materials and record keeping by Phoenix International Life Sciences, Inc.

2. SCOPE

All radioactive materials utilized by Phoenix International Life Sciences, Inc., unless exempt under NRC (and local) regulations.

3. RESPONSIBILITY

(a) Study Managers and all staff working with radiolabeled materials.
(b) Licensed disposal contractor, according to the Agreement for Radioactive Waste Management and Disposal.

4. BACKGROUND

4.1 Because of costs and environmental impact, disposal of wastes associated with radioactive materials must be governed by *actual presence* of radioactivity, not mere association (e.g., uncontaminated packing materials, etc.). Associated materials or those quantities or classes of radioisotopes qualified by NRC (and local regulations) as exempt from radioactive materials disposal requirements are still subject to other disposal restrictions (EPA or state and local controls) with respect to their composition as (bio)hazardous materials.

4.2 CLASSIFICATION OF RADIOACTIVE AND NON-RADIOACTIVE WASTE

4.2.1 NON-RADIOACTIVE WASTE

(a) Provided they are not radioactive, associated materials will be disposed of as ordinary waste.

(b) All radioactivity labels will be defaced or removed from non-radioactive containers prior to disposal as in-house waste.

(c) Conventional, non-radioactive waste is not to be mixed with radioactive waste. Periodic inspections will be performed to ensure compliance with this policy.

4.2.2 RADIOACTIVE WASTE

Radioactive waste is material which by nature, quantity, and/or concentration of radioisotope(s) is not exempt and is subject to NRC (and possibly local) disposal regulations. NRC regulations exempt from disposal controls some radioactive wastes containing limited quantities of ^{3}H or ^{14}C.

Exemptions from treatment as radioactive waste include the following:

(a) **All** human excreta containing radioisotopes, irrespective of quantity, may be disposed of in sanitary sewer without controls or recordkeeping {See 10 CFR 20.2003 (b)}.

(b) All biodegradable absorbent materials (e.g., Kimwipes, tissues, etc.) used to wipe up spills of excreta may disposed of in the sanitary sewer without limits or accounting.

(c) Liquid scintillation counting media containing ≤ 0.05 µCi/g (≈0.05 µCi/mL) of ^{3}H or ^{14}C may be disposed of as "non-radioactive" waste {See 10 CFR 20.2005 (a)(1)}. Records of quantities of radioactivity and means of disposal must be maintained. All scintillation vials will qualify for exempt disposal unless they contain >1.65 x 10^{6} dpm/15 mL (or proportional quantities) of cocktail.

(d) In addition to unlimited quantities of excreta, qualified radioactive materials disposed of in the sanitary sewer {See 10 CFR 20.2003 (a)} cannot exceed 5 Ci of ^{3}H or 1 Ci of ^{14}C per year. Records of quantities of radioactivity and means of disposal must be maintained.

5. PROCEDURES

5.1 IN-HOUSE DISPOSAL OF RADIOACTIVE MATERIALS

5.1.1 Non-volatile materials containing ^{3}H or ^{14}C must be packaged appropriately for disposal by the licensed waste disposal contractor. Volatile waste may be disposed of by evaporation in a fume hood. Nonvolatile radioactive residues from volatile solutions, and containers not subjected to decontamination, will be treated as solid wastes.

5.1.2 All radioactive material must be discarded into specifically marked container(s), following the directions provided by the licensed radioactive waste disposal contractor.

5.1.3 Several containers may be used to separate glass, paper, syringes/needles (use Sharps containers), etc. as low-level waste. Unused dosage forms, if not returned to sponsors, can be segregated as higher activity waste if environmental or practical considerations dictate its separate disposal.

5.1.4 When full, each container must be sealed and labeled in accordance with the licensed disposal contractor's procedures. Typically, containers will show date, isotopic contents, estimated quantity of radioactivity, and signature or initials of staff member sealing the container.

5.1.5 Records of quantities of radioactive wastes packaged for disposal must be entered on appropriate forms and retained by the RSO. Cumulative totals will be determined on an annualized basis.

5.1.6 Storage areas for final in-house storage containers for radioactive waste will be kept locked. Access will be restricted to qualified personnel.

5.2 TRANSFER OF RADIOACTIVE WASTES TO CONTRACT DISPOSAL SERVICE

5.2.1 Procedures provided by the licensed radioactive waste disposal contractor for final packaging, labeling and collection of wastes will be followed.

5.2.2 The RSO will retain on file documentation from the radioactive waste disposal contractor supporting the contractor's authority to handle radioactive waste.

ATT 11.1A REQUEST FOR EXEMPTION FROM STATUS AS RADIOACTIVE WASTES FOR DISPOSAL OF VERY LOW LEVEL CONTAMINATED MATERIALS

In light of definitions in 10 CFR Part 20 §20.2005 (a)(1) and (a)(2) for disposal as non-radioactive wastes of various materials containing ≤0.05 µCi of ^{3}H or ^{14}C per gram, Phoenix International Life Sciences, Inc. proposes to dispose of the following materials meeting this criterion in the aggregate:

(a) Materials possibly contaminated with radioactive excreta but not suitable for disposal in the sanitary sewer: pre-rinsed glass, plastic, or rubber labware (e.g., disposable pipets, rubber pipet bulbs, sample vials) disposable rubber gloves, conventional and laboratory protective clothing (including face masks, disposable hairnets, shoe coverings and jumpsuits), etc.

(b) Materials possibly contaminated by contact with blood/plasma/serum containing radioactivity: disposable syringes, syringe needles, disposable pipets, centrifuge tubes and tube caps, residual cellular material and chemicals utilized in processing of whole blood to obtain plasma or serum, and related items. These items are normally disposed of as biohazardous waste.

(c) Materials possibly contaminated by contact with original radioactive dosing materials: pre-rinsed containers from original radioactive materials, including seals and cotton plugs; dosing cups; tongue depressors; disposable rubber gloves, disposable drinking straws, etc.

Note: Materials contaminated by or used to absorb spills containing significant activity (e.g., contaminated packing materials, equipment, work surfaces, etc., which cannot be adequately decontaminated) **will** be disposed of as radioactive waste.

Until this waiver is granted, all contaminated materials other than those expressly listed in ATT 11.1 Section 4.2.2 will be disposed of as radioactive waste.

FEB 03 1997

Ruth Stevens, Ph.D.
Radiation Safety Officer
Phoenix International
Life Sciences, Inc.
5642 Hamilton Avenue
Cincinnati, OH 45224

Dear Dr. Stevens:

Enclosed is your NRC Material License Number 34-26734-01 in accordance with your request.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

Based on our January 29, 1997 telephone conversation, we have designated Pearl Compaan, M.D. as the Radiation Safety Officer (RSO) for your program (License Condition 12.). As we discussed, you currently meet the qualifications of 10 CFR Part 35, Section 35.900(b)(1); however, you do not meet the 35.900(b)(2) requirement (one year full time experience . . .). It is our understanding that Dr. Compaan will be acting as the RSO at your facility while you obtain this experience, and you will resubmit your request to serve as the RSO once you have obtained the required one year of full time experience specified in 35.900(b)(2).

In addition, we have enclosed a copy of NUREG-1516 "Management of Radioactive Material Safety Programs at Medical Facilities," which you may find helpful in determining what tasks may be delegated by the RSO. In addition, the document discusses effective management at medical institutions and differentiates between delegation of tasks as opposed to delegation of responsibility. The document was prepared with larger medical facilities in mind, but the information may be very helpful for your particular situation.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.

301403

2. Not possess and use materials authorized in Items 6, 7, and 8, on the license until:

   a. You have constructed the facilities and obtained the equipment described in the license application and supporting documentation; and

   b. You have notified the U. S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Licensing Branch, in writing, that activities authorized by the license will be initiated.

3. Notify NRC, in writing, within 30 days:

   a. When an authorized user or Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or

   b. When the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).

4. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:

   a. When you decide to terminate all activities involving materials authorized under the license; or

   b. If you decide not to complete the facility, acquire equipment, or possess and use authorized material.

5. Request and obtain a license amendment before you:

   a. Receive or use byproduct material for a clinical procedure permitted under Part 35 but not permitted by your license issue pursuant to this Part;

   b. Permit anyone, except individuals described in 10 CFR 35.13(b), to work as an authorized user under the license;

   c. Change Radiation Safety Officers;

   d. Order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;

   e. Add or change the areas of use or address or addresses of use identified in the license application or on the license; or

   f. Change ownership of your organization.

6. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or imposition of a civil penalty, or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions. Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Sincerely,

Original Signed By
Patricia J. Pelke
Nuclear Materials Licensing Branch

License No.: 34-26734-01
Docket No.: 030-34172

Enclosures:
1. License No. 34-26734-01
2. 10 CFR Part 19
3. 10 CFR Part 20
4. 10 CFR Part 30
5. 10 CFR Part 35
6. 10 CFR Part 170
7. Form NRC-3
8. Agreement State Listing
9. NUREG-1516

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PHŒNIX INTERNATIONAL LIFE SCIENCES INC. (U.S.)
5642 Hamilton Avenue
Cincinnati, Ohio 45224
TEL. : (513)541-8658, Fax: (513)541-2819

January 10, 1997

CONTROL NUMBER 01403

Patricia J. Pelke
Materials Licensing Section
U.S. Nuclear Regulatory Commission, Region III
801 Warrenville Road
Lisle, IL 60532-4351

Dear Ms. Pelke:

Following our phone conversation today, enclosed please find the responses to your specific concerns.

1. Phoenix International Life Sciences Inc., as outlined in our license, page 46 of 53, Attachment 8, item 4, states that "All test articles received from study sponsors by Phoenix International Life Sciences, Inc., must be prepackaged as single unit doses, properly labeled in accordance with U.S. Food and Drug Administration IND (Investigational New Drug exemption) or related regulations." Unit dosages will be received from a manufacturer or preparer licensed pursuant to 10 CFR 32.72 or equivalent Agreement State requirements. In the exception as oulined in 10 CFR 35.53 (b) for non-unit doses, we commit to determining, by a combination of volumetric measurements and calculations (i.e knowing the specific activity of the test solution), the activity of each dosage prior to administration to human subjects.

2. We have provided a second revision of page 1 of 53, Item 5, of the license application (attached). The footnote marked with an asterix has been changed to read "Estimated maximum quatities on site at any given time, including biological samples (i.e., blood, plasma, and excreta) from prior studies will not exceed the limits set forth in 10 CFR 30.35(d) which sets the limits above which would require finanicial assurance for decommissioning, namely 100 mCi for ^{14}C and 1000 mCi for ^{3}H such that the sum of the ratios' of quantities possessed to these limiting quantities is ≤ 1 (These amounts are 10^3 times the amounts listed in Appendix B to part 30)".

In addition, as mentioned on the phone, once our licence is in hand Phoenix International will be receiving a 100 μCi source of ^{137}Cs from Capintec as sealed check source as per 10 CFR 35.57(a).

Thank you for continuing the review of our NRC application and I hope the clarifications provided in this letter will allow for a prompt approval of our application.

Ruth E. Stevens, Ph.D.

Ruth E. Stevens, Ph.D.
Director of Pharmacokinetics/Pharmacodynamics
Phoenix International Life Sciences, Inc.
5642 Hamilton Ave.
Cincinnati, Ohio 45224

Control Number 01403

Attachment: Revised Item 5, Page 1 of 53.

ITEM 5: RADIOACTIVE MATERIAL / ITEM 6: PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

BYPRODUCT MATERIAL[§] (Item 5.a)	AMOUNT[*]	PURPOSE[†] (Item 6.a)
Tritium ^{3}H	As needed	Medical Use (Human Pharmaceutical Research)
Carbon ^{14}C	As needed	Medical Use (Human Pharmaceutical Research)

§ **Item 5.a**. Material in § 35.100, pharmaceutical agents (solid or liquid dosage forms) chemically incorporating ^{3}H and/or ^{14}C radiolabels. Test articles supplied to Phoenix International Life Sciences, Inc. by clients in accordance with U.S. FDA requirements under Investigational New Drug (IND) exemptions (21 CFR Part 312) or related FDA regulations.

* Estimated maximum quatities on site at any given time, including biological samples (i.e., blood, plasma, and excreta) from prior studies will not exceed the limits set forth in 10 CFR 30.35(d) which sets the limits above which would require financial assurance for decommissioning, namely 100 mCi for ^{14}C and 1000 mCi for ^{3}H such that the sum of the ratios' of quantities possessed to these limiting quantities is ≤ 1 (These amounts are 10^{3} times the amounts listed in Appendix B to part 30).

† To be used for metabolism/excretion studies as described in 10 CFR § 35.100.

CONVERSATION RECORD

TIME 12:30 pm | DATE 1/10/97

○ VISIT ○ CONFERENCE X TELEPHONE

X INCOMING
○ OUTGOING

NAME OF PERSON(S) CONTACTED OR IN CONTACT | ORGANIZATION (OFFICE, DEPT.ETC.) | TELEPHONE NO.
RUTH STEVENS, PH.D.,RSO | PHOENIX INTERNATIONAL LIFE SCIENCES, INC. | 513-541-8658 (X7150)

SUBJECT
RESPONSE DATED 1/2/97 FOR NEW LICENSE/CN 01403

SUMMARY
R. STEVENS RETURNED MY CALL REGARDING THE ADDITIONAL INFO NECESSARY IN ORDER TO ISSUE THE NEW LICENSE. IN ORDER TO ISSUE THE LICENSE, WE WILL NEED THE FOLLOWING ADDITIONAL INFORMATION:

1. COMMITMENT TO ASSAY DOSES PRIOR TO ADMINISTRATION TO SUBJECTS. WE DISCUSSED ALTERNATIVES TO DOSE CALIBRATOR ASSAYS AND I INDICATED THAT A VOLUMETRIC MEASUREMENT WITH SPECIFIC ACTIVITY INFORMATION TO CALCULATE DOSE WOULD BE ACCEPTABLE IN ACCORDANCE WITH 35.53(b); and

2. CLARIFY POSSESSION LIMITS FOR CARBON-14. BASED ON THE INFORMATION SUBMITTED IN THEIR RESPONSE (1/2/97 LETTER), THEY WOULD NEED TO SUBMIT FINANCIAL ASSURANCE FOR DECOMMISSIONING UNDER PART 30. I DIRECTED THEM TO 30.35(d) AND INDICATED THAT THEY COULD RESPOND BY STATING THAT THEIR POSSESSION OF MATERIALS WOULD NOT EXCEED THOSE REQUIRING FA. R. STEVENS STATED THAT THEY WOULD NOT APPROACH THE 100 MILLICURIE LIMIT FOR C-14. I RAN THROUGH THE FA REQUIREMENTS WITH HER TO VERIFY THAT THEY WOULD NOT REQUIRE FA.

RESPOND IN DUPLICATE/WITHIN 5 DAYS/REFER TO CN 01403.

ACTION REQUIRED
RESPOND ASAP/REFER TO CN 01403. R STEVENS INDICATED THAT SHE WOULD BE FAXING RESPONSE THIS AFTERNOON AND FOLLOWING IT UP WITH A HARD COPY OF THE RESPONSE.

NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE
PATRICIA J. PELKE | P J Pelke | 1/10/97

ACTION TAKEN

SIGNATURE | TITLE | DATE

PHŒNIX INTERNATIONAL

PHŒNIX INTERNATIONAL LIFE SCIENCES INC. (U.S.)
5642 Hamilton Avenue
Cincinnati, Ohio 45224
TEL. : (513)541-8658, Fax: (513)541-2819

January 2, 1997

CONTROL NUMBER 01403

Patricia J. Pelke
Materials Licensing Section
U.S. Nuclear Regulatory Commission, Region III
801 Warrenville Road
Lisle, IL 60532-4351

Dear Ms. Pelke:

Enclosed are responses to the concerns raised in the FAX transmittal dated September 23, 1996.

1. Attached are documents (Supplement A, a copy of medical license, and CV) to be submitted as part of our application. Phoenix International Life Sciences, Inc., requests that Dr. Pearl J. Compaan, be listed as the authorized user. We request that Dr. Hisham Arar be removed as the authorized user since he does not meet the criteria specified in 10 CFR Part 35, Section 35.910 (b) (2) (i-v).

2. Phoenix International Life Sciences, Inc., will obtain informed consent from the human subjects and obtain prior review and approval of the research activities by an "Institutional Review Board" as defined and described in the Federal Policy for the protection of human subjects.

3. Phoenix International Life Sciences Inc., as outlined in our license, page 46 of 53, Attachment 8, item 4, states that "All test articles received from study sponsors by Phoenix International Life Sciences, Inc., must be prepackaged as single unit doses, properly labeled in accordance with U.S. Food and Drug Administration IND (Investigational New Drug exemption) or related regulations." Therefore, the exception to assaying doses prior to administration to human subjects will be for unit dosages obtained from a manufacturer or preparer licensed pursuant to 10 CFR 32.72 or equivalent Agreement State requirements.

Pm; 1-3-97

4. A. Attached is the modified procedures in Attachment 10.12, p.48, item 4.1.1 of our application to require routine wipe testing. Any reference to survey meters has been deleted.

   B. "Routine" frequency has been deleted and restated in these terms:

   "While radioactive materials are in use, all areas (e.g., Radioisotopes Laboratory) in which contamination may occur must be tested with wipe tests within four hours after the first dose has been administered to a human subject on the study and at the conclusion of each study (to protect against cross-contamination of study materials)."

   C. The action level for decontamination has been defined as greater than 200 dpm/cm^2 and the wipe test results will be maintained and recorded in dpm/cm^2.

5. Phoenix International Life Sciences, Inc., confirms that Attachment 11.1A may be handled as a separate issue so that additional delays regarding this item can be avoided in order to issue our license.

In addition, we have revised page 1 of 53, Item 5, of the license application (attached). The amounts of radionuclides specified in the footnote marked with an asterix has been changed from ca. 20 mCi of each isotope to ca. 250 mCi of each isotope, to meet the criteria of 10 CFR § 33.100 Schedule A column II, such that the sum of the ratios' of quantities possessed to the applicable quantities in 33.100 is ≤ 1. The second sentence of that paragraph starting with "Individual quantities.." has been deleted as it not applicable.

Thank you for continuing the review of our NRC application and I hope the clarifications provided in this letter will allow for a prompt approval of our application.

Ruth E. Stevens, Ph.D.

Ruth E. Stevens, Ph.D.
Director of Pharmacokinetics/Pharmacodynamics
Phoenix International Life Sciences, Inc.
5642 Hamilton Ave.
Cincinnati, Ohio 45224

Control Number 01403

Attachments:
1. Supplement A, a copy of medical license and CV.
2. Amended Attachment 10.12, 4.1 and 4.2.
3. Revised Item 5, Page 1 of 53.

US NRC REGION III ID:708-515-1259 SEP 23'96 13:08 No.006 P.01

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 7

To RUTH STEVENS	From PATTY PELKE
Dept./Agency PHOENIX	Phone # 630 829 9868
Fax # 513-541-2814	

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

TIME 9:40 AM DATE 9/23/96

TELEPHONE

○ INCOMING
✕ OUTGOING

NAME OF PERSON(S) CONTACTED OR IN CONTACT ORGANIZATION (OFFICE, DEPT.,ETC.) TELEPHONE NO.

RUTH STEVENS, PH.D., RADIATION SAFETY OFFICERPHOENIX INTERNATIONAL LIFE SCIENCES, INC.(513) 541-8658, EXT. 9150

SUBJECT

APPLICATION FOR NRC LICENSE TO CONDUCT HUMAN RESEARCH STUDIES UNDER PROVISIONS OF 10 CFR PART 35.100

SUMMARY

I CONTACTED R. STEVENS AND INDICATED THAT IN ORDER FOR US TO COMPLETE OUR REVIEW, WE WOULD NEED THE FOLLOWING ADDITIONAL INFORMATION:

1. DOCUMENTATION WHICH DEMONSTRATES THAT DR. ARAR MEETS THE CRITERIA SPECIFIED IN 10 CFR PART 35, SECTION 35.910(b)(2) ... 20 HOURS OF SUPERVISED CLINICAL EXPERIENCE UNDER THE SUPERVISION OF AN AUTHORIZED USER WHICH INCLUDES THE TOPICS SPECIFIED IN SUBITEMS (i) through (v) FOR ~~THIS~~ SECTION OF THE REGULATIONS;

2. CONFIRMATION THAT AT A MINIMUM, YOU WILL OBTAIN INFORMED CONSENT FROM THE HUMAN SUBJECTS AND OBTAIN P... OR REVIEW AND APPROVAL OF THE RESEARCH ACTIVITIES BY AN "INST... TIONAL REVIEW BOARD" AS DEFINED AND DESCRIBED IN THE FEDERAL POLICY FOR THE PROTECTION OF HUMAN SUBJECTS;

3. CONFIRM THAT DOSES WILL BE ASSAYED PRIOR TO ADMINISTRATION TO HUMAN SUBJECTS AS REQUIRED BY 35.53(b) OF THE REGULATIONS; AND DESCRI... YOUR METHOD FOR ASSAYING THE DOSES;

4. SURVEYS

   A. MODIFY THE PROCEDURES IN ATTACHMENT 10.12, P. 48, ITEM 4.1.1 OF YOUR APPLICATION TO REQUIRE ROUTINE WIPE TESTING, AND DELETE ANY REFERENCE TO ROUTINE SURVEYS WITH A SURVEY METER;

   B. DEFINE WHAT "ROUTINE" FREQUENCY MEANS, (E.G., DAILY, WEEKLY, MONTH...) AS STATED IN ITEMS 4.1 AND 4.2 , PP. 48 AND 49, OF YOUR APPLICATION;

   C. SPECIFY YOUR ACTION LEVEL FOR DECONTAMINATION (AREAS GREATER THAN 200 DPM/CM2) AND CONFIRM THAT YOU WILL MAINTAIN THE WIPE TEST RESULTS IN DPM/CM2

5. WASTE

   ATTACHMENT 11.1A OF YOUR APPLICATION WAS A REQUEST FOR EXEMPTION FROM 10 CFR PART 20 REGARDING WASTE. CONFIRM THAT ATTACHMENT 11.1A MAY BE HANDLED AS A SEPARATE ISSUE SO THAT ADDITIONAL DELAYS REGARDING THIS ITEM CAN BE AVOIDED IN ORDER TO ISSUE YOUR LICENSE.

ACTION REQUIRED

PLEASE RESPOND IN DUPLICATE AND REFER TO CONTROL NUMBER 01403

NAME OF PERSON DOCUMENTING CONVERSATION SIGNATURE DATE

Patricia J. Pelke 9/23/96

SUPPLEMENT A

SUPPLEMENT — U.S. NUCLEAR REGULATORY COMMISSION

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF PROPOSED AUTHORIZED USER OR RADIATION SAFETY OFFICER	2. FOR PHYSICIANS, STATE OR TERRITORY WHERE LICENSED
Pearl J. Compaan, M.D.	OHIO

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
Radiology	Therapeutic Rad.	6/1970

4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES

FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING: CLOCK HOURS IN LECTURE OR LABORATORY	TYPE AND LENGTH OF TRAINING: CLOCK HOURS OF SUPERVISED ON-THE-JOB EXPERIENCE
a. RADIATION PHYSICS AND INSTRUMENTATION	Radiation Physics & Radiation Biology University of Minn 7/1/66 → 6/30/67	200 hrs	
b. RADIATION PROTECTION			
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	University Cincinnati 7/1/67 → 4/30/70	150 hrs	
d. RADIATION BIOLOGY	Full time Nuclear Medicine 1/1/68 → 3/31/68		500 hrs
e. RADIOPHARMACEUTICAL CHEMISTRY			

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

ISOTOPE	mCi USED AT ONE TIME	LOCATION	CLOCK HOURS	TYPE OF USE
^{131}I	2 - 300 mCi	Bethesda Hosp 1994 → 1996 U. Cinti (1966-1970		Scanning + therapeutic
^{32}P	3 - 15 mCi	U. Cinti - Beth. Hosp		Therapy
^{137}Cs ^{192}Ir ^{125}I ^{198}Au	Sealed Sources	U. Cinti 1966 → 1980 Bethesda 1975 → 1996		Therapy
^{89}Sr	4 mCi	Bethesda Hosp 1994 - 1996		Therapy
Tc 99m	25 mCi	U Cinti 1970's		Bone scan
Tc 99m	5-10 mCi	U Cinti 1970's		Liver scan
^{87}Sr Hg		U Cinti 1960's		Bone scan Brain scan

Please notify the board in writing, of any change in your address.

Please refer to your license number on all correspondence with the board.

Ohio law requires that every physician's wall certificate be displayed in the physician's office where a major portion of such physician's practice is conducted.

PEARL JOAN COMPAAN,MD
350 RESOR AVE
CINCINNATI OH 45220

STATE MEDICAL BOARD OF OHIO

77 S. High St., Columbus, Ohio 43266-0315

EXPIRES : 09/30/98

LICENSE NUMBER
35-03-2205

1 9 9 6

Celebrating
100 Years
1896-1996

1 9 9 8

PEARL JOAN COMPAAN,MD

is duly registered and entitled to practice in The State of Ohio until the expiration da

AUDIT # : 002688

CURRICULUM VITAE

NAME:	Pearl Joan Compaan, MD
HOME ADDRESS:	350 Resor Avenue Cincinnati, Ohio 45220 (513) 751-8291
OFFICE ADDRESS:	Riverhills Healthcare, Inc. 2800 Winslow Avenue, Suite 310 Cincinnati, Ohio 45206 (513) 281-6200 10550 Montgomery Road, Suite 14 Cincinnati, Ohio 45242 (513) 891-4800
BIRTHDATE:	March 27, 1939
BIRTHPLACE:	Hull, North Dakota
CITIZENSHIP:	USA
SOCIAL SECURITY:	385-36-4323
MARITAL STATUS:	Unmarried
CHILDREN:	Two daughters
PRE-MEDICAL EDUCATION:	Hope College Holland, Michigan (September 1957 - 1960) B.A. 1960
MEDICAL EDUCATION:	University of Michigan Ann Arbor, Michigan (September 1960 - 1964) M.D. 1964
INTERNSHIP:	The Christ Hospital Cincinnati, Ohio Rotational Type (July 1964 - June 1965)
RESIDENCY:	University of Minnesota Hospital Minneapolis, Minnesota (July 1966 - June 1967) University of Cincinnati Medical College Cincinnati, Ohio (July 1967 - June 1969) Supported by Public Health Service Grant (1968 - 1969)

ADDITIONAL EXPERIENCE:

Emergency Room and Hospital Physician
(locum tenens)
several locations
July 1965 - June 1966

University of Cincinnati
College of Medicine
Instructor in Radiology (Radiation Therapy)
(July 1969 - June 1970)

Good Samaritan Hospital
Assistant Radiotherapist
Department of Radiation Therapy
Cincinnati, Ohio
(Sept. 1970 - Sept. 1973)

Physician Coordinator
Clinical Chemotherapy Program in Cancer
Control (Leukemia - Lymphoma)
(Sept. 1973 - Sept. 1976)

University of Cincinnati
Assistant Professor of Radiology
(August 1980 - 1990)

University of Cincinnati
Associate Clinical Professor
(Radiation Therapy)
(August 1990 - present)

MEDICAL LICENSURES:

Ohio #32205 (1970)

DEA # 2868226

BOARD CERTIFICATION:

American Board of Radiology
Therapeutic Radiology (1970)

PROFESSIONAL SOCIETIES:

American Medical Association
Ohio State Medical Association
Cincinnati Academy of Medicine
American Society of Therapeutic Radiology
and Oncology
American College of Radiology
Fellow - September 1995
American Society for Clinical Oncology
Ohio State Radiological Society
American College of Physician Executives
Greater Cincinnati Radiologic Society
Ohio State Radiological Society
Radiation Oncology Committee 1984 - present
Chairman 1987 - 1993

PROFESSIONAL SOCIETIES(continued):

Public Relations Committee 1988 - present
Chairman 1990 - present
Executive Council OSRS
Secretary 1993 - 1995
President Elect May, 1995 - May, 1996
President May, 1996 - present
American College of Radiology
Goverment Relations Network 1991 - present

COOPERATIVE STUDY GROUPS:

Children's Cancer Study Group 1978-1987
Member of Radiation Therapy Committee
Member Disease Site Protocol Committees
Osteogenic Sarcoma (2 Committees)
Bone Marrow Transplant for ANLL
Medulloblastoma -- good risk

National Wilm's Tumor Study Group 1985-1987

National Biotherapy Study Group 1987 - 1990
Co-Investigator 1988 - 1990

NSABP 1987 - present (National Surgical
Adjuvant Breast and Bowel Progect)
Investigator 1987 - present
Co-Principal Investigator (BCPT only)
1992 - present

SWOG 1991 - present (Southwest Oncology Group)
Investigator 1991 - present

RTOG 1993 - present (Radiation Therapy Oncology
Group)
Investigator 1993 - present

COMMUNITY ORGANIZATIONS:

Hospice of Cincinnati (1979 - 1981)
Board Member
Building Committee Member

American Cancer Society (1983 - 1985)
Professional Education Committee

Cancer Control Council (1981 - 1984)
Vice-Chairman 1981 - 1982
Chairman 1982 - 1984
Member/Advisor Neoplastic Disease
Registry Committee
Executive Committee

PRACTICE ORGANIZATIONS:

Oncology Associates, Inc., P.S.C.
President 1986 - 1994

Medi Center North Medical Diagnostics
Management Committee 1986 - 1994

Riverhills Healthcare, Inc.
Vice President 11/1/94 - 7/1/96
Chair, Quality Improvement Committee
1994 - present

HOSPITAL COMMITTEES:

Bethesda Hospital Committees
Oncology Committee
Chairman 1979, 1986, 1987
Co-Chairman 1988 - 1994
Continuing Medical Education Committee 1979, 1981
P&T Committee 1979 -1980
Executive Committee 1989-1990, 1992-present
Secretary/Treasurer Medical Staff
January 1, 1992 - December 31, 1993
President Elect
January 1, 1994 - December 31, 1995
President
January 1, 1996 - present
Steering Committee 1989-1990, 1992 - present
Joint Conference Committee 1989 - 1990, 1992 - present
Quality I Medical Staff Advisory Group 1989 - 1991
Quality I Steering Committee 1992 - present
Department of Radiology
Section of Radiation Therapy
Co-Chairman 1986 - 1987, 1991
Chairman 1988 -1990, 1992 -present
Board of Trustees -- Marketing and Public
Relations Committee 1991 - present
Patient Care Committee
Chairman 1992 - 1993
Starategic Planning Committee 1992-present
Bylaws Committee
Chairman 1994 - 1995
Credentials Committee 1994 - 1995

Bethesda Hospital, Inc.
Board of Trustees January 1994 - present

Bethesda, Inc.
Board of Trustees August 1995 - present

OTHER:

Nationwide Mutual Insurance Company
Ohio Carrier Advisory Committee
March 1992 - present

Cigna Medical Advisory Committee
May 1995 - present

Paragon Health Systems
Board Member February 1996 - present

PUBLICATIONS
AND PRESENTATIONS:

Chapter entitled: RADIATION THERAPY in Pediatric Therapy, 4th edition, H. Shirkey, Editor, 1972; C.V. Mosby Company. 6th Edition 1979.

Chapter entitled: RADIATION THERAPY in Pediatric Therapy, 5th edition, H. Shirkey, Editor, 1975; C.V. Mosby Company

Generation of iso-TDF Maps: Consideration Therapy Planning. Radiology, Vol. 126, pp. 773-777; March 1978.

A Photogammetric Contouring Method for Radiation Therapy, Photogrammetric Engineering and Remote Sensing. W.D. Renner, M.S., co-author, March 1980.

Solid Malignancies in Children and Adolescents. Symposium on Pediatric Surgery, Part II. Surgical Clinics of North America. Vol. 65, No. 6, December 1985. Lampkin, B., Wong, K.Y., Kalinyak, K.A., Carter, D., Heckel, J., Zaboy, K., Compaan, P.J.

Results of Treatment of Primary Breast Cancer with Breast Sparing Approaches in a Combined University-Community Hospital Setting. Breast Diseases 1989. Popp, M.D., Compaan, P.J., et. al.

"Results of Two Radiation Therapy Randomizations in the Third National Wilms' Tumor Study" Thomas, P., Tefft, M., Compaan, P., Norkool, P., Breslow, N., D'Angio, G. Cancer Vol. 68. pp. 1703 - 1707, October 15, 1991.

ABSTRACTS:

Breast Conservation Therapy for Breast Carcinoma; A report on 215 Patients. Astro Abstracts, 1985. Kuske, R.R., compaan, P.J., Aron, B.S., Popp, M., Coith, R.

Pathologic Parameters in Breast Conservation Therapy. Cross, M.A., Wirman, J.A., Compaan, P.J., Popp, M.B., Aron, B.S., Stahl, D.L., Kuske, R.R., Kim, D.J., Laskarzewski, P., University of Cincinnati, Ohio' Mallinckrodt Institute of Radiology, St. Louis, MO. (To be presented at 12th Annual San Antonio Breast Cancer Symposium, December 8-9, 1989, San Antonio, Texas)

Breast Conservation Therapy: 417 Breast Carcinoma with Minimum Follow up of 5 years. Kuske, Compaan, Cross, Garci: Stahl, Aron, Popp, Philpot, Perez, Feinberg. ASTRO Abstract, October 1989.

Tylectomy and Radiation Therapy for Ductal in situ Carcinoma of the Breast: Treatment Results. Barrett, W.L., Aron, B.s., compaan, P.J., Westermann, C.D. University of Cincinnati. (Presented at 14th Annual San Antonio Breast Cancer Symposium, December 6-7, 1991 San Antonio, Texas.)

Interstitial vs. External Radiation Boost in 417 Breast Cancers Treated by Breast Conservation Therapy. B. Aron, R. Kuske, C. Perez, P. compaan, B. Fineberg. (Presented at European Conference of Clinical Oncology, Jerusalem, Israel, November 14 - , 1993)

Routine Laboratory Studies During Radiation Therapy. How much is necessary? (May 22, 1993) 53rd Annual Meeting OSRS, Dayton, Ohio, May 20-23, 1993.

National Forum on quality Improvement in Health Care. December 6 - 8, 1993
Quality Resource Exhibition Storyboards

Outcome of Local recurrence following wedge resection and radiation therapy for breast carcinoma. (Presented at OSRS, May, 1995)

ITEM 5: RADIOACTIVE MATERIAL / ITEM 6: PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

BYPRODUCT MATERIAL§ (Item 5.a)	AMOUNT*	PURPOSE† (Item 6.a)
Tritium ^{3}H	As needed	Medical Use (Human Pharmaceutical Research)
Carbon ^{14}C	As needed	Medical Use (Human Pharmaceutical Research)

§ **Item 5.a**. Material in § 35.100, pharmaceutical agents (solid or liquid dosage forms) chemically incorporating ^{3}H and/or ^{14}C radiolabels. Test articles supplied to Phoenix International Life Sciences, Inc. by clients in accordance with U.S. FDA requirements under Investigational New Drug (IND) exemptions (21 CFR Part 312) or related FDA regulations.

* Estimated maximum quantities on site at any given time, including biological samples (i.e., blood, plasma, and excreta) from prior studies, ≤ ca. 250 mCi of each isotope, to meet the criteria of 10 CFR § 33.100 Schedule A column II, such that the sum of the ratios' of quantities possessed to the applicable quantities in 33.100 is ≤ 1.

† To be used for metabolism/excretion studies as described in 10 CFR § 35.100.

ATT 10.12 AREA SURVEY PROCEDURES

1. PURPOSE

To identify environmental contamination and, if necessary, decontaminate areas within the facility in which radioactive materials are used or stored.

2. SCOPE

All areas in which radioactive materials (including radioactive waste) are used or stored.

3. RESPONSIBILITY

(a) Radiation Safety Officer (RSO) or other, qualified designee. (b) Study Manager(s) and study personnel.

4. PROCEDURES

The action level for initiation of clean-up/decontamination procedures will be detection of radioactivity significantly greater than twice normal background, as measured either by radiation survey meter or wipe testing for removable radioactivity.

4.1 ROUTINE AMBIENT DOSE RATE SURVEYS

4.1.1 While radioactive materials are in use, all areas (e.g., Radioisotopes Laboratory) in which contamination may occur must be tested with wipe tests within four hours after the first dose has been administered to a human subject on the study and at the conclusion of each study (to protect against cross-contamination of study materials).

Exception: Housing areas and bathroom facilities used by volunteers participating in radioisotope studies need only be wipe tested at the conclusion of each study.

4.1.2 Areas in which radioactive materials, including wastes awaiting disposal, are stored must be surveyed on a monthly basis with wipe tests.

4.1.3 Notify the RSO immediately if unexpectedly high levels of ambient radiation are found.

4.2 ROUTINE REMOVABLE CONTAMINATION SURVEYS

4.2.1 If wipe tests detect any environmental contamination above the action level (areas greater than 200 dpm/cm^2), decontamination of the area will be performed. Routine wipe testing will not be required if the only current source of radioactivity consists of samples or unopened containers of dosage forms locked away and not accessed since the previous survey.

4.2.2 If wipe tests demonstrate contamination, appropriate locations (e.g., doorknobs, exterior of waste storage containers, and work surfaces) within the radioactive waste storage area will again be wipe-tested for removable radioactivity each time new waste is put into the storage area and decontaminated as needed.

4.2.3 Routine wipe testing of housing areas and bathroom facilities used occasionally for volunteers participating in radioisotope studies is not required. If there is reason to believe that environmental contamination has occurred or if wipe tests detect any contamination (areas greater than 200 dpm/cm^2), decontamination will be performed.

4.2.4 Notify the RSO immediately if unexpectedly high levels of ambient radiation are found.

4.3 RECORDS

4.3.1 Records of all routine and *for cause* surveys and wipe tests will be entered on appropriate forms and maintained by the RSO in designated binders. Data to be recorded include:

- Date, area surveyed, survey method and equipment used.
- Name(s) of individual(s) performing the survey.
- Diagrams of areas surveyed, coded to correlate activity found with specific location scanned and/or wipe tested.
- Survey findings, in dose rate (e.g., mrem/hr) or contamination level (dpm/cm^2), as appropriate, keyed to the area diagram.
- Action taken in the event of excessive activity or removable contamination, and results of follow-up surveys indicating successful decontamination.

4.3.2 The RSO will review and initial survey reports within five (5) working days after the completion of a study or not less than once a year, and promptly in cases where action levels were identified.

CONVERSATION RECORD

TIME 12:45 pm DATE 12/20/96

○ VISIT ○ CONFERENCE X TELEPHONE

○ INCOMING
X OUTGOING

NAME OF PERSON(S) CONTACTED OR IN CONTACT | ORGANIZATION (OFFICE, DEPT.ETC.) | TELEPHONE NO.

RUTH STEVENS, PH.D., RADIATION SAFETY OFFICER
PHOENIX INTERNATIONAL LIFE SCIENCES, INC.
513-541-8658 X7150

SUBJECT

STATUS OF RESPONSE TO TELECON ON 9/23/96 / CN 01403

SUMMARY

I CONTACTED R. STEVENS INQUIRING ABOUT THE STATUS OF THEIR RESPONSE TO OUR 9/23/96 TELECON. I HAD ALSO SPOKEN WITH HER ON 11/25 REGARDING THE STATUS OF THEIR RESPONSE AND SHE INDICATED AT THAT TIME THAT THEY WERE HAVING DIFFICULTY LOCATING AN MD QUALIFIED PER 35.910. AT THAT TIME, SHE STATED THEY HAD AN MD, AND THEY WOULD BE SUBMITTING THEIR RESPONSE THE FOLLOWING WEEK.

I CALLED TO CHECK ON THE STATUS SINCE WE HAVE NOT RECEIVED A RESPONSE TO DATE (12/20). R. STEVENS STATED THAT THE PHYSICIAN HAS NOT GOTTEN ALL THE REQUIRED INFORMATION TOGETHER FOR THEM TO SUBMIT. I DISCUSSED "VOIDING" THE APPLICATION WITH THE UNDERSTANDING THAT THEY COULD RESUBMIT AT A LATER DATE, ONCE THEY HAVE ALL THE REQUIRED INFORMATION TO RESPOND TO THE DEFICIENCIES IDENTIFIED IN OUR 9/23/96 TELECON. R. STEVENS REQUESTED ONE LAST OPPORTUNITY TO PROVIDE THE RESPONSE BEFORE THE ACTION IS VOIDED. SHE IS CONCERNED ABOUT THE DELAYS THEY MAY ENCOUNTER IF WE CANNOT ISSUE THEIR RESUBMITTAL TIMELY.

I STATED THAT IF WE HAVE NOT RECEIVED THEIR RESPONSE BY 1/10/97, WE WILL VOID THE ACTION AND THEY CAN RESUBMIT AT A LATER DATE. R. STEVENS CONCURRED WITH THIS DECISION.

ACTION REQUIRED

CHANGE TICKLER TO 1/10/97. VOID IF RESPONSE NOT RECEIVED BY THAT DATE.

NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE

PATRICIA J. PELKE 12/20/96

ACTION TAKEN

SIGNATURE TITL

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 1

To RUTH STEVENS From PATTY PELKE

Dept./Agency PHOENIX Phone 630 829 9868

Fax 513-541-2819

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

CONVERSATION RECORD

TIME 9:40 AM DATE 9/23/96

O VISIT O CONFERENCE X TELEPHONE

O INCOMING
X OUTGOING

NAME OF PERSON(S) CONTACTED OR IN CONTACT | ORGANIZATION (OFFICE, DEPT.ETC.) | TELEPHONE NO.

RUTH STEVENS, PH.D., RADIATION SAFETY OFFICERPHOENIX INTERNATIONAL LIFE SCIENCES, INC.(513) 541-8658, EXT. 7150

SUBJECT

APPLICATION FOR NRC LICENSE TO CONDUCT HUMAN RESEARCH STUDIES UNDER PROVISIONS OF 10 CFR PART 35.100

SUMMARY

I CONTACTED R. STEVENS AND INDICATED THAT IN ORDER FOR US TO COMPLETE OUR REVIEW, WE WOULD NEED THE FOLLOWING ADDITIONAL INFORMATION:

1. DOCUMENTATION WHICH DEMONSTRATES THAT DR. ARAR MEETS THE CRITERIA SPECIFIED IN 10 CFR PART 35, SECTION 35.910(b)(2) ... 20 HOURS OF SUPERVISED CLINICAL EXPERIENCE UNDER THE SUPERVISION OF AN AUTHORIZED USER WHICH INCLUDES THE TOPICS SPECIFIED IN SUBITEMS (i) through (v) FOR THIS SECTION OF THE REGULATIONS;

2. CONFIRMATION THAT AT A MINIMUM, YOU WILL OBTAIN **INFORMED CONSENT FROM THE HUMAN SUBJECTS AND OBTAIN PRIOR REVIEW AND APPROVAL OF THE RESEARCH ACTIVITIES BY AN "INSTITUTIONAL REVIEW BOARD"** AS DEFINED AND DESCRIBED IN THE FEDERAL POLICY FOR THE PROTECTION OF HUMAN SUBJECTS;

3. CONFIRM THAT DOSES WILL BE ASSAYED PRIOR TO ADMINISTRATION TO HUMAN SUBJECTS AS REQUIRED BY 35.53(b) OF THE REGULATIONS; AND DESCRIBE YOUR METHOD FOR ASSAYING THE DOSES;

4. **SURVEYS**

   A. MODIFY THE PROCEDURES IN ATTACHMENT 10.12, P. 48, ITEM 4.1.1 OF YOUR APPLICATION TO REQUIRE **ROUTINE WIPE TESTING**, AND DELETE ANY REFERENCE TO ROUTINE SURVEYS WITH A SURVEY METER;

   B. DEFINE WHAT "ROUTINE" FREQUENCY MEANS, (E.G., DAILY, WEEKLY, MONTHLY) AS STATED IN ITEMS 4.1 AND 4.2 , PP. 48 AND 49, OF YOUR APPLICATION;

   C. SPECIFY YOUR ACTION LEVEL FOR DECONTAMINATION (AREAS GREATER THAN 200 DPM/CM2) AND CONFIRM THAT YOU WILL MAINTAIN THE WIPE TEST RESULTS IN DPM/CM2

5. WASTE

   ATTACHMENT 11.1A OF YOUR APPLICATION WAS A REQUEST FOR EXEMPTION FROM 10 CFR PART 20 REGARDING WASTE. CONFIRM THAT ATTACHMENT 11.1A MAY BE HANDLED AS A SEPARATE ISSUE SO THAT ADDITIONAL DELAYS REGARDING THIS ITEM CAN BE AVOIDED IN ORDER TO ISSUE YOUR LICENSE.

ACTION REQUIRED

PLEASE RESPOND **IN DUPLICATE AND REFER TO CONTROL NUMBER 01403**

NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE

Patricia J. Pelke 9/23/96