MetPath

MetPath Inc./New England
63-65 Rogers Street
Cambridge, Massachusetts 02142
617-864-9200

a CORNING Clinical Laboratory

United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406
ATTN: Mr. Selvan Rajendran

May 4, 1989

Dear Mr. Rajendran.

Regarding: License No. 20-28042-01
Inspection Date: March 23, 1989

I am writing to address issues which arose during your inspection at this laboratory. All of the deficiencies we have spoken about arise from the understanding this laboratory had that we operated under a general license as indicated to us by Section 1.4.1 of the USNRC Regulatory Guide 10.8 of August 1987. I have attached a copy of that regulation as Exhibit A. This regulation, together with a lack of restriction upon waste disposal in our license has led to that understanding on our part. Your visit clarified our status as holding a specific license. The following information, then, addresses the requirements for procedures appropriate to specific license-holders.

Exhibit B: Shows documentation of the calibration of our Ludlum survey meter Model 3 fitted with probe Model 44-3. This survey meter has been used to survey the entire area where radioactive material are used, stored and disposed following its calibration.

Exhibit C: Is the laboratory procedure now in effect documenting requirements for A)calibration of the survey meter on a regular basis, and B) its use to monitor personnel, equipment, and documentation of those activities.

Exhibit D: Shows our contracting the service of ADCO Services, Inc. for radioactive waste disposal. We intend to use a decay-in-storage disposal program through ADCO (for I^{125}) as well as a pass-through to a burial program for Co^{57}. Upon clarification of our license status at the time of your visit, no solid radioactive material has been released from this laboratory. I have ordered a sufficient quality of barrels from ADCO to allow disposal of all waste which has accumulated (approximately 15 cubic feet containing approximately 0.225 mCi isotope each).

MetPath

Exhibit E: Documents the departmental requirement to separate the isotopic waste for appropriate disposal.

Exhibit F: Shows the format we have used for posting the "Notice to Employees". This notice is framed and posted in the laboratory in two places where radioactive analysis is performed.

Exhibit G: Is a copy of our policy requiring bi-weekly wipe tests for confirmation of work areas and the revisions following the construction which was in progress during your visit.

Exhibit H: Shows the procedures we have used as part of our employee training program. While I find them adequate, it is our intention to enlarge upon these appropriate to the requirements of a specific license.

Exhibit I: Shows the personnel monitoring procedure. We have elected to base this program upon the relative exposure of employees to isotope. our current inventory documents the receipt of 700 μ Ci of reagents for the quantitation of HCG. This reagent is used by a staff of 20 on an approximately equal basis per person. The remaining 800 μ Ci isotope is used by a staff of 4. The procedure requires the use of badges by the staff of 4, and offers the program, but does not require it, by the staff of 20.

We do not intend to request an increase in our inventory limit at this time. Please notify me at the address or telephone number above if you have comments or questions. We are currently operating according to the requirements of a specific license and consider our program as outlined complete. Thank you for the information you have provided us during this transition from general to specific programs, and the confidence that our deficiencies resulted only from a misunderstanding of the intent of the regulation, together with the terms and conditions made which our license was issued.

Sincerely,

J.E. Stewart

J.E. Stewart, Ph.D.
Laboratory Director

cc: Jerry Frank
Regulatory Files - NRC
Mr. L.R. Adams, Mass. Dept. of Labor and Industry
Division of Occupational Hygiene

Revision 2*
August 1987

U.S. NUCLEAR REGULATORY COMMISSION

REGULATORY GUIDE

OFFICE OF NUCLEAR REGULATORY RESEARCH

Exhibit A

REGULATORY GUIDE 10.8
(Task FC 415-4)

GUIDE FOR THE PREPARATION OF APPLICATIONS FOR MEDICAL USE PROGRAMS

*The substantial number of changes in this revision has made it impractical to indicate the changes with lines in the margin.

Achievable," contain information, methods, and references useful in establishing radiation safety programs to maintain exposures ALARA is medical institutions. Applicants should consider the ALARA philosophy in the development of plans for work with radioactive materials.

1.4 TYPES OF LICENSES

The NRC issues three types of licenses for the use of byproduct material in the practice of medicine. They are described below. This guide is only for persons who want to apply for a specific medical use license. However, persons who are applying for other types of licenses may find the information in this guide useful in designing their radiation safety program.

1.4.1 General License

Section 31.11 of 10 CFR Part 31, "General Domestic Licenses for Byproduct Material," establishes a general license authorizing physicians, veterinarians, clinical laboratories, and hospitals to receive, acquire, possess, or use certain small quantities of byproduct material for in vitro clinical or laboratory tests not involving medical use (that is, not involving administration to humans). Section 31.11 explains the requirements for using materials listed in that section. If the general license alone meets the applicant's needs, only Form NRC-483, "Registration Certificate--In Vitro Testing with Byproduct Material under General License," need to be filed. Medical use licensees do not need to file the form (see paragraph 31.11(b)).

If you need more than 200 microcuries of photon-emitting § 31.11 materials, you may request an increased inventory limit as a separate line item on your NRC Form 313 application. Licensees generally request 3 millicuries. The use of materials listed in § 31.11 within the inventory limits of that section will only be subject to the requirements of that section and not subject to the requirements of Parts 19, 20, 21, and 35 except as provided in § 31.11. If you request an increased inventory limit, you will be subject to the requirements of those parts, including the requirements regarding waste disposal.

1.4.2 Specific License

Specific licenses for physicians in private practice are generally limited to physicians who are located in private offices and not on hospital premises. A Radiation Safety Committee is not required. Methods of use that require hospitalization of the patient are not permitted.

Specific licenses are also issued to medical institutions. A medical institution is an organization in which several medical disciplines are practiced. These licenses authorize byproduct material for medical uses by physicians named on the institution's license. The regulations in § 35.22 of 10 CFR Part 35 require an institutional licensee to have a Radiation Safety Committee to oversee the use of licensed material throughout the institution and to review the institution's radiation safety program. The physicians named on the institution's license conduct their programs with the approval of the Radiation Safety Committee.

A specific license may also be issued for a mobile nuclear medicine service (see § 35.29 of Part 35). Both private practitioners and institutions may apply for authorization to use byproduct material in a mobile service.

Exhibit B

J&S JASINS & SAYLES ASSOC., INC.
15 MERCER RD. NATICK, MA 01760

OWNER Medlab	CAL DATE 3-9-83
MODEL 3	NEXT CAL DATE 1-10-83
SERIAL 15078	CAL BY [illegible]

INSTRUMENT CALIBRATION RECORD

Calibration	By	± 10% All Scales	Recal. Due
3/23/89	G.F.	✓	9/89

100 cpm ≡ 1 nCi (n.DA = 10 nCi)

~~mR/hR~~ cpm = _____ ~~DPM/100cm²~~

Check Source: _____ mR/hR

Instrument: Ludlum model-3/44-3

Assigned to: Medpeta

F.X. Masse Associates Inc.
Maple Street, P.O. Box 95
Middleton, MA 01949
Tel. 617-245-6600

RADIATION MONITORING PROCEDURES

Exhibit C

WORK AREA MONITORING

I The purpose of this procedure is to allow an RIA department employee or supervisor to monitor the work area were radioactive materials are used, stored or disposed.

Procedure:
The person performing the survey should first verify that the calibration of the survey meter is in date. This instrument is calibrated twice per year. An important second step is to take a background survey well away from the radioactive materials use area. A note should be made of the background counts per minute at the " X 1"scale. It is the reading of "counts over background" which is important to the interpretation of any survey reading. When performing the survey hold the probe approximately 6 inches from the area being surveyed, whether a lab coat, bench top, or instrument. If the meter response appears to indicate a need for a quantitative reading hold the probe perpendicular to the area of interest and hold the instrument at rest for the reading.
Note the scale being used and multiply by the factor as appropriate.

Limits of acceptability are 100 cpm over background for all work areas except waste disposal areas, the limits of which are 300 CPM over background.

PERSONNEL MONITORING

II The purpose of this survey meter monitoring procedure is to provide the capability of im-mediate inspection of personnel for an accident related to radioactivity exposure. The Following procedure should be performed in any event of a spill of radioactive material to which personnel have been exposed, or upon the determination of contaminated levels of isotope around bench areas or instruments used by employees. This procedure used in the absence of a spill or suspicion of contamination, is a very sensitive indicator of exposure to radiation.

As above, verify the calibration date of the survey meter is within 6 months of the date of use. Perform a background check well away from the area where radioactive materials are used or stored and record background cpm. Perform the survey by holding the probe as perpendicular to the area of interest as possible at a distance of about 6 inches. When surveying personnel it is important to survey surface areas from the shoe level to face level. The meter will respond quickly and an effective way to determine exposure is to activate the "audio" portion of the response.

The surveyor can sensitively determine if an isolated area of the person needs a quantitative survey. If such a area is suspected, stabilize the probe and the meter, take a quantitative reading of the area in question. Multiply the reading by the appropriate scale factor.

The limit of acceptability for a reading for a survey of personnel is 0 counts over background. There should be no determination of radioactivity at any level above background.

See associated policies for documentation of survey meter use. If reading exceeds defined limits, appropriate response is to decontaminate the area of concern. A lab coat showing contamination can be easily be discarded for a new one. Referred to current polilicies for decontamination of bench tops or instruments as appropriate. If ingestion of isotope appears indidicated by survey the Laboratory Manager or Director should be notified immediately.

3/27/81

ADCO SERVICES, INC.

P.O. BOX 35 • TINLEY PARK, ILLINOIS 60477 • 312/429-1660

Exhibit D

Mr. Virgil R. Autry
Director
Division of Radioactive Material Licensing & Compliance
Bureau of Radiological Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Dear Mr. Autry:

Adco Services, Inc. will be providing radioactive disposal services for METPATH, INC., a generator located in your sited region.

Pursuant to our American Nuclear Insurers policy of $1,000,000 coverage for our facility in Tinley Park, Il., Adco Services, Inc. also provides financial liability coverage in the amount of $5,000,000 for any radioactive material we have in our possession during transport.

The above named generator/undersigned understands that you will accept Adco Services, Inc. liability coverage for financial requirements involved with the issuance of a transporter permit, in order to service this generator.

Please accept this letter as notice of an agreement between our two organizations.

Randy Jefferies
Randy Jefferies
Name

Technical Services Manager
Title

ADCO SERVICES, INC.
Company

4-19-89
Date

G S Stewart PhD
Name

Laboratory Director
Title

MetPath, Inc
Company

5-2-89
Date

USEcology

Radioactive Waste
Generator Registration

Please Print or Type
Shaded Areas For US Ecology Use Only

(1) GENERATOR NAME METPATH NEW ENG INC

(2) GENERATING FACILITY ADDRESS 63-65 ROGERS STREET

(3) CITY CAMBRIDGE COUNTY Middlesex

STATE MA (4) ZIP CODE 02142-

(5) ADMINISTRATIVE CONTACT J. E. STEWART

TELEPHONE
NORMAL HOURS A/C 617 - 864 - 9200 EXT. 103
AFTER HOURS A/C - - EXT.

(6) Indicate the site user permit number(s) assigned to you by the state.

Beatty, Nevada 0455 ADCO'S PERMIT

Richland, Washington

(7) If you have been assigned a US EPA generator ID Number for hazardous wastes generated at the above facility address, please indicate it here:

US EPA GENERATOR NUMBER - - NOT APPLICABLE

(8) Briefly describe the nature of your business:

(9) What regulatory authority issued the license for the generating facility:

- [x] US Nuclear Regulatory Commission
- [ ] Agreement State

(10) Will you be using the services of a broker in shipping wastes to US Ecology for disposal?

- [ ] No
- [x] Yes Name of Broker ADCO SERVICES, INC.

(11) How much waste do you expect to ship during a typical 12 Month period?

CU. FT. 30

DETACH AND RETURN COMPLETED

US ECOLOGY, INC.
P.O. BOX 7246
LOUISVILLE, KY 40207-0246

(12) Signature J E Stewart PhD
Print Name J E Stewart
Date May 5, 1989

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
APPLICATION FOR RADIOACTIVE WASTE TRANSPORT PERMIT

Applicability: Pursuant to Section 13-7-140, 1976 S.C. Code of Laws (as amended) and Department Regulation 61-83, a Radioactive Waste Transport Permit is required to be obtained by all generators who transport or have radioactive waste transported into or within the State of South Carolina. Persons whose activities result in the generation of radioactive waste have the primary responsibility to obtain a permit.

Instructions: Complete Items 1 through 19. Submit original and one copy to Chief, Bureau of Radiological Health, S.C. Dept. of Health and Environmental Control, 2600 Bull Street, Columbia, S.C. 29201. All items must be completed, required certificate of insurance or bond attached, and signed and dated by an authorized person. If an item is not applicable, indicate "N/A". Incomplete forms and failure to provide an insurance certificate will result in delays or denial of the permit. Additional sheets may be used if necessary. Upon approval, the Department will return one copy with the transport permit. All permit fees shall be remitted and made payable to the S.C. Department of Health and Environmental Control, Bureau of Finance, 2600 Bull Street, Columbia, S.C. 29201. Please NOTE on remittance - "FOR RADIOACTIVE WASTE TRANSPORT PERMIT."

NOTE: Radioactive Waste Transport Permits may be purchased for more than one facility or location of a company, corporation, etc. However, an application shall be submitted for each facility to include the additional fee and the required certificate of insurance or bond.

1. Name and Address of Applicant (Shipper/Generator) Mat Path / New England Inc 63-65 Rogers Street Cambridge Mass 02142	2. Person responsible for Radioactive Waste Shipments: a) Name: J E Stewart PhD b) Title: Laboratory Director c) Address: 63-65 Rogers St, Cambridge Mass 02142 d) Telephone: 617-864-9200 x 103
3. Shipment Location(s): a) same as above b) c)	4. NRC or Agreement State Radioactive Material License No. for each facility: a) 20-28042-01 b) c)
5. Total Estimated Annual Cubic Footage: 102. ft^3	6. Type of Permit and Amount of Fee Remittal: Renewal [ ] [X] [Y] [Z] New [X] [X] [Y] [Z] ($)
7. Complete Waste Descriptions: a) dry, solid waste from in vitro reagent b) usage. Includes toweling, plastic c) tubes, + glass containers d) e)	8. Physical & Chemical Form a) dry, solid waste b) plastic testtubes and glass c) containers from reagent d) packaging e)
	9. Waste Class and Stability a) b) c) d) e)
10. List Prominent Radionuclides: ^{125}I, ^{57}Co only	11. Total Estimated Radioactivity (Curies): 0.003 Curies ^{125}I, 0.08×10^{-3} Curies ^{57}Co
12. Does Waste Contain Any of the Following? [ ] EPA Classified Hazardous Materials [ ] Chelating Agents [ ] Pyrophoric Materials [X] None of the Above	13. If "Yes" to Item 12, Identify and Quantify. N/A
14. Type Solidification Agents: N/A [ ] Bitumen [ ] Cement [ ] Vinyl Ester Styrene [ ] Other_____.	15. Has Each Solidification Process Received NRC Topical Report Approval and Meet Stability Requirements? N/A [ ] Yes [ ] No

16. Name and Address of Broker, if used:	17. Name and Address of Carrier:
Adco Services, Inc PO Box 35 Tinley Park, Illinois 60477	same as 16.

Information to Be Submitted as Attachment

18. A Certificate of Liability Insurance issued to the generator shall be submitted as evidence of financial ability to protect the State of South Carolina and the public large from possible radiological injury or damage due to packaging, transportation, posal, storage, or delivery of radioactive waste. For those applicants not maintai liability insurance, they must deposit and maintain with the Department a cash or corporate surety bond in the amount of Five Hundred Thousand Dollars ($500,000.00). Failure to submit a current certificate or bond will result in processing delays.

CERTIFICATE

19. In compliance with Act No. 429 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, and Department Regulation 61-83, I hereby certify behalf of the named applicant (shipper/generator) to the South Carolina Department Health and Environmental Control that: (A) the named applicant (shipper/generator) comply fully with all applicable laws and administrative rules and regulations, bot State and Federal, and any disposal facility radioactive material license requireme and criteria regarding the packaging, transportation, storage, disposal, and delive such wastes; (B) the named applicant (shipper/generator) will hold the State of So Carolina harmless for all claims, actions, proceedings in law or equity arising out radiological injury or damages to persons or property occuring during the transport of its radioactive waste into or within the State including all costs defending sam provided, however, that nothing contained herein shall be construed as a waiver of State's sovereign immunity; (C) the named applicant (shipper/generator) has curren copies of the Regulations for the Transportation of Radioactive Waste Into or Withi State of South Carolina, DOT Regulations 49 CFR Parts 171-179, and when applicable, disposal site radioactive material license and the disposal site waste acceptance criteria; (D) the named applicant (shipper/generator) has prepared this applicatio conform with South Carolina Department of Health and Environmental Control's Regula for Transportation of Radioactive Waste Into or Within South Carolina, and that all information contained herein, including any required supplements attached hereto, i and correct to the best of my knowledge and belief.

Date May 5, 1989

Signature

Type Name and Title of Applicant's Authorized Representative

DHEC-800 (Rev. 10/84)

MetPath

Exhibit E

M E T P A T H
INTEROFFICE MEMORANDUM

FROM: J.E. Stewart

DATE: 4-28-89

TO: John Bower
Liz Keay

REFERENCE:

SUBJECT: Cobalt 57 Waste disposal

We have contracted for the disposal of I^{125} and Co^{57} waste separately because of their substantially different half-lives. Please develop procedures to maintain Co^{57} solid waste in a separate container. Because of the dual-labelled reagents, there will be some I^{125} in the Co^{57} waste. This separation should begin as soon as possible.

JES:dsr

cc: Jerry Frank
regulatory files

5-2-89 Liz Kenny
5-3-89
5-3-89

SOLID RADIOACTIVE WASTE PROCEDURE

I^{125} and Co^{57} must be disposed of separately because of their substantially different half-lives. Because of dual-labelled reagents, there will be some I^{125} in the Co^{57} waste. Co^{57} must <u>not</u> be disposed of in the I^{125} waste.

I^{125} Disposal

1. Boxes (20"x20"x20") and clear plastic bags are available in the logistics supply room. Boxes should be double-bagged and marked "RADIOACTIVE WASTE--I^{125}" on 2 sides of a box. (Do not use Biohazard boxes or other shipping containers).

2. Write: "START", date box was set up, and initial.

3. Tubes, contaminated paper towel blotters, and rinsed/defaced tracer bottles containing I^{125} <u>only</u> must be disposed of in this box.
   **NOTE: Co^{57} MUST NOT UNDER ANY CIRCUMSTANCES BE PUT IN THE I^{125} BOX.

4. When full, seal the bags by twisting the opening and taping shut. Close the box and seal with tape.

5. Write:"FULL", date box was closed, and initial.

6. Set up a new box.

7. Notify warehouse staff (Gary Medairos x 135) for removal.

8. The contents of the box will be compressed and transferred to a 55 gal. barrel which, when filled, will be removed to a contracted storage site.

Co^{57} Disposal

1. Boxes (18"x14"x13") and clear plastic bags are available in logistics supply room. Double bag the box and mark "RADIOACTIVE WASTE--Co^{57}" on 2 sides of the box.

2. Write:"START",date box was set up, and your initials.

3. Tubes, contaminated paper towel blotters, and rinsed/defaced bottles that contained Co^{57} must be disposed of in this box.

4. When full, seal the bags by twisting the opening and taping shut. Close the box and seal with tape.
5. Write "FULL", date box was closed, and your initials.

6. Set up a replacement box.
7. Notify warehouse staff (Gary Medairos x 135) for removal.

8. The contents of the Co^{57} box will be compressed and transferred to an appropriate container, which when filled, will be removed to a contracted radioactive waste site.

Exhibit F

UNITED STATES NUCLEAR REGULATORY COMMISSION
Washington, D.C. 20555

NOTICE TO EMPLOYEES

STANDARDS FOR PROTECTION AGAINST RADIATION (PART 20) NOTICES, INSTRUCTIONS AND REPORTS TO WORKERS; INSPECTIONS (PART 19); EMPLOYEE PROTECTION

WHAT IS THE NUCLEAR REGULATORY COMMISSION?

WHAT DOES THE NRC DO?

WHAT IS MY RESPONSIBILITY?

WHAT DO I GET A REPORT ON MY RADIATION EXPOSURE?

HOW DO I REPORT VIOLATIONS?

HOW ARE VIOLATIONS OF NRC REQUIREMENTS IDENTIFIED?

WHAT HAPPENS IN A RADIATION EMERGENCY?

WHAT DO I TALK WITH AN NRC INSPECTOR?

WHAT IS MY RIGHT TO REQUEST AN INSPECTION?

WHAT FORMS OF DISCRIMINATION ARE PROHIBITED?

HOW AM I PROTECTED FROM DISCRIMINATION?

CAN I BE FIRED FOR TALKING TO THE NRC?

HOW DO I CONTACT THE NRC?

WHAT WILL THE NRC DO?

WHAT CAN THE LABOR DEPARTMENT DO?

UNITED STATES NUCLEAR REGULATORY COMMISSION REGIONAL OFFICE LOCATIONS

Regional Offices

REGION	ADDRESS	TELEPHONE
I	U.S. Nuclear Regulatory Commission 631 Commerce Road King of Prussia, PA 19406	215-337-5000
II	U.S. Nuclear Regulatory Commission Region II 101 Marietta St. N.W. Atlanta, GA 30323	404-331-4000
III	U.S. Nuclear Regulatory Commission Region III 799 Roosevelt Road Glen Ellyn, IL 60137	312-790-5500
IV	U.S. Nuclear Regulatory Commission Region IV 611 Ryan Plaza Drive, Suite 1000 Arlington, TX 76011	817-860-8100
V	U.S. Nuclear Regulatory Commission Region V 1450 Maria Lane, Suite 210 Walnut Creek, CA 94596	415-943-3700

Note also,
10CFR Parts 19, 20
available for reference
to all employees
See Dr Stewart

Exhibit G

RIA WIPE TEST PROCEDURE

The wipe test involves wiping the decontaminated s[illegible] designated areas with one inch diameter filter paper or a cotton swab, and then counting the filter paper or the swab in a plastic tube (12 X 75 mm) in a Gamma Counter along with a background tube. As a rule of thumb, if the reading in an area exceeds ~~300~~ 100 counts per minute, it should be considered as a "hot" area. JS 8/20/84

1) Regularity of swabs shall be bi-weekly (every 2 weeks) JS 5-2-89

2) Number of swabs or wipes shall be ten from areas noted on the attached diagram.

3) Type of swab or wipes:

   a) I^{125} area will be wiped with a cotton swab or filter paper and counted in a plastic test tube (12 X 75 mm) in a Gamma Counter. A blank test tube with swab or filter paper will be counted as a background for 1 minute.

   b) Non-RIA bench top area will be wiped with a cotton swab or filter paper and counted in a plastic tube (12 X 75 mm) in a Gamma Counter along with a background with swab or filter paper for 1 minute.

4) Data:

   A rough schematic drawing of the laboratory, marking where the wipes were taken and a record of the CPM of the wipe and background will be filed in "Wipe Test" file in Radiation Safety Manual. The CPM should not exceed ~~300~~. 100 JS 8/20/84

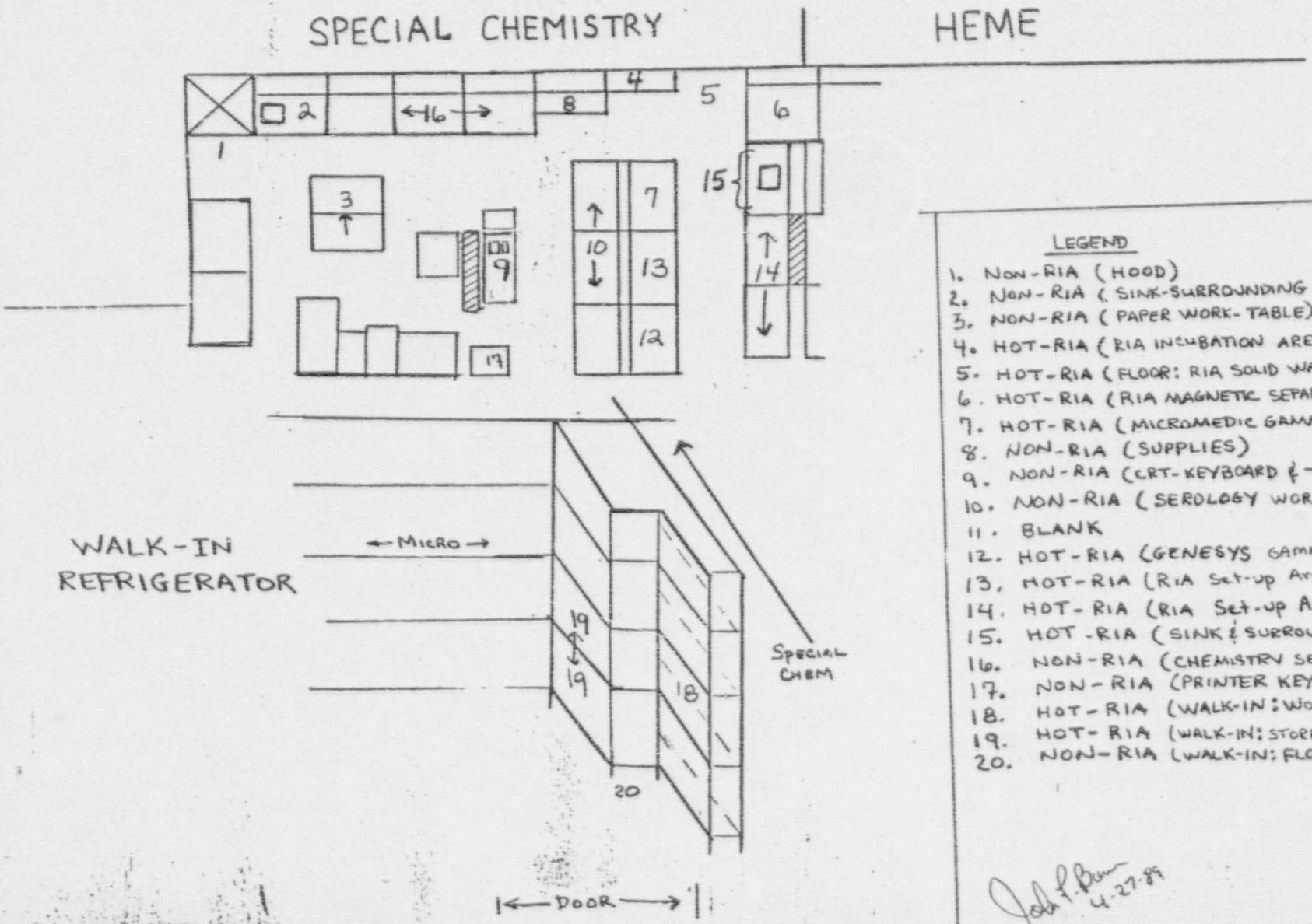
5) Action taken for high count areas:

   If absorbent paper is covering bench top, the paper shall be removed and discarded in the radioactive waste drum for iodine. The area is washed with Radiacwash and water and re-monitored. New absorbent paper is placed over the area. The same procedure is used for an area not covered by absorbent paper.

   If any of the above situations exist, the supervisor is notified in order to review handling protocol.

JES/nl
10/12/83
JE Stewart
10/14/83
8/20/84

WIPE TEST FLOOR PLAN
FOR SPECIAL CHEMISTRY



LEGEND

1. NON-RIA (HOOD)
2. NON-RIA (SINK-SURROUNDING AREA)
3. NON-RIA (PAPER WORK-TABLE)
4. HOT-RIA (RIA INCUBATION AREA)
5. HOT-RIA (FLOOR: RIA SOLID WASTE AREA)
6. HOT-RIA (RIA MAGNETIC SEPARATION AREA)
7. HOT-RIA (MICROMEDIC GAMMA COUNTER)
8. NON-RIA (SUPPLIES)
9. NON-RIA (CRT-KEYBOARD & TABLE)
10. NON-RIA (SEROLOGY WORK-AREA)
11. BLANK
12. HOT-RIA (GENESYS GAMMA-COUNTER)
13. HOT-RIA (RIA Set-up Area)
14. HOT-RIA (RIA Set-up AREA)
15. HOT-RIA (SINK & SURROUNDING AREA)
16. NON-RIA (CHEMISTRY SET-UP AREA)
17. NON-RIA (PRINTER KEYBOARD)
18. HOT-RIA (WALK-IN: WORKING RIA KITS)
19. HOT-RIA (WALK-IN: STORED RIA KITS)
20. NON-RIA (WALK-IN: FLOOR BY RIA AREA)

John F. Brown 4-27-89

4-25-89 LK

attach printout here.

RIA WIPE TEST

DATE _____
TECH _____

	AREA (refer to Wipe Test Floor Plan)	CPM	ACTION TAKEN IF CPM > 100	cpm after action
	1 HOOD			
	2 SINK-SUR. AREA			
	3 PAPER WORK-TABLE			
*	4 RIA INCUBATION AREA			
*	5 FLOOR: RIA SOLID WASTE			
*	6 RIA MAG. SEP. AREA			
*	7 MICRO. GAMMA COUNTER			
	8 SUPPLIES			
	9 CRT-KEYBOARD/TABLE			
	10 SEROLOGY WORK AREA			
	11 BLANK			
*	12 GENESYS GAMMA-COUNTER			
*	13 RIA SET-UP AREA			
*	14 RIA SET-UP			
*	15 SINK & SURROUNDING AREA			
	16 CHEMISTRY SET-UP AREA			
	17 PRINTER-KEYBOARD			
*	18 WALK-IN: WORKING RIA KITS			
*	19 WALK-IN: STORED RIA KITS			
	20 WALK-IN: FLOOR BY RIA AREA			

* HOT RIA AREAS

DATA FORM RIA WIPE TEST

DATE: 3/14/89

TECH: LK

AREA (RIA or Non RIA)	CPM.	Action taken if CPM > 100	CPM after Action
1 (Non-RIA)			
2 (RIA)			
3 (RIA)			
4 (RIA)		all <100 cpm no action taken LK	
5 (RIA)			
6 (RIA)			
7 (RIA)			
8 (NON-RIA)			
9. (RIA)			
10. (RIA)			
11 (RIA)			
12 (Non-RIA)			
13. (RIA)			
14. (RIA)			
15. BLANK			

PROTOCOL EDITED BY: LTI ON: JAN 01 85 UNITS:

TUBE LOADING ORDER

TUBE	REPLICATIONS	DOSE	TEMPLATE	RESPONSE	LOWER LIMIT	UPPER LIMIT	NAME
UNK	1						

RESPONSE VARIABLE IS CPM

TUBE TYPE	TUBE #	TRAY POS	CPM	%CV	RESPONSE	AVG RESPONSE	DOSE	AVG RESULTS	COMMENTS
UN0001	1	101	9		8.98963			8.98963	
UN0002	2	102	10		10.039			10.039	
UN0003	3	103	1		0.99436			0.99436	
UN0004	4	104	26		26.203			26.203	
UN0005	5	105	5		4.98839			4.98839	
UN0006	6	106	0		0.00			0.00	
UN0007	7	107	4		3.97868			3.97868	
UN0008	8	108	0		0.00			0.00	
UN0009	9	109	1		0.99723			0.99723	
UN0010	10	110	0		0.00			0.00	
UN0011	11	111	10		9.99477			9.99477	
UN0012	12	112	0		0.00			0.00	
UN0013	13	113	0		0.00			0.00	
UN0014	14	114	0	BL	0.00			0.00	
UN0015	15	115	0	BL	0.00			0.00	

CLINICAL LABORATORY RADIATION SAFETY RULES

Exhibit H

1. Eating, storing, or preparing food, smoking, or cosmetics is forbidden in any area where radioact are stored or used.

2. Direct contact with radioactive materials must be avoided by using protective laboratory coats and employing safety pipettors. No pipetting should be done by mouth.

3. All spills of radioactive materials must be wiped up immediately. All surfaces should be thoroughly cleaned with a suitable detergent and all contaminated materials disposed of in a suitable container, or flushed down an appropriate drainage with copious amounts of water.

4. Complete records or receipts, transfers, and disposal of radioactive materials must be kept.

5. RIA and any other radiological work should be conducted in a designated area, away from traffic. Radioactive materials should be stored in specially designated areas.

6. All radioactive materials should be properly labeled displaying the expiration date and should be covered.

7. Liquid and solid wastes should be put into designated containers. Used radioactive test solutions may be disposed of by flushing down a laboratory sink drain with copious quantities of water. The radioactivity may be discharged into the sanitary sewage provided the discharge concentration does not exceed 4×10^{-5} microcuries per ml.

8. Before leaving the laboratory after working with radioactive materials, each person should wash his or her hand thoroughly.

9. Prior to disposal of the empty uncontaminated kit and tracer containers to unrestricted areas, remove or deface the radioactive material labels or clearly indicate that the containers no longer contain radioactive materials.

10. Handle the products derived from human blood as is capable of transmitting Hepatitis.

In conclusion, a clean operation is the key to using radioiodine safely and to protecting laboratory personnel from unnecessary exposure. These guidelines are intended to highlight the important aspects of a radiation safety program.

JES/nl
9/26/83

Radiation Safety
Personnel Monitoring Program

Exhibit I

The following procedure has been indicated by the recent change of our Radioactive Materials License from a "general" type to a "specific" one.

The level of use of radioactive isotope by this laboratory remains sufficiently low that adherence to established policies for use of lab coats protective gloves, radiation safety, and use of good judgement will place the exposure of any employee to levels below detectable limits of any established monitoring program. In order to address the responsibility of the Company to provide an estimate of exposure of each employee to radiation, we will use a monitoring program designed to establish the minimal levels of exposure of those persons using the greatest amount of isotope as part of their daily responsibility.

Personnel in Special Chemistry will all be provided a badge and be required to wear it on the lab coat at all times. Personnel in Toxicology may enroll in the badge program by a request to their Manager, providing him their Social Security number and date of birth.

The service employed is that of Landauer, Glendale, Illinois. The badge will be replaced monthly and returned for development. A copy of the report will placed in the personnel file of each monitored employee when returned.

A second part of this procedure involves the use of the survey meter to monitor all lab coats for exposure. This procedure is outlined in an attached policy. The survey meter is an extremely sensitive method of detecting radioactivity (Note that the radiation from natural sunlight is detectable with this meter at a level of 50-100 cpm.) The use of the meter to monitor lab coats may in fact detect an otherwise unknown spill. It's greatest use, however, is a measure of the general level of careful performance of procedure at the bench.

If a significant degree of contamination is shown, (100 cpm or more) on a lab coat it should be placed in the dirty laundry bin immediately. If such an action is necessary on a regular basis, the employee(s) should be counseled relative to careful laboratory technique. Although 100 cpm does not constitute a health hazard, per se, the lack of careful technique may lead to other errors which compromise safety or quality.

The survey meter may detect areas of the work area or instruments which are contaminated. All isotope reagents we use are water soluble and may be easily decontaminated with a damp, soapy paper towel, or alcohol pad. (Note that care should be used with damp towels on electric instruments or keyboards.

In the rare case of a significant spill of tracer to the face, immediately wash repeatedly with a continuous stream of water. Avoid ingestion (swallowing). Notify the Director and Lab Manager immediately at any time of the night or day.

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