



University of Connecticut
Division of Environmental Health and Safety

Date: February 10, 2014

To: Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission, Region I
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406-2713

Br. 2

REC RG 102 18 14 AM 07:40

License No. 06-01450-47

Docket No. 03010576

Subject: University of Connecticut Stamford Campus

Upon examination of archive records, despite information previously provided (correspondence control No. 137606), Carbon-14 was used by one authorized Licensed Investigator at the former UConn Stamford campus on 641 Scofieldtown Road. The enclosed documents include information that the radioisotope was authorized between June 11, 1982 and September 1984 with no more than 5 mCi. Also enclosed are final survey records and verification showing that the residual radioactivity was removed from the site to a level below 100 dpm as determined by liquid scintillation counting. The MDA was calculated to be 15 dpm based on the final survey data on file. The site was removed from the NRC license (correspondence dated September 21, 2000) and this serves to provide complete information.

Sincerely,

Amy Courchesne, RSO
Radiation Safety Manager

cc: Kenneth Price, MPH, CHP, Executive Director
Terence Monahan, Director

Enclosures (4)

An Equal Opportunity Employer

3102 Horsebarn Hill Road Unit 4097
Storrs, Connecticut 06269-4097

Telephone: (860) 486-3613
Facsimile: (860) 486-1106
web: www.ehs.uconn.edu

583432
NMSS/RGNI MATERIALS-002

University of Connecticut

Stamford Campus

Radionuclide Authorization Documentation

RADIATION SAFETY COMMITTEE
RADIOISOTOPE USAGE PERMIT

PERMITTEE Dr. Charles Yarish PERMIT NUMBER 75-142
Biological Sciences Group
 LOCATION OF USAGE, BUILDING Stamford Campus, UCT ROOMS 102
 EXPIRATION DATE _____

[illegible]

Dr. Ronald Giedd is approved to supervise, under the terms of this permit, the work of Dr. Yarish's graduate student, for the period of one year, beginning August 31, 1983.

Signed

Francis Harker.

or Radiation Safety Officer

University of Connecticut

**RADIATION SAFETY COMMITTEE
RADIOISOTOPE USAGE PERMIT**

The permittee is granted permission by the Radiation Safety Committee to receive, possess, and use the radioactive materials specified here under the conditions of this permit, the regulations of the U.S. Nuclear Regulatory Commission, the Laws of the State of Connecticut, standard safe radiation safety practices, and the regulations of the University of Connecticut as stated in the Procedures for Radiation Protection.

PERMITTEE Charles Yarish PERMIT NUMBER 75-142
 LOCATION OF USAGE, BUILDING Biological Sciences Group
Stamford Campus, UCT ROOMS 102
 EXPIRATION DATE -----

Isotope	Maximum Activity To Be On Hand (mCi)	Maximum Activity To Be Purchased At One Time	Maximum Activity To Be Purchased In One Year
¹⁴ C(Sodium Bicarb)	10	5	25

Conditions on isotope use (in addition to the conditions stated on the Application Protocol signed by the permittee dated April 21, 1982)

Date June 11, 1982 Signed Vincent J. Penker, Ph.D.
 Chairman of Radiation Safety Committee
 or Radiation Safety Officer

University of Connecticut

RADIATION SAFETY OFFICE, U-97

Protocol Review Sheet

Responsible Investigator Dr. Charles Yarish
Department Biological Sciences Group, UConn at Stamford
Presently licensed at University of Connecticut. yes () no (X)
Nuclide Requested ^{14}C (Sodium bicarbonate) Maximum Amount 10 mCi
TRAINING: (X) adequate () inadequate
FACILITIES: (X) adequate () inadequate
WASTE DISPOSAL PROCEDURES
(a) Solid (X) adequate () inadequate
(b) Liquid (X) adequate () inadequate
TYPE OF WORK PROPOSED: (X) routine () nonroutine
Special Hazards -- None

COMMENTS: *The Radiation Safety Office should visit the Stamford lab to review the facilities and procedures prior to starting work. It is noted that the LSC to be used is located at Storrs. This means samples will have to be packaged in accordance with appropriate NRC regulations for transport between the campuses.*

APPROVAL RECOMMENDED

yes ()

no ()

Date _____ reviewed by _____



Approved



Not Approved

Date 11 JUN 82 Committee member W. J. Kelleher

UNIVERSITY OF CONNECTICUT
RADIATION SAFETY OFFICE
U-97

PROTOCOL REVIEW SHEET

Responsible Investigator: Chas. Yarish

Department: _____

Presently Licensed at University of Connecticut: Yes () No ()

Nuclide Requested: _____ Maximum Amount: _____

Training: () Adequate () Inadequate

Facilities: () Adequate () Inadequate

Waste Disposal Procedures:

(a) Solid () Adequate () Inadequate

(b) Liquid () Adequate () Inadequate

Type of Work Proposed:: () Routine () Nonroutine

Special Hazards

Comments:

Approval Recommended: ☒ Yes () No

Date: _____ Reviewed By: _____

☒ Approved ☐ Not Approved

With 5mCi order only.

Date: 6-11-82 Committee Member James Knox

UNIVERSITY OF CONNECTICUT
RADIATION SAFETY OFFICE
U-97

PROTOCOL REVIEW SHEET

Responsible Investigator: _____

Department: _____

Presently Licensed at University of Connecticut: Yes () No ()

Nuclide Requested: _____ Maximum Amount: _____

Training: () Adequate () Inadequate

Facilities: () Adequate () Inadequate

Waste Disposal Procedures:

(a) Solid () Adequate () Inadequate

(b) Liquid () Adequate () Inadequate

Type of Work Proposed:: () Routine () Nonroutine

Special Hazards

Comments:

Approval Recommended: () Yes () No

Date: _____ Reviewed By: _____

X Approved _____ Not Approved

Date: June 11, 1982 Committee Member J. Lucas-Leland

University of Connecticut

RADIATION SAFETY OFFICE, U-97

Protocol Review Sheet

Responsible Investigator Dr. Charles Yarish
Department Biological Sciences Group, UConn at Stamford
Presently Licensed at University of Connecticut. yes () no (X)
Nuclide Requested ^{14}C (Sodium bicarbonate) Maximum Amount 10 mCi
TRAINING: (X) adequate () inadequate
FACILITIES: (X) adequate () inadequate
WASTE DISPOSAL PROCEDURES
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(b) Liquid (X) adequate () inadequate
TYPE OF WORK PROPOSED: (X) routine () nonroutine
Special hazards -- None

COMMENTS: The Radiation Safety Office should visit the Stamford lab to review the facilities and procedures prior to starting work. It is noted that the LSC to be used is located at Storrs. This means samples will have to be packaged in accordance with appropriate NRC regulations for transport between the campuses.

APPROVAL RECOMMENDED

yes ()

no ()

Date _____ Reviewed By _____



Approved



Not Approved

Date

6/11/82

Committee Member

Quentin Kessel

Approved -

John C. Carl
6-11-82

THE UNIVERSITY OF CONNECTICUT
PROTOCOL FOR THE USE OF RADIONUCLIDES

Please type or print clearly.

Complete and return to:

RADIATION SAFETY OFFICE, U-97

1. Applicant's Name Charles Yarish Telephone No. 322-3466
Department Biology Building Stamford Campus
U # _____ Office No. 103 Radionuclide Lab No(s) 102
2. Radionuclide requested (only one per Protocol, e.g., ^{14}C or ^3H or ^{32}P etc.) _____
A. Estimate total quantity to be purchased over next year 25 mCi
B. Maximum activity to be acquired at any one time 5 mCi (milli-
C. Maximum activity to have on hand at any one time 10 mCi curies)
D. Chemical form (list compounds) Sodium bicarbonate / I^{14}C /
E. Physical state: Liquid(☒) Gas() Sealed Source() Crystalline() Powder()
If material is received as a powder, will it be dissolved in shipping vial?
yes _____ no _____
F. Are either of the following to be used:
Infectious viruses yes _____ no ☒ If answer to either is yes, please
Carcinogenic agents yes _____ no ☒ outline deactivation in Item 6.
G. Are animals to be used? yes _____ no ☒ Species _____ Will the
Animal Care Center be involved in caring for radioactive animals? yes _____ no _____
3. Facilities available for handling radionuclides. (Note: To monitor areas and equip-
ment for radioactive surface contamination, use dry smears made of Whatman filter
paper, counted in a scintillation counter.)
☒ Hood (Room # 102) ☒ Appropriate signs and labels
☒ Disposable gloves ☒ Waterproof backed absorbent
☒ Remote pipette (e.g., not by mouth) material for bench and floor
☒ Trays to contain spills covering
☒ Film badges Other: _____
☒ Geiger counter (Where stored? 102) _____ List shielding materials (if
Liq. Scint. Counter (Where? Storrs) needed):
Gamma Scint. Counter (Where? _____) *material will have to be transported
i.e. w. NRC regulations.*
4. WASTE DISPOSAL: Federal and State regulations require written records of the disposi-
tion of all radionuclides. To this end, you will be required to furnish a quarterly
written report detailing the disposition of all radionuclides received by you.
A. Have you made arrangements with the Radiation Safety Office to
obtain appropriate radioactive waste containers, and have you yes ☒ no _____
the proper materials for packing solid and liquid wastes?
B. Have you planned for a record keeping system to enable you to
correctly label waste containers as to radionuclide, date, and yes ☒ no _____
quantity when full?
C. If using animals, have you made provision for frozen storage of yes _____ no _____
carcasses prior to pick-up by the disposal service? n.a. ☒
D. Is there any possibility of a radioactive gas release? yes _____ no ☒
5. LABORATORY:
A. Have you posted an NRC-3 form in a conspicuous place? yes ☒ no _____
B. Have you obtained a copy of University of Connecticut Radiation
Safety Manual with NRC Regulations, University of Connecticut
Procedural Manual, and appropriate inspection and inventory yes ☒ no _____
sections?
C. Do you have signs posted informing all occupants that no smoking,
eating, or drinking are permitted in a radionuclide lab? yes ☒ no _____
D. Are you familiar with the emergency procedures as outlined in the
Radiation Safety Manual? yes ☒ no _____

ATTACHMENT #1 QUESTION #6

Carbon-14 will be the only radioactive isotope employed in the following assays. This isotope will be used to measure carbon uptake rates by seaweeds which will then be used to compute productivity values.

Seaweed plants are to be incubated under various regimes of salinity and temperature (twenty-five combinations can be examined at one time). After a short period of acclimation, a 1 ml. aliquot, containing a specific activity of 20 μ Ci/ml of radioactive carbon, will be injected into each incubation vessel. These vessels will be air tight and can be penetrated only through a rubber septum. All injections will be made with disposable, plastic syringes. Immediately after these injections and after adequate agitation, 1 ml. aliquots are withdrawn with new, properly labeled plastic syringes and emptied into scintillation vials containing the appropriate fluor.

Upon completion of the incubation period, the radioactive plants are removed from their vessels (work done in a ventilation hood), washed three times in distilled water and individually placed into properly marked plastic bags. The bags are stapled shut, put on dry ice until the entire run is complete and then all bags are placed into a freeze dryer. The incubation solution from which the plants have been removed will be immediately frozen to terminate biological activity. Once the seaweed handling is complete, the frozen solutions will be thawed and handled as follows: 30 ml. aliquots from each incubation solution will be placed into test tubes, the solution will be acidified and bubbled with oxygen (performed in a ventilation hood). Radioactive release during this process is expected to be minimal. Upon completion of the bubbling, three replicates of 10 ml. each will be dispensed into separate ampoules, containing an oxidant, and sealed. The remaining incubation solution will be treated as wastes and deposited into a 1 gal. glass jug to which Speedy Dry is added (1 gal. waste/ per 2 lbs. speedy dry).

Liquid waste must be absorbed so that no free standing liquid is present.

The sealed ampoules will be analyzed according to a standard total organic carbon analysis technique. The liberated CO_2 (radioactive and non-radioactive) is carried in a stream of nitrogen gas into an infrared analyzer. The gas is then vented into a scintillation vial containing a CO_2 absorbant material. This technique does not allow any gas release

to the atmosphere.

The dried seaweed tissue (radioactive) is ground into fine particles (test-tube type tissue grinder, performed in a ventilation hood). Specified sub-samples are removed and placed into scintillation vials containing the appropriate fluor. The remaining tissue is placed into properly labeled closed vials and stored in a dry location.

All experiments as described above as well as variations which may become necessary will be performed in restricted areas, clearly marked for radioactive work. Surgical gloves and protective clothing will be worn at all times when working with radioactive materials. All steps during the experimental protocol which might allow some radioactive gaseous release will be performed in a ventilation hood. All work-bench areas will be lined with waterproof backed absorbant material and all glassware and laboratory equipment used in the assays will be clearly marked for radioactive work. Each work area will have a clearly marked waste (solid) disposal container (plastic bag). These bags will be placed into a properly marked 30 gal. drum, which when filled will be removed by the radiation safety personnel from the Storrs Campus (upon notification). This is also true of liquid (organic) wastes and for the disposable scintillation vials. All containers containing radioactive waste materials will be clearly marked as to the contained radioactive tracer (^{14}C), estimated activity and location of origin and experimenter.

Upon the receipt of the radioactive isotope from a vendor, the packaging container and enclosed items will be properly examined for breakage, leakage and contamination according to section E of the radiation safety manual and entered into the radioactive material inventory log. This log will include date and amount of radioactivity received. Also it will include dates of disposal and kinds of material disposed of.

ATTACHMENT #2 QUESTION #7

In case of an accident, the procedural steps as delineated in Appendix 4 of the radiation safety manual will be followed. This includes immediately notifying the Radiation Safety Office at Storrs giving them information pertaining to the accident location, number of people involved, type of radiation exposure and name and telephone of the individual giving the information. All those involved in an accident will be kept together near the accident area. Spreading of contamination will be prevented by isolating and restricting entrance and exit to the accident area.

In case of a liquid spill (most likely the type of accident that would be observed during these assays) the clean-up effort would follow the guide lines as stated in Appendix 5. Protective clothing (gloves, lab coat) is to be worn, and appropriate cleaner will be used, the spill will be contained by wiping from the outside toward the center and upon completion, wipe tests will be done to determine degree of contamination. All wastes generated during this process are to be properly disposed of into the appropriate waste containers.

Section F (Laboratory Contamination Surveys) will be performed monthly at all locations where radioactive contamination could have occurred. This will be done by wiping the area with a Whatman filter paper (1" diameter) with subsequent scintillation counting yielding results in DPM. For gross analysis, Geiger counting detection will be used.

THE UNIVERSITY OF CONNECTICUT

Radiation Safety Office

STATEMENT OF TRAINING

Please type or print clearly.

Complete and return to U-97
with Protocol for the Use of
Radionuclides

Applicant's name Dr. Charles Yarish Telephone 322-3466

Department Biological Sciences Group U-Box # Stamford Campus

Formal training: Describe any formal training you have had in areas of Radiation Safety. Indicate areas covered (i.e., radiation fundamentals, detection, handling procedures, and biological effects), dates, duration, and location of the course.

March 1, 1982: Workshop & seminar on liquid scintillation at the Medical School of the University of Connecticut.

March 22, 1982: Seminar program on radiation safety at the Medical School of the University of Connecticut.

March ⁷(25-25), 1982: Worked at the Flax Pond Research Lab of the State University of New York with Drs. B. Brinkhuis & D. Hannisak on developing protocol for experimentation using C-14. In addition, my graduate student and I worked and observed the proper techniques using radioactive isotopes. The lab was involved with productivity research.

1972: In the Army I was involved with the handling, detection and the use of —
Experience with radiation: Summarize your experience with radiation including types of sources used, location of use, maximum used at one time, duration of use, and type of use.

1972: I was given instruction on the use of atomic weapons which included the proper detection, handling, and subsequent cleanup after use. I was involved in this program for 1 year.

1975: In plant physiology and plant metabolism courses I used C-14 for metabolism studies.

1982: Worked on several occasions with Drs. Hannisak and Brinkhuis using C-14 in productivity studies using seaweeds. Spent several working days (8 hr duration) with these researchers.

THE UNIVERSITY OF CONNECTICUT

Radiation Safety Office

STATEMENT OF TRAINING (CONTINUED)

Please type or print clearly.

Complete and return to U-97
with Protocol for the Use of
Radionuclides

Applicant's name Dr. Charles Yarish

Telephone 322-3466

Department Biological Sciences Group

U-Box # Stamford Campus

Formal training: Describe any formal training you have had in areas of Radiation Safety. Indicate areas covered (i.e., radiation fundamentals, detection, handling procedures, and biological effects), dates, duration, and location of the course.

chemical, biological and radiological warfare. I was the ranking NCO in the Army National Guard, Austin, Tx, Signal Corp unit and at that time I was involved with the training of personnel concerning the aforementioned military program.

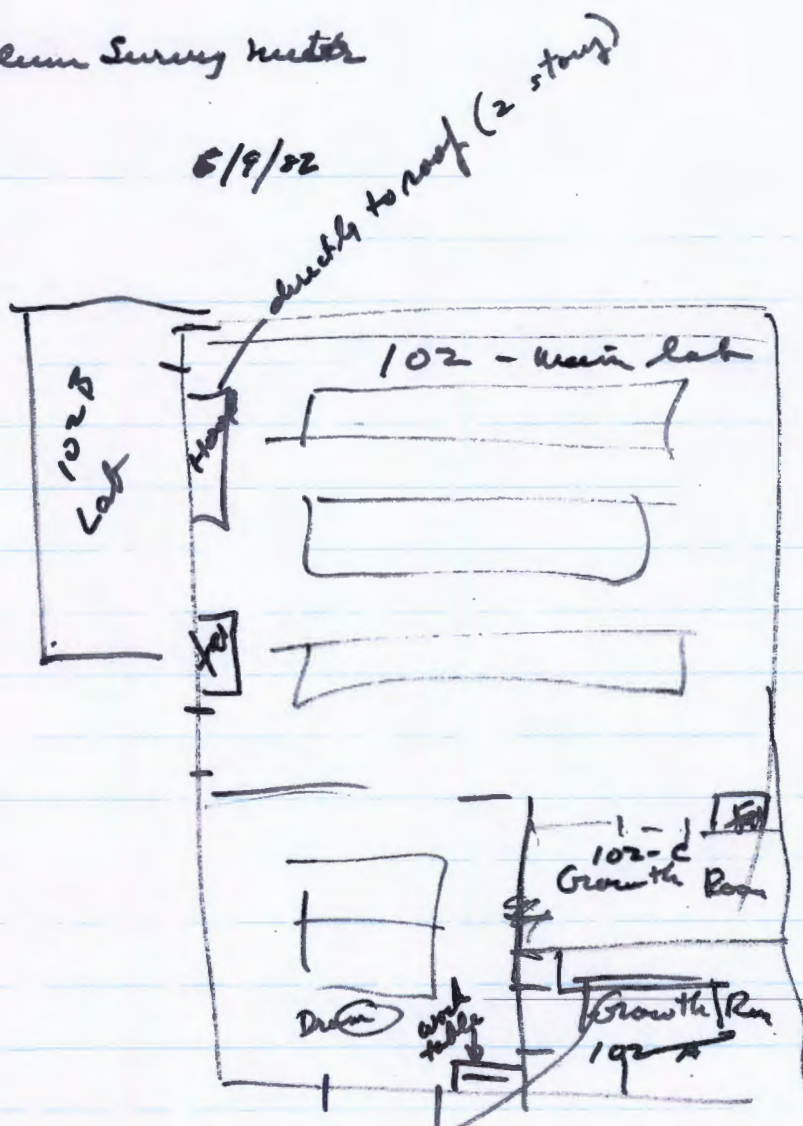
Experience with radiation: Summarize your experience with radiation including types of sources used, location of use, maximum used at one time, duration of use, and type of use.

¹⁴C source
Eberline and Ludlum Survey meter

Dr. Charles Yarish

6/8/82

Rm 102,



Temperature gradient table

Total experiment ~ 3 mo.

NaHCO_3 - will be diluted 20 $\mu\text{Ci}/\text{ml}$ (~~upper limit~~) ^{probably much lower}
inject 20 μCi (or 1 ml) into 300 ml incubation flask
incubated w/ 1/2 hr on temp grad table.

plant withdrawn w/ forceps, the plant is washed by dipping
in 1 liter flask of water. * disposal

plant placed in plastic bag, freeze dried & identified, weighed
- tissue in ground, max of 25 mg of dried tissue or plant

Possible procedures for quantitating
in LSC

- ① Tissue \rightarrow solubilizer (protocol) in hood, heated to $40-50^{\circ}\text{C}$
capped & counted - UConn Koontz
- ② Tissue oxidizer - CO_2 driven off into LSV^{+ube} CO_2 absorber.
Capped & counted in LSC

Flasks contain dissolved organic C

- take ~ 35 ml from each flask - put in test tube in
hood, acidified & purged with O_2 to release any
unreacted ^{14}C material. 7-10 min purge.

3 - 10 ml aliquots taken, put into ampules
put in autoclave in wet chemical combustion
technique to release the CO_2 which collects
in the upper chamber. Taken to Avers Pt to
total organic C analyzer. Run thru an IR
analyzer, the exit gas will be trapped in Oxi-flor,
counted in LSC

Geiger-counter Sargent-Welch Kfg \bar{c} metal tube probe

Liquid ampule - 5 mCi

The Lab surveys - swipes sent to RSO

University of Connecticut

Stamford Campus

Radionuclide Inventory Documentation

Date	Rel#	Vendor	Investigator	Spot type	SHIP DATE Del Date	C.W.	Rec'd	Date	Rel#	Vendor	Investigator	Spot type	Ship Date	C.W.	Rec'd
5-4	U95	NEN	Krider	3H 5mCi	5-6	✓	✓	6-10	V30	NEN	Diabovini	3H - 1mCi	6/15	✓	RR
5-4	U96	NORLAND	Narver	Godantras 200 mCi	6-14	✓	✓	6-10	V31	Pharmacia	Allen	Phaedras	6/11	✓	RR
5-6	U97	ICN	Pze	P32 1mCi	5-11	✓	✓	6-11	V32	NEN	Lucas-Leland	35S - 5mCi	6/15	✓	RR
5-7	U98	Amersham	Phillips	C14 250uCi	5-10	✓	✓	6-11	V33	ICN	Steinberg	32P - 1mCi	6/14	✓	RR
5-11	U99	NEN	Repro	H-3 250uCi	5-13	✓	✓	6-16	V34	NEN	Goldinich	32P - 1mCi	6/21	✓	RR
5-12	V11	ICN	Lucas-Leland	H-3 5mCi	5-13	✓	✓	6-17	V35	NEN	Clark	14C - 250uCi	6/24	✓	RR
5-13	V12	APJ	Khanitars	H-3 250uCi	5-18	✓	✓	6-17	V36	Union Carbide	Repro	mg - 28 - 1 unit	7/19	✓	RR
5-17	V13	NEN	J. Gould	C14 250uCi	5-20	✓	✓	6-21	V37	NEN	Repro	3H - 250uCi	6/24	✓	RR
5-19	V14	SWARTZ-MANN	Capra/Cohen	3H 250uCi	no pear work.	✓	✓	6-22	V38	NEN	Diabovini	32P - 250uCi	6/29	✓	RR
5-20	V15	Amersham	Bout	I 5mCi	5/24	✓	✓	6-22	V39	NEN	Heywood	14C - 50uCi	6/24	✓	RR
5-24	V16	NEN	Straubach	T4 300uCi P32 250uCi	5-27	✓	RR	6-23	V40	ICN	Leland	3H - 5-1mCi	6/23	✓	RR
5-25	V17	NEN	Jones	3H 1mCi	5-27	✓	RR	6-24	V41	NEN	Khairallah	14C - 50uCi	6/29	✓	RR
5-25	V18	ICN	Glantars	3H 1mCi	5-26	✓	RR	6-25	V42	ICN	Raufer	14C - 250uCi	6/25	✓	RR
5-27	V19	Repro	Goldinich	3H sets	5-28	✓	RR	6-25	V43	Amersham	Phillips	3H - 1mCi	6/23	✓	RR
5-27	V20	ICN	Goldinich	S35 1mCi	5-28	✓	RR	6-28	V44	NEN	Goetnick	35S - 1mCi	7/1	✓	RR
5/28	V21	NEN	Diabovini	P32 250mCi	6-3	✓	RR	6-29	V45	NEN	Schendel	32P - 2mCi	7/1	✓	RR
5/28	V22	NEN	Amnelli	Hg 500uCi	6-3	✓	RR	6-29	V46	NEN	Chornich	32P - 250uCi	7/1	✓	RR
6/1	V23	ICN	Lucas-Leland	3H 5mCi	6-2	✓	RR	6-30	V47	NEN	Rosenberg	I - 4mCi	7/1	✓	RR
6/2	V24	NEN	Pze	C14 50uCi	6-2	✓	RR	7-1	V48	Amersham	Diamatsoo	3H - 25uCi	7/8	✓	RR
6/2	V25	ICN	Pze	P32 1mCi	6-3	✓	RR	7-2	V49	NEN	Cameron	3H - 250uCi	7/8	✓	RR
6/4	V26	NEN	Krider	3H 5mCi	6-8	✓	RR	7-2	V50	NEN	Heywood	32P - 1500uCi	7/8	✓	RR
6/8	V27	NEN	Donib (Chornich)	32P - 250uCi	6-10	✓	RR	7-6	V51	NEN	Clark	32P - 500uCi	7/13	✓	RR
6/9	V28	NEN	Straubach	32P - 1mCi	6-15	✓	RR	7-8	V52	NEN	Jarish	14C - 5mCi	7/13	✓	RR
6/9	V29	ICN	Pze	P32 - 2mCi	6-1	✓	RR	7-8	V53	NEN	Khairallah	14C - 50uCi	7/13	✓	RR

UNIVERSITY OF CONNECTICUT SP0 03552
STORRS, CONN.
TRANSFER VOUCHER V52-59259

TV No. 59259

Biology Dept.
 Botany Section
 Stamford Branch

THESE VOUCHERS TO BE
 USED BY DEPARTMENTS
 OF THE UNIVERSITY
 ONLY FOR ENTERING
 CHARGES AGAINST OTH-
 ER DEPARTMENTS OF THE
 UNIVERSITY.

VOUCHER NO. DATE PAID

DEPARTMENT CHARGED

University Box Number

Radiation Safety

U-97

M. Heller

Prepared By

Date Prepared

APPROVED FOR PAYMENT

DEPARTMENT CREDITED

CONTROLLER

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1.Std.Pkg.	NEC-086H 5mCi Sterile aqueous solution in sealed ampoule		\$ 326.00
	TRANSPORTATION		7.00
	NEW ENGLAND NUCLEAR - Vendor		
NOTE: Please notify Dr. Yarish or Mr. Heller at the Stamford Campus (322-3466 ext. 61/23) when shipment has arrived.			
TOTAL			\$ 333.00

ACCOUNT(S) CHARGED

Fiscal Year	Fund	Agency	Spec. Ident.	Function	Activity	OBJECT		List No.	Amount	Ref. No.	Fund Source	Proj.
82/83	0000	7301	564	22	5301	Maj.	Min.		\$ 333.00		43	368

ACCOUNT(S) CREDITED

Fiscal Year	Fund	Agency	Spec. Ident.	Function	Activity	OBJECT		List No.	Amount	Ref. No.	Fund Source	Proj.
82/83	1171	7301	000	22	5006	Maj.	Min.		\$ 333.00		35	003

DEPARTMENT CREDITED COPY

RECEIVED AT
Radiation Safety

FORM NO. PUR. 6'ED. 5/78
STATE OF CONNECTICUT
Board of Higher Education
The University of Connecticut

DATE 7/29/82

PARTIAL
DELIVERY

Check
X

RR 26120

FREIGHT OR
EXPRESS

PREPAID OR
COLLECT

Receiving Report

FINAL DELIVERY
ORDER COMPLETE

TO BE FILLED IN BY RECEIVING AGENT

Condition	Description	Quantity	Unit Price	Amount
	NEC-086H	5 mCi		\$326.00
	TRANS.			7.00
	Radioisotope Rel. #V52-59259			\$333.00

RECEIVED FROM

INSPECTED BY

VENDOR
NEN

ORDER No.
03552

RECEIVED BY

ORIGINAL-PURCHASING U-76

DUPLICATE-USING DEPARTMENT

BO-21 REV. 3/79
(Comptroller's CD-17)

**An Agency of the State of Connecticut
Board of Higher Education**

Please complete all four copies* of this set and send all four to:

● U. CONN. PURCHASING DEPT., BOX U-76, STORRS, CONN. 06268

FOR STATE AGENCY USE		
AMOUNT OF CHECK \$	PAYMENT LIST DATE	PAYMENT LIST NO.
Pay to:	FORM 1099 REPORT <input type="checkbox"/> Yes <input type="checkbox"/> No	RES. OF FUNDS NO.

VENDOR: Please fill in below.

NAME OF VENDOR and address to which check is to be sent	NEW ENGLAND NUCLEAR P.O BOX 3451 BOSTON, MASS 02241		DATE OF INVOICE 7/20/82		PURCH. ORDER NO. (One Only) 03552
	FEDERAL REPORT INFORMATION VENDOR: This section must be filled in.		YOUR BILLING IDENTIFICATIONS (E.g., number, date, or name. Will appear on State's check to show what you are being paid for.)		1. 587593 2. 3. 4.
Are you INCORPORATED? (Check one) <input type="checkbox"/> Yes <input type="checkbox"/> No (if NO, fill in next line)					
Either →	YOUR FEDERAL EMPLOYER NO. (If you have one)	Or →	YOUR SOCIAL SECURITY NO. (If you have no Employer No.)		
	042203944				

(Authorized signatures)

COMMODITIES RECEIVED OR SERVICES RENDERED (Signature)	EXPENDITURE AUTHORIZED AND PROPERLY CHARGEABLE TO APPROPRIATIONS AS INDICATED BELOW (Authorized Signature)
--	---

SHIPPING INFORMATION

DATE SHIPPED	FROM (City and State)
7/22/82	BOSTON, MASS
VIA (Carrier)	F.O.B.
YALE	ORIG

DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
NEC 086H SODIUM BICARONATE	1x5MC	326.00	326.00
SHIPPING			7.00
TOTAL			333.00

RECEIVED
 This invoice is subject to NET % Cash Discount if paid in 30 days.

This invoice is subject to Net % Cash Discount if paid in 30 days.

[illegible]



New England Nuclear
549 Albany Street, Boston, Mass. 02118
Tel. (617) 482-9595 Telex: 94-0996

SHIP TO IMAGE OF SHIPPING LABEL

UNIVERSITY OF CONNECTICUT
CENTRAL RECEIVING
U-114
STORRS, CT. 06268

MARK FOR

V5254254

PURCHASE ORDER NO.

03552

PLEASE REFER TO
OUR INVOICE NO.
BELOW ON ALL IN-
QUIRIES CONCERN-
ING THIS INVOICE.

06/093

INVOICE DATE

07/12/82

INVOICE

CUSTOMER

07260 DL

SALESMAN

121

SOLD TO

UNIVERSITY OF CONNECTICUT
PURCHASING DEPARTMENT U-76
STORRS, CONN. 06268

THIS INVOICE COVERS
SHIPMENT NUMBER

204297

AND THESE LINE
ITEMS ON

THAT SHIPMENT

ATTN: LAURA HUNT

YOUR
PURCHASE
ORDER NO.

03552

ORDER STATUS AND
TERMS NET 30 DAYS
PAYABLE IN U.S.
FUNDS AT PAR

NO TAX CUST. FORMS REQ.

ROUTE/F.O.B.

870 YALL

WAYBILL NO./SHIPPING DATA

VENDOR

RPD

LINE NO.	CATALOG NUMBER	COMPOUND OR SERVICE	QUAN. SHIPPED		UNIT PRICE	TOTAL AMOUNT
			NO. PACKS	PACKAGE SIZE		
010	WEC 026H	SODIUM BICARBONATE, (14C)-	1	005MC	326.00	326.00
						326.00
		TAX				4.00
		TRANSPORTATION OR HANDLING CHARGE				7.00
		TOTAL - PLEASE PAY THIS AMOUNT.			U.S. \$1	337.00

PLEASE REMIT TO NEW ENGLAND NUCLEAR:

P.O. BOX 9431, BOSTON, MASSACHUSETTS 02291 (U.S.A.)

* INDICATES SUBSIDIARY PROCESSING THIS INVOICE IF APPLICABLE. MATERIAL WILL NOT BE ACCEPTED FOR RETURN WITHOUT OUR PRIOR PERMISSION.

*Seller represents that with respect to the production of the articles and/or the services covered by this invoice, it has fully complied with the provisions of the Fair Labor Standards Act of 1938, as amended.

DUPLICATE INVOICE

To: FH Oct 29

from: W. E.

How's This?

University of Connecticut
RADIATION SAFETY OFFICE

LABORATORY SURVEY

Responsible Investigator Dr. Varish

Building Stamford Branch

Room Number 102, Wash Room

(1) USERS

Mark Heller

(2) NUCLIDES LIMIT AMOUNT ON HAND

¹⁴C 10 3.689

(3) USE FILM BADGES: Yes () No (✓)

(4) ACCIDENTS OR SPILLS: Yes () No (✓)

When _____
Where _____
Isotope _____ Amount _____
Reported? _____

(5) GAS CHROMATOGRAPH Yes () No (✓)

SOURCE Yes () No ()
Type _____

(6) LAB EQUIPMENT

	Used	Needed	Necessary
Gloves	(✓)	()	()
Trays	(✓)	()	()
Absorbent Mat	(✓)	()	()
Door Sign	(✓)	()	()
NRC-3	(✓)	()	()
No Smoking Sign	(✓)	()	()

(7) LAB BOOK IN LAB Yes (✓) No ()

NRC Regulations Yes (✓) No ()
UConn License Yes (✓) No ()
Protocol Yes (✓) No ()
UConn Proc. Manual Yes (✓) No ()
Inventory Up to date Yes (✓) No ()
Package Surveys 7/16/82 plus 3/25/83 from Dr. Kuntz
Laboratory Surveys Not Current
Survey Instruments N/A
Calibrator -
Record of Violations -

(8) VIRUSES

CARCINOGENS _____
INFECTIOUS BACTERIA N/A
Deactivation Method: _____

(9) WASTE DISPOSAL

Container Type Jugs, 30 gal drum
Inventory Yes
Location 102
Scintillation Fluid Yes
Absorbent Material Yes
Animals or Plants (Species) plants

TYPE OF WASTE DISPOSAL METHOD

Gas _____
Liquid ✓ } RWC
Solid ✓ }

(10) GM SURVEY OK

(11) GENERAL LAB CONDITIONS

Security OK
Safety Conditions OK

COMMENTS:

Laboratory surveys are to be done monthly

Surveyor

NE Ellis, Jr

Date

9/24/83

20540

Wash Room

- 1 Table
- 2 Shelving
- 3 Sinks
- 4 Autoclave
- 5 floor by Table
- 6 floor by Autoclave
- 7 Cooler used for transfer
- 8 Cart

Room 102

- 1 Ref #1 Out
- 1A " " in
- 2 Ref #2 Out
- 2A " " in

Food-Rm 102

- 1- Bottom
- 2- floor
- 3- Sinks

Prime Oxidizer

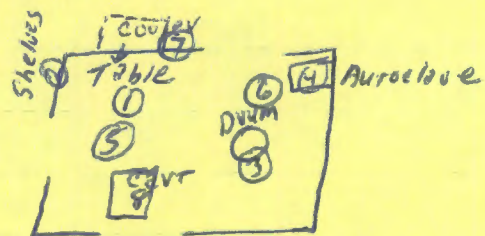
- 1- Bottom
- 2- Table
- 3- Sink

Room 102A

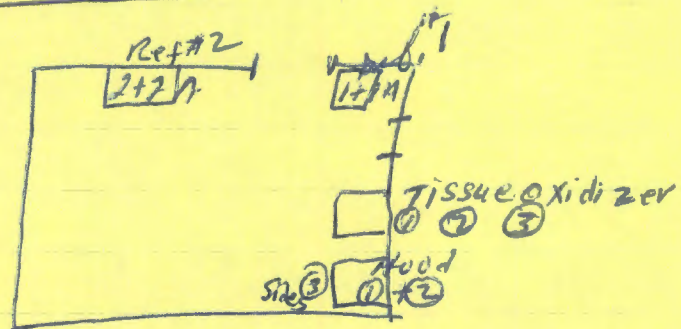
- 1 table
- 2 "
- 3 "
- 4 floor

Stamford Branch
9/24/83

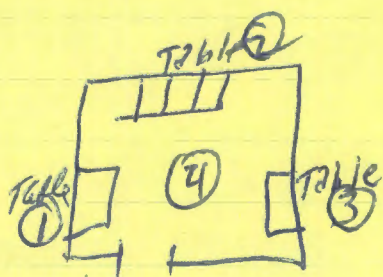
Wash Room



Room 102



Room 102A



Francis

I just happened to move some papers
in the lab and found the envelope
containing this inventory sheet. Please address
all communications to me or I might never
see them.

Thanks — Mark Heller

RADIATION SAFETY OFFICE U-97
486-3613

TO: C. YARISH
FROM: F. HARSHAW, RSO
RE: QUARTERLY INVENTORY OF RADIOISOTOPES
DATE: 10/3/83

PLEASE RETURN THIS IMMEDIATELY WITH YOUR DATA FROM 7/1/83-9/30/83.

LICENSED ISOTOPE(S) PER PERMIT 75-142:

ISOTOPE	MAXIMUM ACTIVITY ON HAND (mCi)	MAXIMUM ACTIVITY PURCHASED/TIME	MAXIMUM ACTIVITY PURCHASED/YEAR
---------	-----------------------------------	------------------------------------	------------------------------------

C-14	10.000	5.000	25.000
------	--------	-------	--------

DURING THE LAST QUARTER ENDING 10/01/83 OUR RECORDS REFLECT THE FOLLOWING ACTIVITY:

ISOTOPE	PREVIOUS BALANCE mCi	AMOUNT RECEIVED mCi	DECAY LOSS mCi	WASTE LIQUID CAN mCi	OTHER EXPLAIN mCi	BALANCE mCi
C-14	4.478	0	—	0.8645*	0.0455**	3.568

* DENOTES SEALED SOURCE

COMMENTS:

* This value assumes that there is 5% uptake by plants,
remaining radioactivity is in liquid medium.

** In plant tissues - solid waste

Amount received transferred from Dr. H. Koontz of .00008 mCi.

Corrected initial inventory includes a bottle of Packard Speck Check
received 7/23/82 in the amount of 9.99×10^{-3} mCi.

Nov. 20, 1984
@ 3⁵⁰ PM

I called Mark Heller relative to the
storage of vials in our cabinet. He
had not looked at the data I sent
him. He asked me to hold onto the
vials and amulet until he ~~could~~
could cross-reference his data
with previous experiments. This was
requested by Dr. Yarnish 11/20/84 WJ

Material removed from Dr. Yonick's lab Sept 26, 1984

Spec. Check 8.88×10^{-3} MCi (microcuries)

Hexadecane 7.9×10^{-5} MCi (microcuries)

^{14}C in jug 2.819 MCi

Vials ~ 1.000 MCi { 8 boxes
(see print out)

Sodium Bicarbonate
with ^{14}C tag = 2.819 MCi

for Mark Heller

Note: About 0.500 MCi not outbalanced and not
counted

Picked up from Mr. Gansch Sept 26, 1984

Spec Check 8.88×10^{-3} MCi

Hexadecane 7.9×10^{-5} MCi

^{14}C in bottle 2.819 MCi

Vials - Estimated ~ 1.00 MCi

No Material (isotope) left in her lab.

~~4~~ ^{14}C : 2.819 MCi

Sodium Bicarbonate
w/ ^{14}C tag

Spice Chalk

8.88 $\times 10^{-3}$ MCi
mili

Hexadecane

7.9 10^{-5} MCi
mili

^{14}C in bottle

2.819 MCi

Vials

Est ~ 1 MCi

Sodium Bicarbonate

w/ ^{14}C tag

2.819 MCi

12/21/24 ~

From Garish

University of Connecticut

Stamford Campus

Final Survey Documentation

Radiation Safety Office, U-97
Extension 3613

DATE: October 29, 1984
TO: Dr. C. Yarish
FROM: Frances Harshaw-Director, Radiation Safety Office *JH*
SUBJECT: INSPECTION RESULTS, RADIATION SAFETY

The recent inspection of your laboratories by the Radiation Safety Office included a complete wipe test, GM counter survey, interview plus visual inspection of laboratories and records by Mr. Bill Ellis, Assistant RSO.

Unless indicated below, your laboratories were found to be in satisfactory compliance with radiation safety standards set by the Radiation Safety Committee.

INSPECTION DATES:

Wipe Surveys: September 26, 1984

Visual Inspection: September 26, 1984

RECOMMENDATIONS AND COMMENTS:

The following items are not in compliance and corrective action is required. Notify my office in writing within two weeks of the date of this letter as to when and how compliance was or will be achieved.

1. A complete decontamination of the following areas must be done prior to final closure:
 - a. Floor by door (1)
 - b. Autoclave (2)
 - c. End of Exhaust pipe on instrument (5)
 - d. External refrigerator (10)
 - e. Far bench from door to center of room (15)

cc: J. KNOX, CHRM, RSC
C. RETTENMEYER, DEPT. HEAD

FH-

I feel that these areas should
be cleared up as this is a
final clean out - however, it's
your judgement.

Bill

Radiation Safety Office, U-97
Extensions 3613, 2472

DATE:

10/2/84

TO:

Garish

FROM:

W. E. Ellis, Sr. - Asst. Radiation Safety Officer

SUBJECT: INSPECTION RESULTS, RADIATION SAFETY OFFICE

The recent inspection of your laboratories included a complete wipe test survey, GM counter survey, interviews plus visual inspection of laboratories and records. Except as indicated below, your laboratories were found to be in satisfactory compliance with radiation safety standards set by the Radiation Safety Committee.

INSPECTION DATES:

Wipe Surveys

9/26/84

Visual Inspection

9/26/84

RECOMMENDATIONS AND COMMENTS:

The following items are not in compliance and corrective action is required. Notify my office in writing within two weeks of the date of this letter as to when and how compliance was or will be achieved.

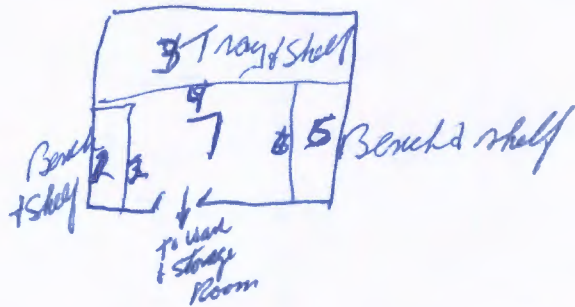
Please decontaminate per attached sheet

LABORATORY SURVEY FOR REMOVABLE CONTAMINATION
(Or Sealed Source Leak Test)

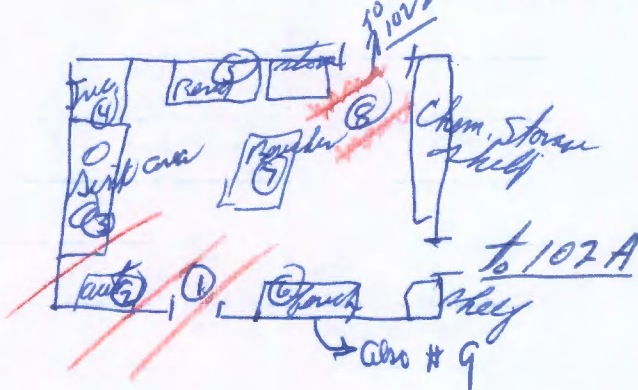
DATE 9/24/84 BUILDING Stanford Campus ROOM 102, 102A
PERFORMED BY W.E. Miller INSTRUMENT USED LSC d E120
BACKGROUND ³H 14.3 ¹⁴C 1246 OTHER ³²P 39
EFFICIENCY ³H 64.3% ¹⁴C 97.6% OTHER Wide open win. = 46.58%
98%

Location No.	cpm	Net cpm	Isotope	Net dpm	Clean-up Required?	Date of Clean-up	Follow-up Survey		
							cpm	Net cpm	dpm
1 Floor by door	68.2	16	¹⁴ C	16.3					
2 Outside lane	82.4	36	¹⁴ C	36.9					
5 End of Exh. Pipe On Instr	69.2	23	¹⁴ C	23.5					
10 Ref. Our Side	57.4	11	¹⁴ C	11.2					
15 Far Bench from door + 1/2 yr. of Run	55.4	9	¹⁴ C	9.18					

102A Tissue Culture Room-Cold



~~102B~~ Storage + Wash room

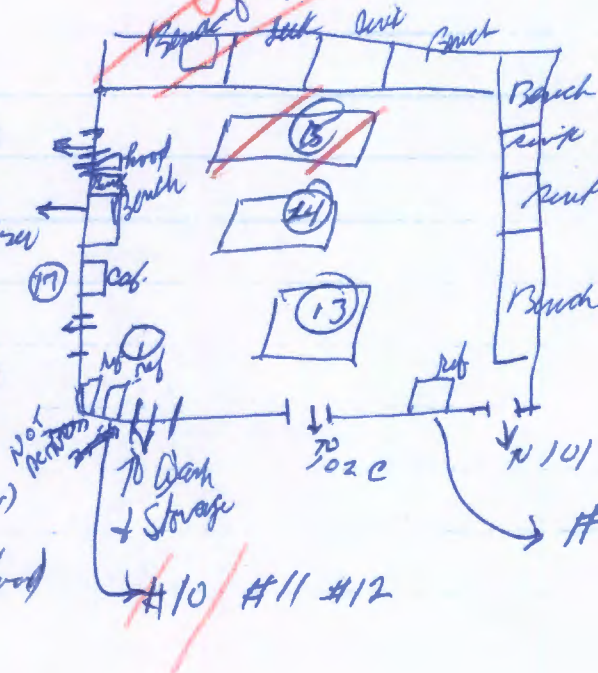


102

- Oxidizer
- #1- Glass Shelf
- #2- Shoot Shoot
- #3- Touch infusant
- #4- Polytube-exhaust
- #5- End of ex. pipe (10")
- #6- End of ex. pipe (in hood)
- #7- Hood

to 102B

With Oxidizer



#16 furnace
#17- Touch Cal

#8 #9 - Hupig

Dr. Yarish

ID#	SN	TIME	CPM.A	CPM.B	A/B	ESR
999	5	5.00	45990.8	45990.8	1.000	4.379
999	6	5.00	28783.2	28783.2	1.000	4.381
999	7	5.00	101952.8	101955.8	0.999	4.284
999	8	5.00	51.2	51.2	1.000	2.442
999	9	5.00	49.0	49.0	1.000	2.909
999	10	5.00	53.6	53.6	1.000	2.900
999	11	5.00	46.8	46.8	1.000	2.817
999	12	5.00	48.0	48.0	1.000	2.752
999	13	5.00	49.8	49.8	1.000	2.811
999	14	5.00	44.8	44.8	1.000	2.753
999	15	5.00	48.4	48.4	1.000	2.650
999	16	5.00	60.2	60.2	1.000	2.672
999	17	5.00	82.4	82.4	1.000	2.579
999	18	5.00	52.4	52.4	1.000	2.553
999	19	5.00	48.2	48.2	1.000	2.658
999	20	5.00	46.8	46.8	1.000	2.351
999	21	5.00	53.6	53.6	1.000	2.639
999	22	5.00	47.6	47.6	1.000	2.336
999	23	5.00	54.2	54.2	1.000	2.484
999	24	5.00	47.6	47.6	1.000	2.655
999	25	5.00	53.6	53.6	1.000	2.541
999	26	5.00	53.0	53.0	1.000	2.780
999	27	5.00	54.4	54.4	1.000	2.556
999	28	5.00	48.4	48.4	1.000	2.658
999	29	5.00	69.2	69.2	1.000	2.280
999	30	5.00	48.8	48.8	1.000	2.574
999	31	5.00	49.4	49.4	1.000	2.684
999	32	5.00	49.2	49.2	1.000	2.686
999	33	5.00	50.2	50.2	1.000	2.615
999	34	5.00	57.4	57.4	1.000	2.674
999	35	5.00	50.0	50.0	1.000	2.715
999	36	5.00	49.2	49.2	1.000	2.551
999	37	5.00	45.4	45.4	1.000	2.655
999	38	5.00	48.8	48.8	1.000	2.558
999	39	5.00	55.4	55.4	1.000	2.857
999	40	5.00	47.6	47.6	1.000	2.803
999	41	5.00	50.2	50.2	1.000	2.474

Source

Background

Bench 102A - Left

Under Bench

Tray Shelf

Under Tray

Bench - Right

Under Bench

Floor

Floor ~~under~~ Storage by Door

Autoclave

SINK Area

Incub

Bench

Bench (Paper)

Bench - Center

Floor

Bench (Under Paper)

Glass ~~off~~ Shelf

Shelf

Shelf

Bench (Front)

Exhaust Tube

End Exhaust Pipe

End Exhaust Pipe (In hood)

Hood

Ref. Out

Ref. In

Ref. Out

Ref. In

Ref. Freez

Bench

Bench

Bench

Furnace

Book Case

Room 102A

Wash +
Storage
Room

Oxidizer

Room
102

UNIVERSITY OF CONNECTICUT
RADIATION SAFETY OFFICE U-97
486-3613

TO: YAKIRA H. FRANK, DIRECTOR
UNIVERSITY OF CONNECTICUT AT STAMFORD

FROM: FRANCES HARSHAW, DIRECTOR

DATE: NOVEMBER 7, 1983

RE: LABORATORY USE

I am writing to reiterate our conversation of the above date.

The only radioactive material that is currently in use in the above mentioned room is Carbon-14. This is a very low energy beta emitter that presents very little biological hazard unless ingested in large quantities. In fact, the U. S. Nuclear Regulatory Agency has recently deregulated all scintillation vials that contain less than 0.05 microcuries/gram of radioactivity and the currently exempt amounts, i.e. not required to conform to the regulations that apply to higher amounts of radioactivity, is 100 microcuries.

As of 9/10/83, 3.7 millicuries of radioactivity were on hand in the laboratory of Dr. Charles Yarish. While this is above the exempt amount and requires care in handling, C-14 does not represent an external radiation hazard. When properly handled, there is no problem with ingestion of radioactive material and there should not be anyone handling this material without proper training. Drs. Yarish, Gide, and Mark Heller all received this training last year at the UConn Medical Center. An inspection and wipe test on 6/30/83 revealed no unusual levels of contamination and this was also the case on the inspection of 8/26/83. Therefore, this indicates that this laboratory is operating within the currently acceptable guidelines as established by the Radiation Safety Committee of the University and by the Nuclear Regulatory Agency.

I request that Mark Heller post those areas where radioactive material is stored be posted with a sign indicating that they are not to be entered, such as the refrigerator, unless he is present.

This area may be used as a general classroom provided that the same benches, equipment, etc. that are used for the radioactive material will not be used in class. All radioactive material will be secured at all times from a general area where there are students present. This means that the C-14 is to be locked up when not in use.

I am willing to present a lecture to the general faculty on radiation and the proper handling of radioactive material. This would be of interest to persons in all facets of the University and I think that they would find this most informative and interesting. However, it is not very efficient use of my time to make a trip to Stamford to speak to one or two people since this will take an entire day from work. In this case, it would be better if those people interested would join one of my regularly scheduled lectures here. It is currently required that all persons working with radioactive material have an annual refresher course and since this is the first time that I am speaking to many of these people the lecture is of a general nature.

If there is sufficient interest, I shall be happy to give a presentation at Stamford.

The
University
of
Connecticut

SCOFIELDTOWN ROAD
STAMFORD, CONNECTICUT 06903

STAMFORD CAMPUS

Date: 12/22/84

To: James Hershaw - Director, Radiation Safety Office

Subject: Wipe Tests To be Counted after cleaning contaminated areas
with 'Countoff'

Please find enclosed a few wipes of each of the areas which Bill Ellis reported to be slightly radioactive after clean up & removal of radioactivity from the lab. We have cleaned the affected areas on two occasions with 'Countoff'. Please notify me if further cleaning is necessary! I hope this will fulfill the requirements of the final closure of the C-14 business of my lab.

F. H.
Jman

all

OK

999	5	5.00	44803.8	44803.8	1.000	0.000	} Sources	Yavish - Stamford Branch
999	6	5.00	28741.4	28741.4	1.000	0.000		
999	7	5.00	96645.2	96646.2	0.999	0.000		
999	8	5.00	51.4	51.4	1.000	0.000	} Background	
999	9	5.00	54.2	54.2	1.000	0.000		
999	10	5.00	50.2	50.2	1.000	0.000	Auto claps handle	
999	11	5.00	51.2	51.2	1.000	0.000	Auto claps inside	
999	12	5.00	59.4	59.4	1.000	0.000	Left side outside	
999	13	5.00	54.4	54.4	1.000	0.000	Left side	
999	14	5.00	58.8	58.8	1.000	0.000	Left side	

Radiation Safety Office, U-97
Extension 3613

DATE: October 29, 1984
TO: Dr. C. Yarish
FROM: Frances Harshaw-Director, Radiation Safety Office *JH*
SUBJECT: INSPECTION RESULTS, RADIATION SAFETY

The recent inspection of your laboratories by the Radiation Safety Office included a complete wipe test, GM counter survey, interview plus visual inspection of laboratories and records by Mr. Bill Ellis, Assistant RSO.

Unless indicated below, your laboratories were found to be in satisfactory compliance with radiation safety standards set by the Radiation Safety Committee.

INSPECTION DATES:

Wipe Surveys: September 26, 1984

Visual Inspection: September 26, 1984

RECOMMENDATIONS AND COMMENTS:

The following items are not in compliance and corrective action is required. Notify my office in writing within two weeks of the date of this letter as to when and how compliance was or will be achieved.

1. A complete decontamination of the following areas must be done prior to final closure:

- OK* a. Floor by door (1)
- OK* b. Autoclave (2) *wipe inside & handle*
- OK* c. End of Exhaust pipe on instrument (5)
- OK* d. External refrigerator (10)
- OK* e. Far bench from door to center of room (15)

cc: J. KNOX, CHRM, RSC
C. RETTENMEYER, DEPT. HEAD

reply 12/2/84
Cleared and count off 11/28/87
12/20/87

University of Connecticut

Stamford Campus

Verification of Final Survey Documentation

**University of Connecticut Stamford Campus
Final Release Survey Results Verification**

The MDA below was calculated using the values documented on the enclosed Radiation Safety Form entitled "Laboratory Survey for Removable Contamination (Or Sealed Source Leak Test)" dated 9/26/1984 and used in the activity calculations. The final survey results below were obtained from the enclosed 9/26/1984 print-out. The highlighted results are those areas that were subsequently decontaminated to ALARA levels by the Authorized User (Licensed Investigator). The post-decontamination results are included in the enclosure dated 12/22/1984. Of the highlighted results, those that were >MDA were less than UConn's current limit of 100 dpm/100cm² prior to decontamination.

NUREG-1757, Vol. 2, Rev.1, Appendix H, Table H.1 provides an acceptable screening value for removable Carbon-14 of 3.7E6 dpm/100cm² for unrestricted release of building surfaces. The screening level is based on the assumption that 10% of surface activity is removable. This level is deemed in compliance with the 0.25 mSv/y (25 mrem/y) unrestricted release dose limit in 10 CFR 20.1402. Since the fraction of removable contamination is undetermined the assumption is 100% of surface contamination was removable and the screening level is decreased by a factor of 10. Based upon that assumption, the results below are deemed in compliance with the current NRC unrestricted release dose limit of 25 mrem/yr and the State limit of 19 mrem/yr.

$$MDA = \frac{2.71 + 4.65 \sqrt{(B_R \times t)}}{t \times E} = 15 \text{ dpm}$$

Where: MDA= activity level in dpm

B_R = background count rate

t = counting time in minutes

E = detector efficiency in counts per disintegration

s# on Radiation Safety's print-out	GROSS CPM	BKGND CPM	NET CPM	COUNT TIME MIN	%EFF	DPM	Result Compared to MDA
9	49.0	46.889	2	5	98	2.2	<MDA
10	53.6	46.889	7	5	98	6.8	<MDA
11	46.8	46.889	0	5	98	-0.1	<MDA
12	48.0	46.889	1	5	98	1.1	<MDA
13	49.8	46.889	3	5	98	3.0	<MDA
14	44.8	46.889	-2	5	98	-2.1	<MDA
15	48.4	46.889	2	5	98	1.5	<MDA
16	60.2	46.889	13	5	98	13.6	<MDA
17	82.4	46.889	36	5	98	36.2	>MDA
18	52.4	46.889	6	5	98	5.6	<MDA

s# on Radiation Safety's print-out)	GROSSCPM	BKGND CPM	NET CPM	COUNT TIME MIN	%EFF	DPM	Result Compared to MDA
19	48.2	46.889	1	5	98	1.3	<MDA
20	46.8	46.889	0	5	98	-0.1	<MDA
21	53.6	46.889	7	5	98	6.8	<MDA
22	47.6	46.889	1	5	98	0.7	<MDA
23	54.2	46.889	7	5	98	7.5	<MDA
24	47.6	46.889	1	5	98	0.7	<MDA
25	53.6	46.889	7	5	98	6.8	<MDA
26	53.0	46.889	6	5	98	6.2	<MDA
27	54.4	46.889	8	5	98	7.7	<MDA
28	48.4	46.889	2	5	98	1.5	<MDA
29	69.2	46.889	22	5	98	22.8	>MDA
30	48.8	46.889	2	5	98	1.9	<MDA
31	49.4	46.889	3	5	98	2.6	<MDA
32	49.2	46.889	2	5	98	2.4	<MDA
33	50.2	46.889	3	5	98	3.4	<MDA
34	57.4	46.889	11	5	98	10.7	<MDA
35	50.0	46.889	3	5	98	3.2	<MDA
36	49.2	46.889	2	5	98	2.4	<MDA
37	45.4	46.889	-1	5	98	-1.5	<MDA
38	48.8	46.889	2	5	98	1.9	<MDA
39	55.4	46.889	9	5	98	8.7	<MDA
40	47.6	46.889	1	5	98	0.7	<MDA
41	50.2	46.889	3	5	98	3.4	<MDA

Amy Courchesne

Amy Courchesne, RSO

2/7/14

Date

This is to acknowledge the receipt of your letter application dated

2-10-14, and to inform you that the initial processing which includes an administrative review has been performed.

Amend: 06-01450-47

☒ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 583432
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.