



University of Connecticut  
Administration and Operations Services

February 21, 2008

Environmental  
Health and Safety

Steven Courtemanche  
Commercial and R&D Branch  
U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, Pennsylvania 19406-1415

Docket No. 03010576  
Mail Control No. 141666

06-01450-47

MS 16

K-4

2008 FEB 27 AM 11: 04

RECEIVED  
REGION I

Dear Mr. Courtemanche:

This is in response to your letter of January 30, 2008 requesting additional information regarding our original CFA application of March 10, 2005. We are requesting the following revisions to our current license (06-01450-47) to make it consistent with the revised CFA application:

1. **Deletion of sources:**

*The following sources have been disposed of and are to be deleted:*

*Item 6L. Californium 252. (Sealed sources (Isotope Products Laboratories Model Nos. FF-252/SK-3652 and FF-362). 50 microcuries per source and 100 microcuries total.*

*Item 6M. Plutonium 239. Sealed sources. (Sealed Neutron sources (M1180, M1183, M1181, M1182). 80 grams (5 curies).*

*Item 6.N. Sealed sources Cesium 137 (Amersham Searle Model 2000). 500 millicuries.*

*Included in Appendices A, B, and C is disposal documentation consisting of the final leak tests and letters from the recipients of the above sources.*

2. **Removal of Noank Research Laboratory as a location of use.**

*Noank Marine Laboratories is to be deleted as a location of use. A review of the Noank records indicated that this facility was free released for unrestricted use in 1992. Copies of this documentation are in Appendix D.*

Sincerely,

Chief Robert Hudd

Associate Vice-President for Public and Environmental

Enclosures: Appendices A-D

An Equal Opportunity Employer

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

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

141666

NMSS/RCN1 MATERIALS-002

## APPENDIX A

### DOCUMENTATION ON DISPOSAL OF:

*Item 6L. Californium 252. (Sealed sources (Isotope Products Laboratories Model Nos. FF-252/SK-3652 and FF-362). 50 microcuries per source and 100 microcuries total.*



PHILOTECHNICS

May 5, 2003

Ms. Amy Courchesne  
Univ. of Connecticut  
EH&S  
3102 Horsebarn Road, U-97  
Storrs, CT 06269-4097

Subject: Shipment Receipt Acknowledgement

Dear Amy:

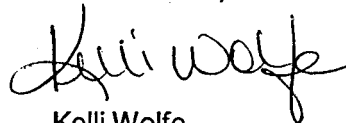
In accordance with the requirements of 10 CFR 20, Appendix G, Section III, C.1., the attached letter is provided as your notice of receipt and acceptance of the radioactive waste materials specified on the manifest. Manifest No. 0257-032503DTK was received at Duratek on April 28, 2003.

This letter is acknowledgement of receipt only. Any manifest discrepancies found during unloading or processing will be reported at a later date.

Please contact me if you have any questions or require additional information. I can be reached at 888-RADWASTE or 865-285-3015 (direct), or via email at [kdwolfe@philotechnics.com](mailto:kdwolfe@philotechnics.com).

Sincerely,

*Philotechnics, Ltd.*



Kelli Wolfe  
Customer Service Invoicing Assistant

kw  
Enclosure



Tuesday, April 29, 2003

Don E. Hartje  
Philotechnics, Ltd  
P.O. Box 4489  
Oak Ridge, TN 37831-4489

Dear Mr. Hartje:

In compliance with the requirements of 10 CFR 20, Appendix G, Section III, C.1, the attached signed shipping manifest copies are your notice of receipt and acceptance of the radioactive waste materials specified on the manifests.

| <u>Manifest Number</u> | <u>Date Received</u> |
|------------------------|----------------------|
| 2284-T031870           | 04/28/2003           |

This is acknowledgement of receipt only. Any manifest discrepancies found during manifest review, unloading or processing will be listed on page 2 of this letter.

Thank you for your business.

Sincerely,

A handwritten signature in cursive script that reads "Darlene Anderson".

Shipping and Receiving

cc: Manifest File  
Shipping and Receiving file



**Manifest Discrepancies**

none

|  |  |   |  |   |  |                            |   |                                       |  |  |                                     |  |  |  |  |                          |  |  |  |   |  |
|--|--|---|--|---|--|----------------------------|---|---------------------------------------|--|--|-------------------------------------|--|--|--|--|--------------------------|--|--|--|---|--|
| <b>FORM 540</b><br><b>UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST</b><br><b>SHIPPING PAPER</b>  |  | Philotechnics   |  | <b>5. SHIPPER - NAME AND FACILITY</b><br>Philotechnics @ Univ. of Connecticut<br>Environ. Health and Safety<br>3102 Horsebarn Road, U-97<br>Storrs, CT 06269-4097   |  |                            | <b>SHIPMENT I.D. NUMBER</b><br>0257-032503DTK               |                                       |  | <b>7. FORM 540 AND 540A</b> PAGE 1 OF 1 PAGE(S)<br><b>FORM 541 AND 541A</b> PAGE(S)<br><b>FORM 542 AND 542A</b> PAGE(S)<br>ADDITIONAL INFORMATION None PAGE(S)   |                                     |  | <b>8. MANIFEST NUMBER</b><br>(Use this number on all continuation pages)<br>0257-032503DTK               |  |  |                          |  |  |  |   |  |
| <b>1. EMERGENCY TELEPHONE NUMBER</b> (Include Area Code)<br>866-806-7891   |  |   |  | <b>S.C. PERMIT #</b><br>NA  |  |                            | <b>SHIPMENT NUMBER</b><br>0257-032503DTK                    |                                       |  | <b>9. CONSIGNEE - Name and Facility Address</b><br>Duratek, Inc.<br>1560 Bear Creek Rd.<br>Oak Ridge, TN 37831   |                                     |  | <b>CONTACT</b><br>Transportation Mgr.<br><br><b>TELEPHONE NUMBER (Include Area Code)</b><br>866-525-5091 |  |  |                          |  |  |  |   |  |
| <b>ORGANIZATION</b><br>Philotechnics   |  |   |  | <b>CONTACT</b><br>Amy Courchesne  |  |                            | <b>TELEPHONE NUMBER (Include Area Code)</b><br>866-486-3613 |                                       |  | <b>SIGNATURE - Authorized consignee acknowledging waste receipt</b><br><i>Daniel... New</i>  |                                     |  | <b>DATE</b><br>4/28/03   |  |  |                          |  |  |  |   |  |
| <b>2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO                                 |  | <b>3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST</b><br>8 |  | <b>6. CARRIER - Name and Address</b><br>Hillmen Transport<br>628 Galfahr Road<br>Kingston, TN 37763   |  |                            | <b>EPA I.D. NUMBER</b><br>TN0987783065                      |                                       |  | <b>10. CERTIFICATION</b><br>This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations. |                                     |  |  |  |  |                          |  |  |  |   |  |
| <b>4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT?</b><br>If "Yes," provide Manifest Number                                    |  | <b>EPA MANIFEST NUMBER</b><br>NA                                    |  | <b>CONTACT</b><br>Stacy Brackett  |  |                            | <b>TELEPHONE NUMBER (Include Area Code)</b><br>866-481-0222 |                                       |  | <b>SIGNATURE - Authorized carrier acknowledging waste receipt</b><br><i>Rene Stoltz</i>  |                                     |  | <b>DATE</b><br>3-25-03   |  |  |                          |  |  |  |   |  |
| <b>11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION</b><br>(Including proper shipping name, hazard class, UN ID number, and any additional information) |  |   |  | <b>12. DOT LABEL "RADIOACTIVE"</b>  |  | <b>13. TRANSPORT INDEX</b> |   | <b>14. PHYSICAL AND CHEMICAL FORM</b> |  |  | <b>15. INDIVIDUAL RADIONUCLIDES</b> |  |  | <b>16. TOTAL PACKAGE ACTIVITY</b><br>MBq mCi |  | <b>17. LSA/SCO CLASS</b> |  | <b>18. TOTAL WEIGHT OR VOLUME</b><br>(Use appropriate units) |  | <b>19. IDENTIFICATION NUMBER OF PACKAGE</b> |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  |   |  | NA  |  | NA                         |   | Solid Metal Oxides/Pa,Pi,Ci-Incln.    |  |  | C-14 H-3 Th-232 U-238               |  |  | 2.9552E+02 7.9868E+00                        |  | NA                       |  | 55. LBS; 7.5 FT3   |  | 1224  |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  |   |  | NA  |  | NA                         |   | Solid Metal Oxides/Pa,Pi,Ci-Incln.    |  |  | C-14 H-3                            |  |  | 2.5982E+02 7.0168E+00                        |  | NA                       |  | 63. LBS; 7.5 FT3   |  | 1229  |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  |   |  | NA  |  | NA                         |   | Solid Metal Oxides/Pa,Pi,Ci-Incln.    |  |  | C-14 H-3                            |  |  | 3.7590E+00 2.3673E-01                        |  | NA                       |  | 60. LBS; 7.5 FT3   |  | 1237  |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  |   |  | NA  |  | NA                         |   | Solid Metal Oxides/Pa,Pi,Ci-Incln.    |  |  | C-14 Cf-252 H-3                     |  |  | 2.2840E+02 3.1730E+00                        |  | NA                       |  | 58. LBS; 7.5 FT3   |  | 1238  |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  |   |  | NA  |  | NA                         |   | Solid Metal Oxides/Pa,Pi,Ci-Incln.    |  |  | H-3                                 |  |  | 1.4401E+02 3.8922E+00                        |  | NA                       |  | 68. LBS; 7.5 FT3   |  | 1239  |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  |   |  | NA  |  | NA                         |   | Solid Metal Oxides/Pa,Pi,Ci-Incln.    |  |  | C-14 Ca-45 H-3 Zn-65                |  |  | 5.7806E+01 1.5623E+00                        |  | NA                       |  | 53. LBS; 7.5 FT3   |  | 1243  |  |
| <b>FOR CONSIGNEE USE ONLY</b>  |  |   |  | <b>20. GENERATOR CERTIFICATION STATEMENT</b><br><br>A) Radioactive Materials. Certification is hereby made to Philotechnics, Ltd. that this shipment of low-level radioactive material/waste has been prepared in accordance with a radioactive waste management program which has been approved by the NRC or an Agreement State regulatory agency and with the current revision of the Philotechnics, Ltd. Waste Acceptance Criteria.<br>B) Data. Generator hereby represents and warrants that all data set forth in this UNIFORM RADIOACTIVE WASTE MANIFEST are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and the above mentioned processors Radioactive Material Licenses.<br>C) Hazardous Materials. Generator hereby certifies that this material does not contain a hazardous waste as defined in 40 CFR 261. ( ) N/A<br><i>Amy B. Courchesne</i> <i>Amy B. Courchesne</i> <i>3/25/03</i><br>Print Name Signature Date |  |                            |   |                                       |  |  |                                     |  |  |  |  |                          |  |  |  |   |  |

March 25, 2003 Shipment Totals (mCi):

DAW

|                          |                 |
|--------------------------|-----------------|
| H3;                      | 5.9772          |
|                          | 6.9368          |
|                          | 0.23573         |
|                          | 6.17            |
|                          | 3.8922          |
|                          | 1.5558          |
| <b>H3 DAW Total:</b>     | <b>24.76773</b> |
| <b>Ca-45 Total:</b>      | <b>0.0004</b>   |
| <b>Zn-65 Total:</b>      | <b>0.001</b>    |
| <b>Th-232 DAW Total:</b> | <b>0.00012</b>  |

|                          |                |
|--------------------------|----------------|
| C14;                     | 2.0007         |
|                          | 0.08001        |
|                          | 0.001          |
|                          | 0.001          |
|                          | 0.0051         |
| <b>C14 DAW Total:</b>    | <b>2.0878</b>  |
| <b>S35 DAW Total:</b>    | <b>0.0000</b>  |
| <b>Cf-252 DAW Total:</b> | <b>0.002</b>   |
| <b>U-238 DAW Total:</b>  | <b>0.0088</b>  |
| <b>DAW TOTAL:</b>        | <b>26.8679</b> |

LSV'S

|                         |                |
|-------------------------|----------------|
| P32                     | 0.25           |
|                         | 0.0021         |
| <b>P32 Total:</b>       | <b>0.2521</b>  |
| <b>I-125 LSV Total:</b> | <b>0.041</b>   |
| H3                      | 0.02836        |
|                         | 4.1301         |
|                         | 1.4533         |
| <b>H3 LSV Total:</b>    | <b>5.61176</b> |
| C14                     | 0.0009         |
|                         | 0.002          |
| <b>C14 LSV Total:</b>   | <b>0.0029</b>  |
| S35                     | 0.0261         |
|                         | 0.0511         |
|                         | 0.0182         |
| <b>S35 LSV Total:</b>   | <b>0.0954</b>  |
| <b>LSV TOTAL:</b>       | <b>6.00316</b> |

MIXED WASTE

|                  |            |
|------------------|------------|
| <b>H3 Total:</b> | <b>3.1</b> |
|------------------|------------|

**UNIVERSITY OF CONNECTICUT  
RADIATION SAFETY OFFICE U-97  
SEALED SOURCE CONTAMINATION/LEAK TEST REPORT FORM**

INVESTIGATOR: RHODES LOCATION: PHARM. R2 R14 DATE: 6/28/02

ISOTOPE: Cf-252 ACTIVITY: 17.746 INSTRUMENT: MASS SPEC. BIODON FF252

|       |       |       |
|-------|-------|-------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

**CONTAMINATION/LEAK TEST RESULTS:**

| LOCATION       | GROSS CPM | BKGND CPM | NET CPM | TIME MIN | %EFF  | DPM  | μCi                      |
|----------------|-----------|-----------|---------|----------|-------|------|--------------------------|
| SOURCE HOUSING | 20.34     | 15.55     | 4.79    | 1.0      | 74.23 | 6.46 | 2.9x10 <sup>-6</sup> MDA |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |
|                |           |           |         |          |       |      |                          |

If the inspection or leak test reveals any construction defects or 0.005 microcuries or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with applicable regulations.

Leak Test MDA (NUREG-1556, Vol.5) =  $\frac{2.71 + 4.65 \sqrt{(B_R \times t)}}{t \times E \times 2.22E6} = \frac{2.71 + 4.65 \sqrt{15.55 \times 1}}{1 \times .7423 \times 2.22 \times 10^6} = 1.3 \times 10^{-5} \text{ MDA}$

- Where
- MDA = activity level in μCi
  - B<sub>R</sub> = background count rate in counts per minute
  - t = counting time in minutes
  - E = detector efficiency in counts per disintegration

  
Radiation Safety Specialist





CONTAMINATION SURVEY REPORT FORM

Date: 6/28/02

Purpose:

Lab Inspection Result: \_\_\_\_\_ Equipment Free Release Survey:  Package Receipt Survey: \_\_\_\_\_

Incident Remediation: \_\_\_\_\_ Laboratory Free Release Survey: \_\_\_\_\_

Other (describe): \_\_\_\_\_

Licensed Investigator (L.I.): RHODES

Building: PHARM Room: R14

( ) If space to left is checked: DECONTAMINATE, SURVEY, and SUBMIT COPY OF FINAL RESULTS TO RADIATION SAFETY (U-4097, fax: 860-486-1106).

If attempts to decontaminate indicated areas to less than 100dpm/100cm<sup>2</sup> are unsuccessful contact Radiation Safety 860-486-3613 for further instruction.



If space to left is checked: see attached survey documentation.

If space to left is checked: all results less than 100dpm/100cm<sup>2</sup>

Survey results information provided to L.I./laboratory personnel.

Date Provided:

| Sample Number | Location                      | Time (min) | CPM | % 2sig. | Bkgd. CPM | % Eff. | CPM > Bkgd. | DPM |
|---------------|-------------------------------|------------|-----|---------|-----------|--------|-------------|-----|
| 1             | EXT. CYLINDRICAL HOUSING      |            |     |         |           |        |             |     |
| 2             | " " " FOLLOWING OPENING       |            |     |         |           |        |             |     |
| 3             | INT. CYLINDRICAL HOUSING      |            |     |         |           |        |             |     |
| 4             | SOURCE HOLDING APPARATUS      |            |     |         |           |        |             |     |
| 5             | INTERNAL APPARATUS            |            |     |         |           |        |             |     |
| 6             | INTERNAL HOUSING VAC. CHAMBER |            |     |         |           |        |             |     |
| 7             | EXTERNAL VACUUM CHAMBER       |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |
|               |                               |            |     |         |           |        |             |     |

Report Prepared by: T. RICHARDS

Signature: [Handwritten Signature]

## APPENDIX B

### DOCUMENTATION ON DISPOSAL OF:

*Item 6M. Plutonium 239. Sealed sources. (Sealed Neutron sources (M1180, M1183, M1181, M1182). 80 grams (5 curies).*



00  
EB 1  
CODE

*N2 Advanced Nuclear Technology  
Off-Site Source Recovery (OSR) Project*  
P.O. Box 1663, Mail Stop: J552  
Los Alamos, New Mexico 87545  
505-667-6701/Fax: 505-665-7913

Date: February 6, 2006  
Refer to: N2: 06-038

Samuel J. Collins  
Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406-1415

Re: ATRC#2003:003, License#SNM-1889

Dear Mr. Collins:

Enclosed please find a signed *Authorization to Transfer/Relinquishment of Custody* form concerning:

University of Connecticut  
3102 Horsebarn Hill Road  
Storrs, CT 06269

The radioactive sources described on the form have been removed from the University of Connecticut in Storrs, CT and are in storage at Los Alamos National Laboratory. These sources have been transferred to Department of Energy (DOE) ownership and are being stored under DOE license exemption.

This action was completed as part of the Off-Site Source Recovery (OSR) Project managed by this office. If you need any further information on this action, please contact the OSR Project Office at 505/667-6701.

Sincerely,

Shelby Leonard  
Team Leader OSR Project

SL/lh

Cy:

Warren Church, University of Connecticut  
Michele Burgess, NRC HQ  
Robert Campbell, U.S. DOE, NA-211  
Joel Grimm, DOE-AL/WMD  
N2 File  
OSRP File

# Los Alamos

NATIONAL LABORATORY

ATRC # 2003:003

## Off-Site Source Recovery Project Authorization to Transfer/Relinquishment of Custody

SOURCE OWNER: University of Connecticut  
CONTACT NAME: Warren Church  
ADDRESS: 3102 Horsebarn Hill Road  
Unit 4097  
Storrs, CT 06269

TELEPHONE: 860-486-1108  
FAX: 860-486-1106

University of Connecticut is authorized by the University of California at Los Alamos National Laboratory (UC/LANL), on behalf of the U.S. Department of Energy (DOE), to transfer the sealed source(s) indicated below to Los Alamos National Laboratory.

University of Connecticut hereby relinquishes and UC/LANL, on behalf of DOE, hereby accepts all custody of the sealed source(s) indicated below upon receipt or acceptance of the sources at Los Alamos National Laboratory.

### SOURCE INFORMATION

|                |                  |                       |               |                        |
|----------------|------------------|-----------------------|---------------|------------------------|
| Type: 239Pu/Be | Serial No: M1180 | Mfg. Date: 11/28/1961 | Curies: 1.819 | Grams Isotopic: 28.950 |
| Type: 239Pu/Be | Serial No: M1181 | Mfg. Date: 11/28/1961 | Curies: 0.900 | Grams Isotopic: 14.330 |
| Type: 239Pu/Be | Serial No: M1182 | Mfg. Date: 11/28/1961 | Curies: 0.902 | Grams Isotopic: 14.360 |
| Type: 239Pu/Be | Serial No: M1183 | Mfg. Date: 11/28/1961 | Curies: 0.898 | Grams Isotopic: 14.290 |

### SOURCE CUSTODIAN:

OFFICIAL NAME/TITLE WARREN W. CHURCH Radiation Safety Officer  
NAME (Please Print or Type) TITLE (Please Print or Type)  
SIGNATURE Warren W. Church DATE 8/6/03

### UC/LANL AUTHORIZATION:

OFFICIAL NAME/TITLE: Shelby J. Leonard, Team Leader, Off-Site Source Recovery Project  
SIGNATURE Shelby J. Leonard DATE 8-26-03

### ACKNOWLEDGEMENT OF RECEIPT BY LANL:

OFFICIAL NAME/TITLE J. Matke Recovery Coordinator  
NAME (Please Print or Type) TITLE (Please Print or Type)  
SIGNATURE J. Matke DATE 2-3-06

UNCLASSIFIED



University of California  
Lawrence Livermore  
National Laboratory  
P. O. Box 45  
Mercury, Nevada 89023

FACSIMILE TRANSMITTAL SHEET

To: Martin Graham Date 2/1/06  
 Organization \_\_\_\_\_ Time \_\_\_\_\_  
 Location \_\_\_\_\_ FAX # 860 486 1106  
 Number of pages to follow 1

From: David K/Carney  
 Location LLNL/NTO FAX # 702-295-6337

If transmission is not complete, please call sender at:  
 702-295- 7872 Subject/Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**NTO FAX #'s (702-295-XXXX)**

|                              |       |                                 |      |
|------------------------------|-------|---------------------------------|------|
| BEEF .....                   | 5079  | Business Services .....         | 0332 |
| DAF .....                    | 45226 | ES&H .....                      | 6337 |
| Field Test Engineering ..... | 6337  | JASPER .....                    | 4188 |
| LLNL/NSF .....               | 1269  | Logistics & Purchasing .....    | 7291 |
| NEMOF .....                  | 7357  | Resident Manager's Office ..... | 6219 |
| Security .....               | 3643  | Travel .....                    | 6454 |
| U1a .....                    | 6089  |                                 |      |

**U.S. DEPARTMENT OF ENERGY  
AND  
U.S. NUCLEAR REGULATORY COMMISSION**

APPROVED BY OMB: NO. 3150-0003

EXPIRES: 05/31/2005

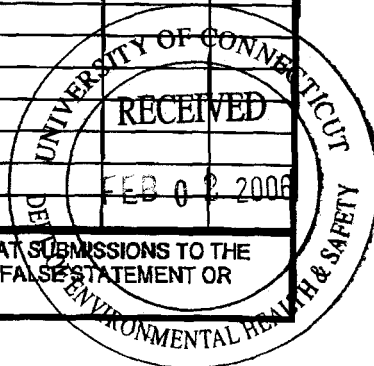
Estimated burden per response to comply with this mandatory collection request: 45 minutes. This information is required for AEA accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records Management Branch (T-3 EG), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0007, or by Internet e-mail to [infocollections@nrc.gov](mailto:infocollections@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOG-10202, (3150-0003), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

(5-2002) Previous editions are obsolete.  
MANDATORY DATA COLLECTION  
AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150.  
Public Laws 83-703, 93-438, 85-91.

**NUCLEAR MATERIAL TRANSACTION REPORT**

|   |  |                     |  |  |  |                     |  |  |  |                           |  |  |  |                                  |  |                    |  |
|---|--|---------------------|--|--|--|---------------------|--|--|--|---------------------------|--|--|--|----------------------------------|--|--------------------|--|
| 1. SHIPPER'S ZIP  |  | 2. RECEIVER'S ZIP   |  | 3. TRANSACTION NO.                               |  | 4. CONNECTION NO.   |  | 5. PROCESSING CODE                         |  | 6. ACTIVITY CODE          |  | 7. DOCUMENTATION (Number of Transfers/Reports)   |  |                                  |  |                    |  |
| ZEH   |  | NAB                 |  | 000001   |  |                     |  | A  |  | B                         |  | PAGE 1 OF 1                                      |  |                                  |  |                    |  |
| 8. NAME AND ADDRESS OF SHIPPER                            |  | 9. LICENSE NO.      |  | 10. NAME AND ADDRESS OF RECEIVER                 |  | 11. LICENSE NO.     |  | 12. NO OF DATA LINES                       |  | 13. NATURE OF TRANSACTION |  | 14. NO OF COPIES                                 |  | 15. DATE                         |  |                    |  |
| UNIVERSITY OF CONNECTICUT, EH&S                           |  | 1                   |  | USDOE, NEVADA TEST SITE                          |  |                     |  | 1  |  |                           |  | 1  |  |                                  |  |                    |  |
| STORRS CT 06269   |  |                     |  | MERCURY NV 89023                                 |  |                     |  |  |  |                           |  |  |  |                                  |  |                    |  |
| 16. ATTENTION   |  |                     |  | 17. CITY   |  |                     |  |  |  |                           |  |  |  |                                  |  |                    |  |
| 18. TELEPHONE   |  |                     |  | 19. TELEPHONE                                    |  |                     |  |  |  |                           |  |  |  |                                  |  |                    |  |
| 20. TRANSFER/AGENCY CONTRACT, MAIL DRAFT, OR ORDER NUMBER |  |                     |  |  |  |                     |  | 21. SPECIAL OR REPORT NUMBER(S) INDICATING |  |                           |  |  |  |                                  |  |                    |  |
| 22. MATERIAL TYPE AND DESCRIPTION                         |  |                     |  |  |  |                     |  | 23. LINE NUMBER                            |  | 24. COUNTRY OF ORIGIN     |  | 25. MATERIAL TYPE                                |  | 26. QUANTITY                     |  | 27. DATE           |  |
|   |  |                     |  |  |  |                     |  |  |  |                           |  |  |  |                                  |  |                    |  |
| 28. MAKE/ANALYSIS   |  |                     |  |  |  |                     |  | 29. CONCENTRATION (PT/ML)                  |  | 30. RESPONSIBILITY        |  | 31. TOTAL GROSS WEIGHT                           |  | 32. TOTAL VOLUME (Liters/Quarts) |  | 33. DATE           |  |
|   |  |                     |  |  |  |                     |  | <input type="checkbox"/>                   |  | <input type="checkbox"/>  |  | 0  |  | 0                                |  | 01 31 2008         |  |
| 34. SHIPPER'S DATA  |  | 35. RECEIVER'S DATA |  | 36. SHIPPER'S DATA                               |  | 37. RECEIVER'S DATA |  | 38. SHIPPER'S DATA                         |  | 39. RECEIVER'S DATA       |  | 40. SHIPPER'S DATA                               |  | 41. RECEIVER'S DATA              |  | 42. SHIPPER'S DATA |  |
| AAA   |  |                     |  |  |  |                     |  |  |  |                           |  |  |  |                                  |  |                    |  |
| 29a. SHIPPER'S DATA                                       |  |                     |  | SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED |  |                     |  | 29b. RECEIVER'S DATA                       |  |                           |  | SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED |  |                                  |  |                    |  |
|   |  |                     |  | <i>[Signature]</i>                               |  |                     |  |  |  |                           |  | <i>[Signature]</i> 2/1/2006                      |  |                                  |  |                    |  |
| 43. SHIPPER'S DATA  |  | 44. RECEIVER'S DATA |  | 45. SHIPPER'S DATA                               |  | 46. RECEIVER'S DATA |  | 47. SHIPPER'S DATA                         |  | 48. RECEIVER'S DATA       |  | 49. SHIPPER'S DATA                               |  | 50. RECEIVER'S DATA              |  | 51. SHIPPER'S DATA |  |
| 1   |  | 4                   |  | NDPD405503                                       |  | 50 481 G            |  |  |  |                           |  | 78   |  | 6.67                             |  | 71                 |  |

**WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C SECTION 1001 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.**



Feb-01-2006 03:44pm From=LLNL NTO TECH GRPS NTS 702-295-6337 T-224 P.002/002 F-617

UNCLASSIFIED

DOE/NRC FORM 741  
(5-2002) Previous editions are obsolete  
MANDATORY DATA COLLECTION  
AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150,  
Public Laws 83-703, 83-438, 95-91

U.S. DEPARTMENT OF ENERGY  
AND  
U.S. NUCLEAR REGULATORY  
COMMISSION

APPROVED BY OMB: NO. 3150-0003

EXPIRES: 05/31/2003

Estimated burden per response to comply with this mandatory collection request: 1 hr and 15 minutes. This information is required for IAEA accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records Management Branch (1-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to [infocollect@nrc.gov](mailto:infocollect@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (3150-0003), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NUCLEAR MATERIAL TRANSACTION REPORT

|                                |  |                                 |  |                                  |  |                   |  |                       |  |  |  |  |  |                                      |  |                            |  |
|--------------------------------|--|---------------------------------|--|----------------------------------|--|-------------------|--|-----------------------|--|--|--|--|--|--------------------------------------|--|----------------------------|--|
| 1. SHIPPER'S NO.<br><b>ZEH</b> |  | 2. RECEIVER'S NO.<br><b>NAB</b> |  | 3. TRANSACTION NO.<br><b>1</b>   |  | 4. CORRECTION NO. |  | 5. PROCESSING CODE    |  | 6. ACTION CODE<br>a. SHIPPER <b>A</b> b. RECEIVER <b>A</b> c. RECORDER |  | 7. DOCUMENTATION (Only if document is classified SECRET) |  |                                      |  |                            |  |
| 8. NAME AND ADDRESS OF SHIPPER |  | 9. LICENSE NO.                  |  | 10. NAME AND ADDRESS OF RECEIVER |  | 11. LICENSE NO.   |  | 12. NO. OF DATA LINES |  | 13. SHIPPED FOR ACCOUNT OF<br>a. FIRM <b>ZEH</b>                       |  | 14. NATURE OF TRANSACTION<br><b>S</b>                    |  | 15. SHIPPED TO ACCOUNT OF<br>a. FIRM |  | 16. DISTRIBUTION OF COPIES |  |
| 17. ATTENTION                  |  | 18. ATTENTION                   |  | 19. ATTENTION                    |  | 20. ATTENTION     |  | 21. ATTENTION         |  | 22. ATTENTION  |  | 23. ATTENTION  |  | 24. ATTENTION                        |  | 25. ATTENTION              |  |
| 26. TELEPHONE                  |  | 27. TELEPHONE                   |  | 28. TELEPHONE                    |  | 29. TELEPHONE     |  | 30. TELEPHONE         |  | 31. TELEPHONE  |  | 32. TELEPHONE  |  | 33. TELEPHONE                        |  | 34. TELEPHONE              |  |

|  |  |  |  |  |  |  |  |  |  |  |  |                                       |  |                   |  |                          |  |                       |  |                           |  |             |  |                           |  |          |  |
|--|--|--|--|--|--|--|--|--|--|--|--|---------------------------------------|--|-------------------|--|--------------------------|--|-----------------------|--|---------------------------|--|-------------|--|---------------------------|--|----------|--|
| 14. TRANSFER AUTHORITY - CONTRACT, IN DRAFT, OR ORDER NUMBER |  |  |  |  |  |  |  |  |  | 17. EXPORT OR IMPORT TRANSFER: LICENSE NO. |  |                                       |  |                   |  |                          |  |                       |  |                           |  |             |  |                           |  |          |  |
| 16. MATERIAL TYPE AND DESCRIPTION                            |  |  |  |  |  |  |  |  |  | 17. LINE NUMBER                            |  | 18. COUNTRY OF ORIGIN                 |  | 19. MATERIAL TYPE |  | 20. QUANTIFIED WEIGHT    |  | 21. QUANTIFIED WEIGHT |  | 22. ACTION DATE           |  | 23. MONTH   |  | 24. DAY                   |  | 25. YEAR |  |
| 23a. MISCELLANEOUS   |  |  |  |  |  |  |  |  |  | 26. TOTAL GROSS WEIGHT                     |  | 27. TOTAL VOLUME (plus Ties and Bags) |  | 28. SHIPMENT      |  | 29. SHIPPER'S CORRECTION |  | 30. RECEIPT           |  | 31. RECEIVER'S CORRECTION |  | 32. RECEIPT |  | 33. RECEIVER'S CORRECTION |  |          |  |

| 26. SHIPPER'S DATA | BACK REFERENCE NUMBER | LINE NO. | TYPE OF CHARGE | IDENTIFICATION (ITEM BATCH NAME) | NO. OF ITEMS | PROJECT NUMBER | BASE-AL TYPE | CORRECTIVITY CODE | OWNER CODE | PEY MARK POINT | MATERIAL |   |   | GROSS WEIGHT | NET WEIGHT | ELEMENTAL WEIGHT | ELEMENTAL PART OF ERROR | WEIGHT % ISOTOPE | ISOTOPE WEIGHT | ISOTOPE PART OF ERROR |
|--------------------|-----------------------|----------|----------------|----------------------------------|--------------|----------------|--------------|-------------------|------------|----------------|----------|---|---|--------------|------------|------------------|-------------------------|------------------|----------------|-----------------------|
|                    | A                     | B        | C              | D                                | E            | F              | G            | H                 | I          | J              | 1        | 2 | 3 | K            | L          | M                | N                       | O                | P              | Q                     |
|                    |                       | 1        |                | M1180, M1181, M1182 & M1183      | 4            |                | 50           | 781               | J          |                |          |   |   |              |            | 77               |                         | 71.5000          | 72             |                       |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 26s. SHIPPER'S DATA                              |  |  |  |  |  |  |  |  |  | 27s. RECEIVER'S DATA                             |  |  |  |  |  |  |  |  |  |
| SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED |  |  |  |  |  |  |  |  |  | SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED |  |  |  |  |  |  |  |  |  |

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 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.

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P.03  
7704091310

NIMSS

DEC-08-2004 09:33

TOTAL P.03



**UNIVERSITY OF CONNECTICUT  
RADIATION SAFETY OFFICE U-97  
SEALED SOURCE CONTAMINATION/LEAK TEST REPORT FORM**

INVESTIGATOR: Ramos LOCATION: Physics 215 DATE: 6/26/03

ISOTOPE: \_\_\_\_\_ ACTIVITY: \_\_\_\_\_ INSTRUMENT: \_\_\_\_\_  
Pu239                      26                      NEUTRON 5.5 M1180  
    16                      " " M1183  
    16                      " " M1182  
    16                      " " M1181  
    \_\_\_\_\_  
    \_\_\_\_\_  
    \_\_\_\_\_  
    \_\_\_\_\_  
    \_\_\_\_\_  
    \_\_\_\_\_  
    \_\_\_\_\_  
    \_\_\_\_\_

CONTAMINATION/LEAK TEST RESULTS:

| LOCATION        | GROSS CPM    | BKGND CPM    | NET CPM     | TIME MIN | %EFF         | DPM         | µCi           |
|-----------------|--------------|--------------|-------------|----------|--------------|-------------|---------------|
| <u>SURFACES</u> | <u>11.99</u> | <u>10.33</u> | <u>1.66</u> | <u>5</u> | <u>75.67</u> | <u>2.20</u> | <u>9.9e-7</u> |
| ↓               | <u>12.26</u> | ↓            | <u>1.93</u> | <u>5</u> | <u>75.54</u> | <u>2.55</u> | <u>1.1e-6</u> |
| ↓               | <u>12.06</u> | ↓            | <u>1.73</u> | <u>5</u> | <u>75.38</u> | <u>2.29</u> | <u>1.0e-6</u> |
| ↓               | <u>12.21</u> | ↓            | <u>1.88</u> | <u>5</u> | <u>75.56</u> | <u>2.49</u> | <u>1.1e-6</u> |
|                 |              |              |             |          |              |             |               |
|                 |              |              |             |          |              |             |               |
|                 |              |              |             |          |              |             |               |
|                 |              |              |             |          |              |             |               |
|                 |              |              |             |          |              |             |               |
|                 |              |              |             |          |              |             |               |
|                 |              |              |             |          |              |             |               |

If the inspection or leak test reveals any construction defects or 0.005 microcuries or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with applicable regulations.

Leak Test MDA (NUREG-1556, Vol.5) =  $\frac{2.71 + 4.65 \sqrt{(B_R \times t)}}{t \times E \times 2.22E6}$  =  $\frac{2.71 + 4.65 \sqrt{10.33 \times 5}}{5 \times 0.75 \times 2.22e6}$  =  $4.3e-6 \mu Ci$

Where MDA = activity level in µCi  
 B<sub>R</sub> = background count rate in counts per minute  
 t = counting time in minutes  
 E = detector efficiency in counts per disintegration

  
 Radiation Safety Specialist

USER: 4 ID:PU 239 S.S. PRESET TIME: 5.00 THU 26 JUN 2003 13:48  
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N  
HM: 2 ABC:Y BCF:N RCM:N

LSR-TIME: 5.00 INT:999.95  
CHANNEL 1-LL: 0 UL: 400 2SIGMA: 2.00 BKG SUB: 8.02 BKG 2SIG: 2.24 LSR: 12  
CHANNEL 2-LL: 400 UL: 670 2SIGMA: 2.00 BKG SUB: 10.33 BKG 2SIG: 1.87 LSR: 12  
CHANNEL 3-LL: 670 UL: 1000 2SIGMA: 2.00 BKG SUB: 9.79 BKG 2SIG: 2.02 LSR: 12

DUAL LABEL DPM. SET UP ON TUE 27 MAY 2003 10:16  
UNKNOWN ID:  
UNKNOWN NORM FACTOR ISD1:G 1.00000 ISD2:G 1.00000 UNKNOWN REPLICATES: 1  
UNKNOWN UNITS ISD1:DPM ISD2:DPM  
CALCULATE COEFF:N HALF LIFE(DAYS) ISD1:N ISD2:N  
QUENCH COEFF ISD1, CH1 A: 4.112068 B:-0.0041245 C:-0.0000034 D:-0.0000000504  
ISD1, CH2 A: 0.2343972 B:-0.0034730 C:0.00003586 D:-0.0000000642  
ISD2, CH1 A: 2.849599 B:0.00019276 C:0.00000195 D:-0.0000000358  
ISD2, CH2 A: 4.387720 B:-0.0005313 C:0.00000341 D:-0.0000000144  
QUENCH LIMITS LGW:16.00 HIGH:313.5

| SAM      | TIME | ISD1     | DPM      | 2SIG1    | ISD2     | DPM      | 2SIG2 | CPM3  | 2SIG3 | ERR |
|----------|------|----------|----------|----------|----------|----------|-------|-------|-------|-----|
| ISO1ZEFF | CH1  | ISO1ZEFF | CH2      | ISO2ZEFF | CH2      | ISO2ZEFF | CH1   | AVG   | H#    | ERR |
| 32AVK    | 1    | 5.00     | -1.39407 | 683.8    | 5.377571 | 63.53    | 2.01  | 153.2 |       |     |
|          |      | 39.75    | 1.18     |          | 75.99    | 17.37    |       | 89.0  |       |     |
| 41170    | 2    | 5.00     | 0.524624 | 453.3    | 2.198799 | 185.9    | -0.19 | ****  |       | 110 |
|          |      | 37.99    | 1.19     |          | 75.67    | 17.31    |       | 96.5  |       |     |
| 41183    | 3    | 5.00     | -4.99297 | ****     | 2.554831 | 167.4    | 0.21  | 1350. |       | 108 |
|          |      | 37.28    | 1.20     |          | 75.54    | 17.29    |       | 99.5  |       |     |
| 41182    | 4    | 5.00     | -4.42720 | ****     | 2.286194 | 185.9    | 2.61  | 120.9 |       | 108 |
|          |      | 36.46    | 1.21     |          | 75.38    | 17.25    |       | 103.0 |       |     |
| 41181    | 5    | 5.00     | -1.20645 | ****     | 2.494050 | 167.4    | 3.01  | 106.5 |       | 108 |
|          |      | 37.40    | 1.20     |          | 75.56    | 17.29    |       | 99.0  |       |     |

## APPENDIX C

DOCUMENTATION ON DISPOSAL OF:

*Item 6.N. Sealed sources Cesium 137 (Amersham Searle Model 2000). 500 millicuries.*

# PHILOTECHNICS

June 29, 2001

Tod Richards  
University of Connecticut  
Enviro. Health & Safety, 3102 Horsebarn Road, U-97  
Storrs, CT 06269-4097

Subject: Shipment Receipt Acknowledgement

Dear Tod:

In accordance with the requirements of 10 CFR 20, Appendix G, Section III, C.1., the attached signed shipping manifest copy is provided as your notice of receipt and acceptance of the radioactive waste materials specified on the manifest. Manifest No. 0257-060501 was received at ATG on June 15, 2001 and was assigned Receipt No. LLR01-134.

This signed manifest is acknowledgement of receipt only. Any manifest discrepancies found during unloading or processing will be reported at a later date.

Please contact me if you have any questions or require additional information. I can be reached at 888-RADWASTE or 865-425-3009 (direct), or via email at [aleach@philotechnics.com](mailto:aleach@philotechnics.com).

Sincerely,

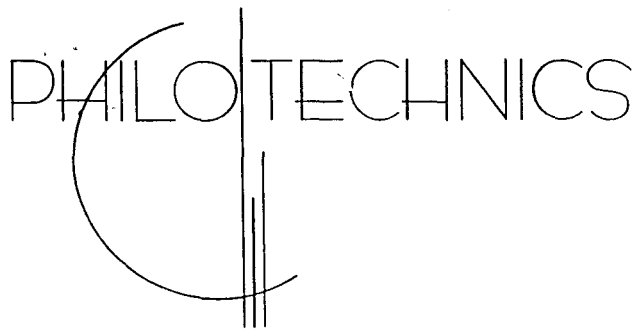
*Philotechnics, Ltd.*



Annette Leach  
Customer Service Manager

al  
Enclosure

| FORM 540<br>UNIFORM LOW-LEVEL RADIOACTIVE<br>WASTE MANIFEST<br>SHIPPING PAPER  |  | Philotechnics  |  | 5. SHIPPER - NAME AND FACILITY<br>Philotechnics @ Univ. of Connecticut<br>Environ. Health and Safety<br>3102 Horsebarn Road, U-97<br>Storrs, CT 06269-4097 |  | SHIPMENT I.D. NUMBER<br>0257-060501  |  | 7. FORM 540 AND 540A<br>FORM 541 AND 541A<br>FORM 542 AND 542A<br>ADDITIONAL INFORMATION |  | PAGE 1 OF 1 PAGE(S)<br>PAGE 2 OF 2 PAGE(S)<br>PAGE 1 OF 1 PAGE(S)<br>None PAGE(S)                                  |  | 8. MANIFEST NUMBER<br>(Use this number on all continuation pages)<br>0257-060501<br>0257-060501   |  |  |  |                                      |  |
|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--------------------------------------|--|
| 1. EMERGENCY TELEPHONE NUMBER (Include Area Code)<br>865-806-7991  |  | S.C. PERMIT #<br>NA  |  | SHIPMENT NUMBER<br>0257-060501   |  | COLLECTOR<br><input checked="" type="checkbox"/>                                 |  | PROCESSOR  |  | 9. CONSIGNEE - Name and Facility Address<br>ATG - Richland Operations<br>2025 Battelle Blvd.<br>Richland, WA 99352 |  | CONTACT<br>Bob Denno  |  |  |  |                                      |  |
| ORGANIZATION<br>Philotechnics  |  | CONTACT<br>Tod H. Richards                                   |  | TELEPHONE NUMBER (Include Area Code)<br>860-486-1106   |  | EPA I.D. NUMBER<br>TND987766078  |  | SIGNATURE - Authorized consignee acknowledging waste receipt<br><i>[Signature]</i>       |  | DATE<br>6-15-01  |  | 10. CERTIFICATION<br>This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations. |  |  |  |                                      |  |
| 2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?<br><input checked="" type="checkbox"/> YES<br><input type="checkbox"/> NO                              |  | 3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST<br>7 |  | 6. CARRIER - Name and Address<br>KINDRICK TRUCKING COMPANY<br>2818 ROANE STATE HIGHWAY<br>HARRIMAN, TN 37748   |  | Truck #:<br>Trailer #:   |  | SHIPPING DATE<br>6/5/01  |  | TELEPHONE NUMBER (Include Area Code)<br>865-882-0457   |  | DATE<br>06-05-01  |  |  |  |                                      |  |
| 4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT?<br>If "Yes," provide Manifest Number                                 |  | EPA MANIFEST NUMBER<br>NA                                    |  | CONTACT<br>Gary Kindrick   |  | SIGNATURE - Authorized carrier acknowledging waste receipt<br><i>[Signature]</i> |  | DATE<br>6/5/01   |  | AUTHORIZED SIGNATURE<br><i>[Signature]</i>   |  | TITLE<br>Sr. Broker   |  |  |  |                                      |  |
| 11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information) |  | 12. DOT LABEL "RADIOACTIVE"                                  |  | 13. TRANSPORT INDEX  |  | 14. PHYSICAL AND CHEMICAL FORM   |  | 15. INDIVIDUAL RADIONUCLIDES   |  | 16. TOTAL PACKAGE ACTIVITY<br>Mthg mCi   |  | 17. LSA/SCO CLASS   |  | 18. TOTAL WEIGHT OR VOLUME (Use appropriate units) |  | 19. IDENTIFICATION NUMBER OF PACKAGE |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  | NA   |  | NA   |  | Solid Pa,Pi,Gi/BPU-ECU   |  | H-3 Zn-65  |  | 1.2765E+01 3.4500E-01  |  | NA  |  | 92. LBS; 7.5 FT3                                   |  | 1143                                 |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  | NA   |  | NA   |  | Solid Pa,Pi,Gi/BPU-NDV   |  | C-14 H-3   |  | 3.8282E+00 2.3860E-01  |  | NA  |  | 80. LBS; 7.5 FT3                                   |  | 1144                                 |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  | NA   |  | NA   |  | Solid Pa,Pi,Gi/BPU-ECU   |  | C-14 Ca-45 H-3   |  | 4.4881E+00 1.2130E-01  |  | NA  |  | 65. LBS; 7.5 FT3                                   |  | 1151                                 |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  | NA   |  | NA   |  | Solid Pa,Pi,Gi/BPU-ECU   |  | C-14 Ca-48 H-3   |  | 5.8045E+00 1.7850E-01  |  | NA  |  | 73. LBS; 7.5 FT3                                   |  | 1154                                 |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  | NA   |  | NA   |  | Solid Pa,Pi,Gi/BPU-NDV   |  | C-14 H-3   |  | 2.4165E+00 5.5312E-02  |  | NA  |  | 71. LBS; 7.5 FT3                                   |  | 1161                                 |  |
| Radioactive material, excepted package-limited quantity of material, 7, UN2910   |  | NA   |  | NA   |  | Solid Pa,Pi,Gi/BPU-NDV   |  | H-3  |  | 5.6866E+01 1.8072E+00  |  | NA  |  | 60. LBS; 7.5 FT3                                   |  | 1162                                 |  |
| Radioactive material, n.o.s., 7, UN2982  |  | Yellow II  |  | N/A  |  | Solid Sealed Source/Encaps-BSC   |  | Cs-137   |  | 1.4356E+04 3.8800E+02  |  | NA  |  | 280. LBS; 4.1 FT3                                  |  | RSO-001                              |  |
| FOR CONSIGNEE USE ONLY   |  |  |  | 20.  |  |  |  |  |  |  |  |   |  |  |  |                                      |  |



May 22, 2001  
TN01-0532

Mr. Tod Richards  
University of Connecticut  
Environmental Health & Safety  
3102 Horsebarn Hill Road  
Storrs, CT 06269

Via Fax: 860-486-1106

*Subject: Philotechnics, Ltd. Quotation No. 2001-03AL, Revision 2*

Dear Tod:

In response to our recent conversations, Philotechnics, Ltd. is pleased to provide this revised quotation for brokerage, transportation, and disposal services for your low-level radioactive waste materials.

Due to impending changes at Barnwell effective July 1, 2001, the Cs-137 source may require dedicated encapsulation and will be processed as described below:

Philotechnics will provide brokerage services to include proper manifesting and labeling, packaging assistance and supplies as required, less than load transportation on a milkrun basis, and disposal as follows:

**Cs-137 Source:**

The source will be shipped to a processing facility for encapsulation in a minimum 4" concrete with final disposal at the Barnwell, SC Disposal Facility. This option will be provided for \$4,750. A South Carolina Waste Transport Permit for Year 2001 will be required for disposal.

All other conditions of the original quotation and Revision 1 remain unchanged.

Philotechnics looks forward to working with the University of Connecticut. If you have any questions please feel free to contact either myself or Don Hartje, Operations Manager, at (865) 483-1551 or 888-RADWASTE.

Sincerely,  
*Philotechnics, Ltd.*

A handwritten signature in black ink, appearing to read "Annette Leach", is written over the typed name.

Annette Leach  
Customer Service Manager

al

USER: 5 ID:WASTE DRUMS PRESET TIME: 5.00  
 SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N  
 H#: 3 AQC:N QCF:N RCM:N

FRI 25 MAY 2001 14:11

LSR-TIME: 0.50 INT: 0.50  
 CHANNEL 1-LL: 0 UL: 400 2SIGMA: 2.00 BKG SUB: 15.62 BKG 2SIG: 1.90 LSR: 12  
 CHANNEL 2-LL: 400 UL: 670 2SIGMA: 2.00 BKG SUB: 19.24 BKG 2SIG: 1.72 LSR: 12  
 CHANNEL 3-LL: 670 UL: 1000 2SIGMA: 2.00 BKG SUB: 14.10 BKG 2SIG: 2.00 LSR: 12

DUAL LABEL DPM, SET UP ON MON 30 APR 2001 07:58  
 UNKNOWN ID: UNKNOWN REPLICATES: 1

UNKNOWN NORM FACTOR ISO1:0 1.00000 ISO2:0 1.00000

UNKNOWN UNITS ISO1:DPM ISO2:DPM

CALCULATE COEFF:N HALF LIFE(DAYS) ISO1:N ISO2:N

QUENCH COEFF ISO1, CH1 A: 4.080156 B:-0.0037843 C:-0.0000091 D:-0.0000000385  
 ISO1, CH2 A: 0.2672549 B:-0.0019630 C:0.00002011 D:-0.0000000353  
 ISO2, CH1 A: 2.842980 B:-0.0000435 C:0.00000368 D:-0.0000000389  
 ISO2, CH2 A: 4.359637 B:-0.0006794 C:0.00000293 D:-0.0000000160

QUENCH LIMITS LOW:6.000 HIGH:299.7

| SAM       | TIME         | ISO1 DPM     | 2SIG1        | ISO2 DPM     | 2SIG2  | CPM3   | 2SIG3 | ERR |
|-----------|--------------|--------------|--------------|--------------|--------|--------|-------|-----|
| <i>um</i> | ISO1%EFF CH1 | ISO1%EFF CH2 | ISO2%EFF CH2 | ISO2%EFF CH1 | AVG H# |        |       | ERR |
| 50 od1    | 0.50         | -5.25286     | *****        | 1.119392     | 1665.  | -2.10  | ***** | 111 |
|           | 34.47        | 1.27         |              | 73.87        | 17.02  | 104.7  |       | 108 |
| 1152 2    | 0.50         | -6.80643     | *****        | -6.95531     | *****  | -2.10  | ***** | 111 |
|           | 35.75        | 1.27         |              | 74.10        | 17.06  | 99.3   |       | 108 |
| 11433     | 0.50         | -2.58657     | *****        | -4.34575     | *****  | -6.10  | ***** | 111 |
|           | 34.07        | 1.28         |              | 73.80        | 17.00  | 106.3  |       | 108 |
| 1144 4    | 0.50         | 0.142342     | *****        | -9.81524     | *****  | -10.10 | ***** | 111 |
|           | 33.99        | 1.28         |              | 73.78        | 17.00  | 106.7  |       | 108 |
| 1146 5    | 0.50         | 27.89209     | 165.4        | -10.2328     | *****  | -8.10  | ***** | 111 |
|           | 36.31        | 1.26         |              | 74.20        | 17.08  | 97.0   |       | 109 |
| 1151 6    | 0.50         | -1.18648     | *****        | -7.06212     | *****  | -8.10  | ***** | 111 |
|           | 35.11        | 1.27         |              | 73.99        | 17.04  | 102.0  |       | 108 |
| 1153 7    | 0.50         | 22.14991     | 208.0        | -7.47377     | *****  | -8.10  | ***** | 111 |
|           | 34.55        | 1.27         |              | 73.88        | 17.02  | 104.3  |       | 109 |
| 1154 B    | 0.50         | 22.25390     | 208.0        | -7.47885     | *****  | -0.10  | ***** | 111 |
|           | 34.39        | 1.27         |              | 73.85        | 17.01  | 105.0  |       | 109 |

ALL CONTAMINATION LEVELS { < 100 dpm / 100 cm<sup>2</sup>  
 { < 22 dpm / cm<sup>2</sup>  
 JML

## **APPENDIX D**

**DOCUMENTATION ON NYANK MARINE LABORATORIES DECOMMISSIONING:**



**COPY**



Environmental Health and Safety

Box U-97, Room 219  
189 Auditorium Road  
Storrs, CT 06269-3097  
(203) 486-3613  
FAX (203) 486-1106

DATE: June 16, 1992

TO: Dr. Stephen Spotte  
Noank Marine Research Lab

FROM: Edward L. Wilds, Jr. *EW*  
Radiation Safety Manager

SUBJECT: LABORATORY DEACTIVATION

This is to document that the Marine Science Lab at Noank, CT was smeared and surveyed on June 8, 1992 and found to be free and clear of contamination.

This laboratory is hereby placed on inactive status. You are reminded that the use and storage of radioactive materials in this area is prohibited until it is reactivated. Notify Radiation Safety, U-Box 97, when you wish to be placed on an active status.

/1

cc:



An Equal Opportunity Employer

Send letter and file  
EW

UNIVERSITY OF CONNECTICUT  
ENVIRONMENTAL HEALTH AND SAFETY

INACTIVE LABORATORY CHECKOFF SHEET

LICENSED INVESTIGATOR: J Spalte EXT. \_\_\_\_\_  
LOCATION: Moank MSC DATE: 8 June 92

| YES | DATE          | INITIALS |   |
|-----|---------------|----------|---|
| ✓   | 8 June 92     | MS       | Radioactive material transferred to :<br><u>Waste</u><br>and laboratory balance zero. |
| ✓   | 8 June 92     | MS       | Laboratory surveyed: no contamination   |
| ✓   | 8 June 92     | MS       | All radioactive waste picked up by RSO  |
| *   |               |          | All radioactive signs removed by RSO  |
| ✓   | 8 June 92     | MS       | All movable equipment surveyed and certified free of contamination.                   |
| ✓   | June 16, 1992 | JP       | Letter sent to Licensed Investigator and copy placed in file.                         |

→ To be removed by PI



ENTER B,C,D,L,P, OR R: BATCH

PROJ ID: I125  
 FIRST SAMPLE # = 121  
 LAST SAMPLE # = 146  
 UNLIMITED USE? N  
 LIMIT = 1  
 CATALOG I125? Y

ID DESCRIPTION  
 125 I125

TYPE TIME TERM. PCT LCR  
 RAW DATA 1.00 MIN

| SO# | KEV-L | KEV-H | PCT? | LCR? | CALCULATION  |
|-----|-------|-------|------|------|--------------|
| 125 | 10    | 75    | NO   | NO   | C=(U-61)/.78 |

ENTER B,C,D,L,P, OR R: RESUME

| FIRST/LAST | # | PROT. | STDS? | STD-STATUS | DATE | STD | STORED |
|------------|---|-------|-------|------------|------|-----|--------|
| 121 146    | 1 | I125  | N     |            |      |     |        |

ID DESCRIPTION  
 125 I125

TYPE TIME TERM. PCT LCR  
 RAW DATA 1.00 MIN

| SO# | KEV-L | KEV-H | PCT? | LCR? | CALCULATION  |
|-----|-------|-------|------|------|--------------|
| 125 | 10    | 75    | NO   | NO   | C=(U-61)/.78 |

| DATE    | BATCH | COUNTED | ISOTOPE |
|---------|-------|---------|---------|
| 6/09/92 | 12:44 |         | I125    |

| S/N  | TIME | CPM  | %DEV    | C=      |
|------|------|------|---------|---------|
| 2:45 | 121  | 1.00 | 58 26.3 | -3.846  |
| 2:46 | 122  | 1.00 | 46 29.5 | -19.231 |
| 2:47 | 123  | 1.00 | 50 28.3 | -14.103 |
| 2:48 | 124  | 1.00 | 46 29.5 | -19.231 |
| 2:49 | 125  | 1.00 | 49 28.6 | -15.385 |
| 2:50 | 126  | 1.00 | 55 27.0 | -7.692  |
| 2:   | 127  | 1.00 | 55 27.0 | -7.692  |
| 2:53 | 128  | 1.00 | 54 27.2 | -8.974  |
| 2:54 | 129  | 1.00 | 62 25.4 | 1.282   |
| 2:55 | 130  | 1.00 | 51 28.0 | -12.821 |
| 2:56 | 131  | 1.00 | 47 29.2 | -17.949 |
| 2:57 | 132  | 1.00 | 57 26.5 | -5.128  |
| 2:58 | 133  | 1.00 | 44 30.2 | -21.795 |

|      |     |      |    |      |         |
|------|-----|------|----|------|---------|
| 3:02 | 136 | 1.00 | 48 | 29.9 | -16.667 |
| 3:03 | 137 | 1.00 | 46 | 29.5 | -19.231 |
| 3:04 | 138 | 1.00 | 45 | 29.8 | -20.513 |
| 3:05 | 139 | 1.00 | 55 | 27.0 | -7.692  |
| 3:06 | 140 | 1.00 | 61 | 25.6 | 0.000   |
| 3:07 | 141 | 1.00 | 55 | 27.0 | -7.692  |
| 3:08 | 142 | 1.00 | 58 | 26.3 | -3.846  |
| 3:10 | 143 | 1.00 | 43 | 30.5 | -23.077 |
| 3:11 | 144 | 1.00 | 54 | 27.2 | -8.974  |
| 3:12 | 145 | 1.00 | 46 | 29.5 | -19.231 |
| 3:13 | 146 | 1.00 | 53 | 27.5 | -10.256 |

URGENT COMPLETE

**COPY**

  
**THE  
UNIVERSITY OF  
CONNECTICUT**

Environmental Health Agency  
Box U-97, 606 Gilbert  
Storrs, Connecticut 06269

**FILE**

January 21, 1986

Dr. S. Y. Feng  
Marine Research Lab  
Noank, Connecticut 06340

Dear Dr. Feng:

This is to confirm that on November 26, 1985, your laboratory was surveyed and found to be free of contamination. All solid and liquid waste has been removed from lab and disposed of and all radioactive signs have been taken down.

Sincerely,

Frances Harshaw  
Director, Radiation Safety

FH:p





Environmental Health & Safety  
Box U-97, 606 Gilbert Road  
Storrs, Connecticut 06268

December 2, 1985

From: Denny Galloway

*Denny Galloway*

Subject: Dr. Sung Yen Feng's lab decommissioning

On November 26, 1985 Dr. Sung Yen Feng's lab was decommissioned. Please note the following.

1. Technicians survey indicates there is no fixed or removable contamination.
2. All solid and liquid waste was removed from lab and disposed of according to procedure.
3. Inventory was balanced and reflects the removal and disposal of 0.1 mCi of inulin.  $C-14$
4. All radioactive signs/postings have been taken down or removed.
5. Dr. Feng's records have been put in the Investigators inactive file.

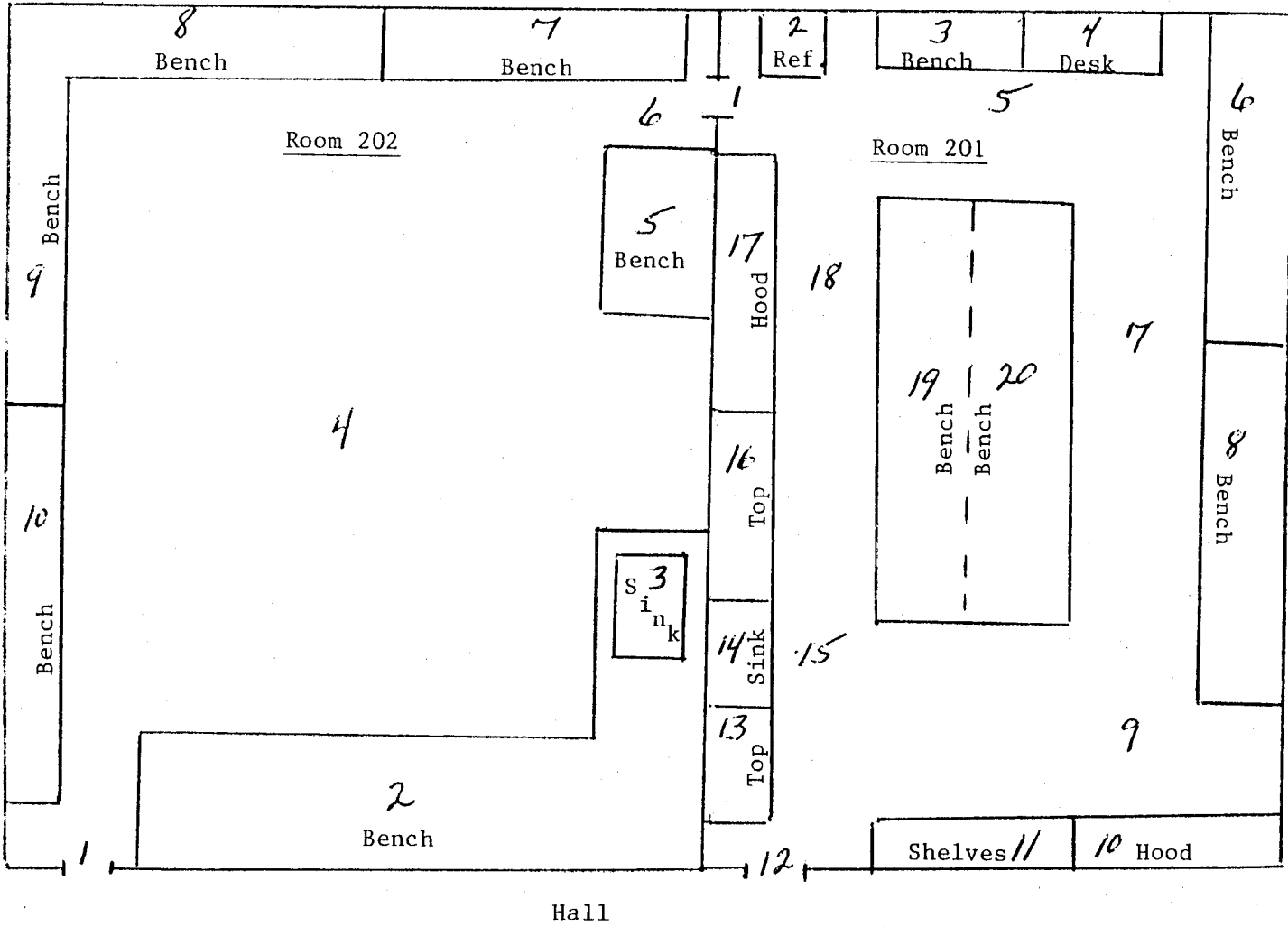


DIAGRAM OF SURVEYED AREA

INVESTIGATOR: Dr. Feng

LOCATION: Noank Marine Research

Rooms #201 and #202





1785

UNIVERSITY OF CONNECTICUT  
 RADIATION SAFETY OFFICE U-97  
 WIPE TEST REPORT FORM

PURPOSE: LAB CLEAN OUT, DR SUNG YEN FENG

LOCATION: NOANK BLDG. MARINE SCIENCE DATE: 12-2-85

ISOTOPE: <sup>14</sup>C PHYSICAL & CHEMICAL FORM: INULIN

ACTIVITY: \_\_\_\_\_ mCi PROCEDURE: WIPE TEST

WIPE TEST RESULTS

SAMPLE NO. LOCATION COUNTS TIME MIN CPM %EFF BKG CPM COUNTS ABOVE BKG. DPM

| SAMPLE NO. | LOCATION                       | COUNTS | TIME MIN | CPM | %EFF | BKG CPM | COUNTS ABOVE BKG. | DPM |
|------------|--------------------------------|--------|----------|-----|------|---------|-------------------|-----|
| 1.         | FRIDGE TOP                     |        | 5        | 31  | .95  | 52      | 0                 |     |
| 2.         | " SIDES                        |        |          | 44  |      |         | 0                 |     |
| 3.         | " DOOR HANDLE & SEAL           |        |          | 44  |      |         | 0                 |     |
| 4.         | FREEZER                        |        |          | 52  |      |         | 0                 |     |
| 5.         | FRIDGE RACKS                   |        |          | 51  |      |         | 0                 |     |
| 6.         | INSIDE DOOR                    |        |          | 46  |      |         | 0                 |     |
| 7.         | DOOR HANDLE                    |        |          | 45  |      |         | 0                 |     |
| 8.         | FLOOR                          |        |          | 38  |      |         | 0                 |     |
| 9.         | WHITE HOOD                     |        |          | 41  |      |         | 0                 |     |
| 10.        | GREEN HOOD                     |        |          | 40  |      |         | 0                 |     |
| 11.        | CTR LAB BENCH                  |        |          | 44  |      |         | 0                 |     |
| 12.        | DESK                           |        |          | 48  |      |         | 0                 |     |
| 13.        | WORK BENCH NEXT TO FRIDGE      |        |          | 45  |      |         | 0                 |     |
| 14.        | WORK BENCH BELOW AIRFLOW TOWER |        |          | 45  |      |         | 0                 |     |
| 15.        | CTR LAB BENCH                  |        |          | 48  |      |         | 0                 |     |
| 16.        |                                |        |          |     |      |         |                   |     |

PERMISSIBLE LIMIT <100 dpm/100 per sq.cm. for active laboratories.

RADIATION SAFETY OFFICE U-97  
486-3613

TO: S. Y. Feng AVERY POINT BRANCH-MARINE RESEARCH LAB, 446-1020  
FROM: F. HARSHAW, RSO  
RE: FINAL INVENTORY OF RADIOISOTOPES  
DATE: 11/26/85

PLEASE PLACE IN YOUR RADIATION SAFETY NOTEBOOK FOR REFERENCE.

LICENSED ISOTOPE(S) PER PERMIT 75-072:

| ISOTOPE | MAXIMUM ACTIVITY<br>ON HAND (mCi) | MAXIMUM ACTIVITY<br>PURCHASED/TIME | MAXIMUM ACTIVITY<br>PURCHASED/YEAR |
|---------|-----------------------------------|------------------------------------|------------------------------------|
| C-14    | 10.000                            | 5.000                              | 10.000                             |

DURING THE PERIOD ENDING 11/26/85 OUR RECORDS REFLECT THE FOLLOWING ACTIVITY:

| ISOTOPE | PREVIOUS<br>BALANCE<br>mCi | AMOUNT<br>RECEIVED<br>mCi | DECAY<br>LOSS<br>mCi | WASTE LIQUID<br>CAN<br>mCi | OTHER<br>LIQUID<br>mCi | OTHER<br>EXPLAIN<br>mCi | BALANCE<br>mCi |
|---------|----------------------------|---------------------------|----------------------|----------------------------|------------------------|-------------------------|----------------|
| C-14    | 0.10                       | 0                         | 0                    | 0                          | 0.10**                 | 0                       | 0              |

\* DENOTES SEALED SOURCE

\*\* PICKED UP BY RADIATION SAFETY OFFICE

COMMENTS:

AS PER NOTE OF 9/16/83, NO RADIOISOTOPE WORK HAS BEEN DONE FOR THE PAST SEVERAL YEARS.