

CABOT

030-04676

January 24, 1989

Mr. John Kinneman
U.S. NUCLEAR REGULATORY COMMISSION
475 Allendale Road
King of Prussia, PA 19406

Log	716-7
Remitter	
Check No.	26536
Amount	120
Fee Category	3M
Type of Fee	AMT
Date Check Rec'd.	2/18/89
Date Completed	2/18/89
By:	S. Gasiorowski

RE: NRC License #20-08413-01
Docket #030-04676

Dear Mr. Kinneman:

We wish to request an Amendment to our Radioactive Material License as shown in the above reference to add the following devices:

<u>Item 6</u>	<u>Item 7</u>	<u>Item 8</u>
V. Cesium 137	Sealed Sources (Berthold Systems, Inc. Dwg. #P2623-100)	No Single source to exceed 300 millicuries.
W. Americium 241	Sealed Sources (Berthold Systems, Inc. Dwg. #P2611-100)	No single source to exceed 100 millicuries.
X. Curium 244	Sealed Sources (Berthold Systems, Inc. Dwg. #2657.000-000)	No single source to exceed 10 millicuries

Item 9 - Authorized Use:

Items V, W, and X for use in Berthold Systems, Inc. Sulfur Analyzer Model LB-375.

Please note that the NRC Registration Number for the above is NR-186-D-104-B.

Enclosed you will find a check in the amount of \$120.00 for amendment fee.

We appreciate your expeditious processing of this amendment due to scheduling of research work that is important at this moment. Our license is due for renewal on April 30, 1989, however, so we must act promptly.

We thank you very much for your cooperation. Should you have any questions, please feel free to contact me at (508) 663-3455.

9003070162 890710
REG1 LIC30
20-08413-01 PDR

S. A. Gasiorowski
Stephen A. Gasiorowski
Radiation Safety Officer.

Cabot Corporation
Billerica Technical Center
Concord Road
Billerica, Massachusetts 01821
(617) 663-3455

120865
110184

JAN 26 1989

OFFICIAL RECORD COPY ML10

CABOT

April 24, 1989

Director, Division of Fuel Cycle and Material Safety
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

RE: NRC License #20-08413-01
Docket #030-04676

Dear Sirs,

Attached please find NRC Form 314 and all pertinent documentation on the removal and disposal of all byproduct materials held under NRC license #20-08413-01 at Cabot Corporation's Billerica Technical Center in Billerica, Massachusetts. All activity employing non-exempt radioisotopes have been discontinued at this facility and no future work is planned.

NRC license #20-08413-01 will be allowed to lapse on the expiration date of April 30, 1989. All documentation required by NRC regulations will be retained indefinitely. Any further enquiries should be referred to Dr. Stephen A. Gasiorowski, Radiation Safety Office, Billerica Technical Center (508) 663-3455.

A copy of this letter and all attachments is being forwarded to John Jensen, NRC Region 1, King of Prussia, PA.

Stephen A. Gasiorowski
Radiation Safety Officer

James D. Bittner
General Manager
Carbon Black Technology Division

Attachments: Disposal and Decommissioning report from
Applied Health Physics, INC.

License Fee Information
on NRC Form 314

cc: JDBittner, SHiggins, MEO'Dowd, WReiber, WWitzel - Billerica
DJRobinson, GRScoll - Waltham

Cabot Corporation
Billerica Technical Center
Concord Road
Billerica, Massachusetts 01821
(617) 663-3455

OFFICIAL RECORD COPY **ML 10**

RECD 04-28-89

RECD, RECD

120865
MAY 16 1989
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CERTIFICATE OF DISPOSITION OF MATERIALS

(All items MUST be completed, please print)

LICENSEE NAME AND ADDRESS

Cabot Corporation
125 High Street
Boston, MA 02110

LICENSE NUMBER

20-08413-01

LICENSE EXPIRATION DATE

April 30, 1989

THE LICENSEE OR ANY INDIVIDUAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE LICENSEE CERTIFIES THAT (Check one or complete the appropriate item(s) below.)

A. MATERIALS DATA (Check one and complete, as necessary)

- 1. NO MATERIALS HAVE EVER BEEN POSSESSED OR PROCURED BY THE LICENSEE UNDER THIS LICENSE.
- OR
- 2. ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSEE UNDER THE LICENSE NUMBER CITED ABOVE HAVE BEEN TRANSFERRED ON

DATE _____ TO _____ WHICH HAS NRC LICENSE NUMBER _____

- OR
- 3. ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSEE UNDER THE LICENSE NUMBER CITED ABOVE HAVE BEEN TRANSFERRED ON

DATE _____ TO _____ WHICH HAS LICENSE NUMBER _____ ISSUED BY THE STATE OF _____

AN AGREEMENT STATE PURSUANT TO SECTION 274 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED, AND THE ENERGY REORGANIZATION ACT OF 1974.

- OR
- 4. MATERIALS HAVE BEEN DISPOSED OF IN THE FOLLOWING MANNER. (Describe specific disposal procedures--if additional space is needed, use the reverse of this form, or provide attachments)

Applied Health Physics, Inc. Bethel Park, PA; NRC License #37-14600-01, Surveyed, Analyzed, Packaged, and Prepared all inventoried radioactive materials for disposal on March 17, 1989. Containers were smeared and surveyed for shipping to U.S. Ecology for disposal.

RECEIVED BY LFMS
Date 5/8/89
Log from 10 I
B OTHER DATA
Date 5/8/89
JK

FEE EXEMPT
Jerraine

- 1. OUR LICENSE HAS NOT YET EXPIRED. PLEASE TERMINATE IT.
- 2. WAS A RADIATION SURVEY CONDUCTED TO CONFIRM THE ABSENCE OF LICENSED RADIOACTIVE MATERIALS AND TO DETERMINE WHETHER ANY CONTAMINATION REMAINS ON THE PREMISES COVERED BY THE LICENSE? (Check one)

- NO
- YES THE RESULTS (Check one)
- ARE ATTACHED, OR
- WERE FORWARDED TO NRC ON (Date)

3. THE PERSON TO BE CONTACTED REGARDING THE INFORMATION PROVIDED ON THIS FORM

NAME Dr. Stephen A. Gasiorowski TELEPHONE NUMBER 508-663-3455

4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO

Dr. Stephen A. Gasiorowski Cabot Corporation
157 Concord Road Billerica, MA 01821

RETURN TO
DIRECTOR, DIVISION OF FUEL CYCLE AND MATERIAL SAFETY
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555

CERTIFYING OFFICIAL
SIGNATURE _____ DATE _____
PRINTED NAME AND TITLE _____

120865
120865



HEALTH PHYSICS inc.

2986 Industrial Blvd. • Box 197 • Bethel Park, Pa. 15102 • Phone 412 • 563-2242

REPORT NUMBER 1

DATE April 18, 1989

FIELD SERVICE REPORT

Mr. Steve Gasiorowski
CABOT CORPORATION

157 Concord Road

Billerica, MA 01821

S
E
R
V
I
C
E

Prepare Radioactive Material

Waste Disposal Shipment

DESCRIPTION OF SERVICES On March 17, 1989 John Harshman and Ed Andresky prepared all isotopes shown in Attachment A for shipment to U.S. Ecology, Inc. (Generator #MAR-99-003-8036) via Tri-State Motor Freight. Tri-State billing of lading is shown as Attachment B.

The isotopes were packaged into three(3) 17-H steel drums as shown in Attachment C, D and E. They were packed as described in the Attachments with isotopes identified, then surveyed for radiation levels and labeling. Waste shipment and disposal manifest was prepared and shown as Attachments F1 and F2. Packaging, documenting, surveying and labeling was completed and a complete radiation survey was accomplished in the room identified as Room 206 (Area's A and B) which isotopes were utilized and stored.

A total of forty(40) smears were taken of the Room 206. Results of the smears are shown as Attachment G. Location of each smeared area is shown in Attachments H and I. (Carrier No. will be identified as C-32001, whereby 001 will correspond with Carrier 01, etc.)

A total of ten(10) wipes were conducted on the roof area above Room 206 and are shown in Attachments J and K as referred in the smear sampling. Shipping in accordance with CFR Title 49.

Services performed by: John Harshman and Ed Andresky

Date: April 18, 1989

FINDINGS

Results of smears and wipe tests were in compliance with applicable regulations. Certification for Room 206 use is shown in Attachment L.

RECOMMENDATIONS

Notify NRC on Form 314 of your notice to discontinue your NRC By-Product Material License.

Our Invoice No.: _____ Date: _____

Customer's Purchase Order No.: _____

E. C. Andresky
(SIGNATURE)

QA
(TITLE)

CABOT CORP., BILLERICA, MA. 01821

BUILDING 1, SECOND FLOOR

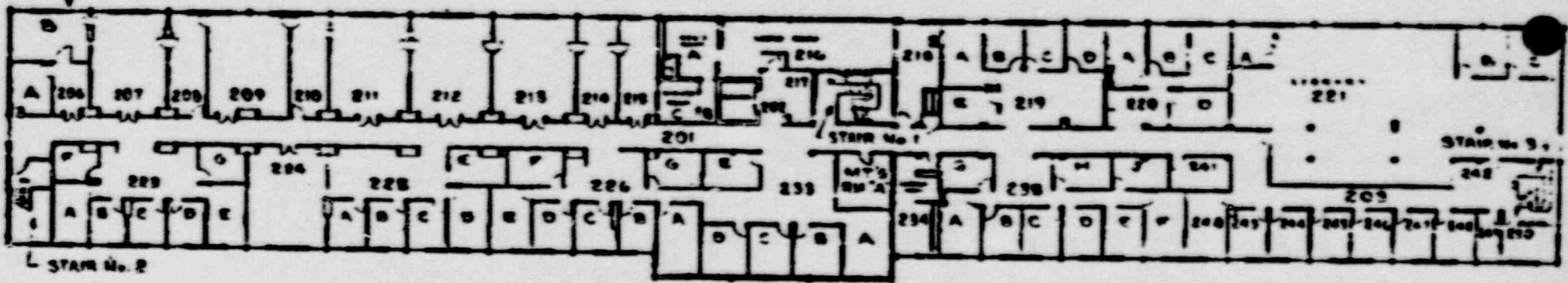
J. Scher/J. Carrier

C. Cassello/J. Currie

N. Nugent/L. Dion

T. Carco/A. Reid

Isotope Utilization & Storage



Areas:

206:
207:
208:
209:
210:
223:
224

Areas:

211:
212:
213:
214:
215:
216:
217:
225:
226:
233:

Areas:

218:
219:
220:
234:
235:

Areas:

221:
240:
241:
242:
243:
244:
245:
246:
247:
248:
249:
250:

FIGURE-1

ISOTOPE INVENTORY AS OF JULY 11, 1988

ISOTOPE	TYPE	ACTIVITY	DATE	MANUFACTURER/MODEL #
C-14	Sealed	200 μ Ci	12/77	NEN NER-006 CR029
C-14	Dodecane	0.1 mCi	?	NEN NEC-181 Lot 31-262-1
C-14	Naphtalene	0.1 mCi	11/65	Nuclear Research Chemicals
H-3	GC Detector	200 mCi	2/66	Perkin Elmer Model #2-2837 Serial # 567
H-3	GC Detector	200 mCi	7/65	Perkin Elmer Model #2-2837 Serial #433
Na-22	Sealed	1.18 μ Ci	11/82	NEN
S-35	H2SO4	2 mCi	8/78	NEN G35865-130B
Fe-55	Sealed	100 Ci	9/74	NEN 9174 #50038-S
Fe-55	Sealed	100 mCi	9/76	Isotope Products Labs #31110 PH-55
Co-60	Sealed	0.1 μ Ci	2/84	Isotope Products #11334-1
Co-60	Sealed	?	?	Tracerlab R-8 Calibration Source
Kr-85	Sealed	1 mCi	1973	
Kr-85	Sealed SS-Tubing	1 mCi	1975	
Kr-85	Sealed SS-Tubing	1 mCi	1979	
Cd-109	Sealed	14 mCi	2/81	NEN NER-466A D995
Ba-133	Sealed	1.14 μ Ci	11/90	NEN
Cs-137	Sealed	7.2 μ Ci	12/76	NEN
Cs-137	Sealed	10 μ Ci	12/83	Isotope Products 11205-4
Cs-137	Sealed	10 μ Ci	12/83	Isotope Products 11205-3
Cs-137	Sealed	10 mCi	?	Isotope Products #300-A
Cs-137	Sealed	100 mCi	10/21/86	Contained in USA DOT 7A Container Ray Ray Model 7063-P S/N 23023
 	 	 	 	
 	 	 	 	
Cm-244	Sealed	30 mCi	4/81	Amersham CLC A1

PREVIOUSLY SHIPPED

1/2 17.6y 0.5.9 MeV 1.42.8ker t_{1/2} 0.02%

STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. AHP-3

Carrier No. _____

Date 3-17-89

Page 1 of 1

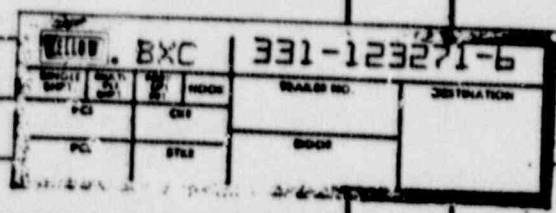
YELLOW FREIGHT LINES
Name of Carrier (B/CAC)

To: U.S. Ecology, Inc.
In Collect on Delivery shipments, the letters "COD" must appear before consignee's name & as otherwise provided in Item 430, Sec. 1.
Street: 7066A Commerce Circle
Destination: PLEASANTON, CAL. Zip Code 94566

FROM: Shipper
Cabot Corporation
Billerica Technical Center
157 Concord Road
Billerica, MA 01821
Street
Origin

Vehicle Number _____

No. of Units & Container Type	HM	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name, Class and Identification Number per 172.101, 172.202, 172.203)	UN or NAG	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
<u>3 DRUMS</u>		<u>RADIOACTIVE MATERIAL N.O.S.</u> <u>USA DOT 7A TYPE A</u>	<u>UN 2981</u>	<u>27.50 FT.</u>	<u>860 LBS</u>		



PLACARDS TENDERED: YES NO

REMIT C.O.D. TO ADDRESS

Note - Where the rate is dependent on value shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby officially stated by the shipper to be not exceeding _____

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by a Rail or Highway Motor Vehicle (DELETE BOTH APPLICABLE MODES OF TRANSPORT) according to applicable international and national governmental regulations.
E.L. [Signature] Shipper

COD Amt: \$ _____
Subject to Section 7 of the conditions of this shipment it is declared to be collectible without recourse on the consignee. The consignee shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other bills of lading charges.
Signature of Consignee _____

C.O.D. FEE PREPAID COLLECT
TOTAL CHARGES: \$ _____
FREIGHT CHARGES
FREIGHT PREPAID COLLECT (B/CAC) Check box if charges are to be applied.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, it on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or

any of, said property over all or any part of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER CABOT CORP.
157 CONCORD ROAD
BELLERICA, MASS. 01821
Permanent post-office address of shipper.

CARRIER YELLOW FREIGHT LINES
PER 1M 1M ON INTL
DATE 3-17-89 3/DRUMS

APPLIED HEALTH PHYSICS, Inc.

RADIOACTIVE WASTE DRUM CONTENTS

CLIENT: CABOT Corp.

DRUM NO. 1

DATE LOADED: 3-17-89

DRUM WEIGHT 255 LBS.

LOADED BY: J. HARSHMAN & ED ANDRESKY

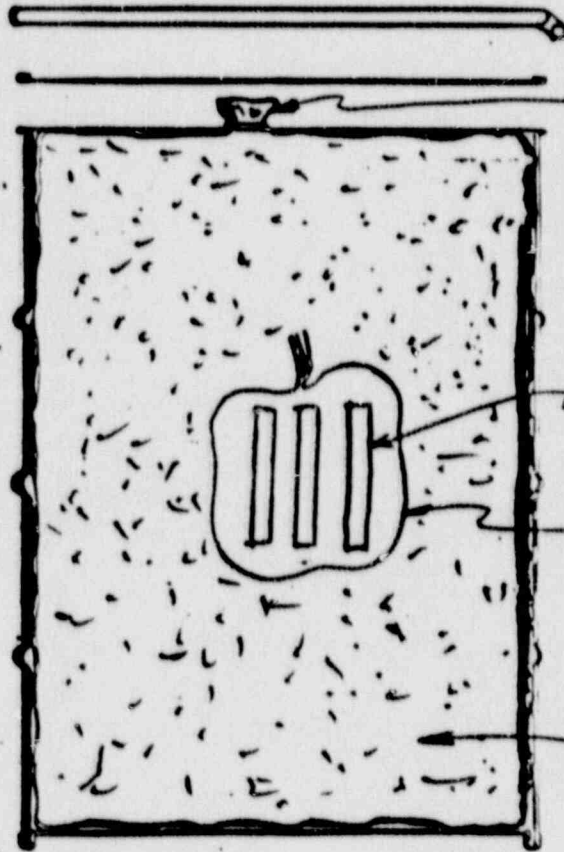
DRUM TYPE 17-H

DESCRIPTION OF CONTENTS: Kv 85 sealed sources in stainless steel tubing
< 1.5 atmospheres

STATE WASTE GENERATED IN: MASS.

COMPLETE PROPER BLOCKS: TYPES OF MAT'L Kv 85

- LABEL-RADIOACTIVE
- MATERIAL SOLID
- MATERIAL LIQUID
- MATERIAL STABLE
- MATERIAL UNSTABLE
- ABSORBENT MATERIAL
- BSA
- DOT APPROVED 1714
- SEAL NUMBER 07724



PLASTIC INNER LINER (4 MIL)
 ACTIVITY 1.402 mCi
 T.I. .03

S.S. TUBES (3)

PLASTIC LINER (4 MIL)

OIL DRI

SHIPPED TO: U.S. ECOLOGY, PLEASANTON, CA.

DATE SHIPPED 3-17-89

CARRIER: YELLOW FREIGHT LINES

8 BF
RADIATION SURVEYS
.12 MR/HR AT SURFACE
.05 MR/HR AT 1 FOOT
.03 MR/HR AT 1 METER

APPLIED HEALTH PHYSICS, Inc.

RADIOACTIVE WASTE DRUM CONTENTS

CLIENT: CABOT Corp.

DRUM NO. 2

DATE LOADED: 3-17-89

DRUM WEIGHT 370 LBS.

LOADED BY: J. HARSHMAN & ED ANDRESKY

DRUM TYPE 17-A

DESCRIPTION OF CONTENTS: ① Kay Ray 100mc sealed source

STATE WASTE GENERATED IN: MASS.

COMPLETE PROPER BLOCKS:

TYPES OF MAT'L Cs 137

- LABEL-RADIOACTIVE
- MATERIAL SOLID
- MATERIAL LIQUID
- MATERIAL STABLE
- MATERIAL UNSTABLE
- ABSORBENT MATERIAL
- ISA
- DOT APPROVED 1714
- SEAL NUMBER 07745



ACTIVITY 110.027 mCi
T.I. 0.3

30 gallon steel drum

Kay Ray USA DOT 7A Type A container

Oil Dei

SHIPPED TO: U.S. Ecology PLEASANTON, CA.

DATE SHIPPED 3-17-89

CARRIER: Yellow FREIGHT LINES

8 Bx

RADIATION SURVEYS

1.5 MR/HR AT SURFACE

.5 MR/HR AT 1 FOOT

.3 MR/HR AT 1 METER

APPLIED HEALTH PHYSICS, Inc.

RADIOACTIVE WASTE DRUM CONTENTS

CLIENT: CABOT CORP.

DRUM NO. 3

DATE LOADED: 3-17-89

DRUM WEIGHT V35 LBS.

LOADED BY: J. HARSHMAN & ED ANDRESKY

DRUM TYPE 17-H

DESCRIPTION OF CONTENTS: (2) ^{3H} BC soaked sources and assorted sealed checks
sources

STATE WASTE GENERATED IN: MASS.

COMPLETE PROPER BLOCKS:

- LABEL-RADIOACTIVE
- MATERIAL SOLID
- MATERIAL LIQUID
- MATERIAL STABLE
- MATERIAL UNSTABLE
- ABSORBENT MATERIAL
- BSA
- DOT APPROVED 17H
- SEAL NUMBER

TYPES OF MAT'L	ACTIVITY
<u>C¹⁴</u>	<u>.4 mCi</u>
<u>H³</u>	<u>108.415 mCi</u>
<u>N¹⁶</u>	<u>.00023 mCi</u>
<u>Fe⁵⁵</u>	<u>2.821 mCi</u>
<u>Co⁶⁰</u>	<u>.010 mCi</u>
<u>C¹³⁷</u>	<u>.153 mCi</u>
<u>B¹³³</u>	<u>.0014 mCi</u>
<u>Cu²¹⁴</u>	<u>30 mCi</u>
Total activity	<u>142.8 mCi</u>
T.I.	<u>.02</u>



SHIPPED TO: U.S. Ecology, Pleasanton Ca.
 DATE SHIPPED 3-17-89
 CARRIER: YELLOW FREIGHT LINES

αβγ

RADIATION SURVEYS	READING
<u>.5</u> MR/HR AT SURFACE	<u>_____</u>
<u>.1</u> MR/HR AT 1 FOOT	<u>_____</u>
<u>.02</u> MR/HR AT 1 METER	<u>_____</u>

GROUP SAMPLE REPORT (DFM)

03/21/1989 12:46:29

C-32001-50

GROUP = 04 TITLE: CABOT CORP. SMEARS NUMBER OF SCANS = 02

ALPHA BACKGROUND = 1.100+00 BETA BACKGROUND = 2.750+01

CARRIER NUMBER	AVERAGE ALPHA	AVERAGE BETA	ALPHA COUNTS	BETA COUNTS	TOTAL COUNTS	ALPHA DFM	BETA DFM	AVERAGE ELAPSED TIME	DF	ALPHA SIGMA	BETA SIGMA
	COUNTS	COUNTS	CORRECTED	CORRECTED	CORRECTED			TIME	SCANS		
01	4.000+00	2.700+01	2.900+00	0.000+00	2.600+00	5.665+00	0.200+00	6.000+01	02	2.000+00	0.405+00
02	5.000+01	3.250+01	0.000+00	5.200+00	4.600+00	0.000+00	0.000+00	6.000+01	02	7.071+01	7.775+00
03	2.500+00	3.600+01	1.400+00	1.270+01	1.210+01	2.735+00	1.025+01	6.000+01	02	7.071+01	7.071+00
04	1.000+00	2.150+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	7.071+01
05	2.500+00	4.200+01	1.400+00	1.270+01	1.410+01	2.735+00	2.171+01	6.000+01	02	2.121+00	1.000+01
06	1.000+00	3.100+01	0.000+00	3.700+00	3.600+00	0.000+00	6.325+00	6.000+01	02	0.000+00	5.657+00
07	2.000+00	2.900+01	0.000+00	1.700+00	2.600+00	1.750+00	2.900+00	6.000+01	02	0.000+00	2.000+00
08	0.000+00	2.650+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	6.364+00
09	1.000+00	2.900+01	0.000+00	1.700+00	1.600+00	0.000+00	2.900+00	6.000+01	02	1.414+00	9.059+00
10	1.000+00	2.150+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	7.071+01
11	1.000+00	3.200+01	0.000+00	4.700+00	4.600+00	0.000+00	0.000+00	6.000+01	02	0.000+00	0.000+00
12	2.500+00	3.050+01	1.400+00	3.200+00	4.600+00	2.735+00	5.470+00	6.000+01	02	7.071+01	3.536+00
13	1.000+00	3.300+01	0.000+00	5.700+00	5.600+00	0.000+00	9.744+00	6.000+01	02	1.414+00	0.405+00
14	1.500+00	3.300+01	4.000+01	5.700+00	6.100+00	7.014+01	9.744+00	6.000+01	02	7.071+01	4.243+00
15	2.500+00	2.550+01	1.400+00	0.000+00	0.000+00	2.735+00	0.000+00	6.000+01	02	2.121+00	9.192+00
16	3.000+00	3.350+01	1.900+00	6.200+00	0.100+00	3.712+00	1.060+01	6.000+01	02	1.414+00	4.950+00
17	0.000+00	3.450+01	0.000+00	7.200+00	6.100+00	0.000+00	1.231+01	6.000+01	02	0.000+00	6.364+00
18	3.000+00	3.700+01	1.900+00	9.700+00	1.160+01	3.712+00	1.650+01	6.000+01	02	2.020+00	0.405+00
19	2.500+00	3.950+01	1.400+00	1.220+01	1.360+01	2.735+00	2.005+01	6.000+01	02	7.071+01	4.950+00
20	3.000+00	3.600+01	1.900+00	0.700+00	1.060+01	3.712+00	1.407+01	6.000+01	02	0.000+00	0.000+00
21	1.000+00	3.100+01	0.000+00	3.700+00	3.600+00	0.000+00	6.325+00	6.000+01	02	0.000+00	0.000+00
22	2.000+00	3.250+01	0.000+00	5.200+00	6.100+00	1.750+00	0.000+00	6.000+01	02	2.020+00	3.536+00
23	1.500+00	2.650+01	4.000+01	0.000+00	0.000+00	7.014+01	0.000+00	6.000+01	02	7.071+01	3.536+00
24	5.000+01	3.100+01	0.000+00	3.700+00	3.100+00	0.000+00	6.325+00	6.000+01	02	7.071+01	0.000+00
25	1.500+00	2.700+01	4.000+01	0.000+00	1.000+01	7.014+01	0.000+00	6.000+01	02	7.071+01	7.071+00
26	2.000+00	3.150+01	0.000+00	4.200+00	5.100+00	1.750+00	7.179+00	6.000+01	02	1.414+00	7.071+01
27	1.500+00	2.050+01	4.000+01	1.200+00	1.600+00	7.014+01	2.051+00	6.000+01	02	2.121+00	3.536+00
28	2.500+00	3.000+01	1.400+00	2.700+00	4.100+00	2.735+00	4.615+00	6.000+01	02	7.071+01	4.243+00
29	2.500+00	2.900+01	1.400+00	1.700+00	3.100+00	2.735+00	2.900+00	6.000+01	02	7.071+01	1.414+00
30	3.000+00	3.000+01	1.900+00	2.700+00	4.600+00	3.712+00	4.615+00	6.000+01	02	1.414+00	4.243+00
31	2.000+00	2.750+01	0.000+00	2.000+00	1.100+00	1.750+00	3.419+01	6.000+01	02	0.000+00	9.192+00
32	2.500+00	2.400+01	1.400+00	0.000+00	0.000+00	2.735+00	0.000+00	6.000+01	02	7.071+01	2.020+00
33	0.000+00	3.050+01	0.000+00	3.200+00	2.100+00	0.000+00	5.470+00	6.000+01	02	0.000+00	4.950+00
34	1.500+00	2.450+01	4.000+01	0.000+00	0.000+00	7.014+01	0.000+00	6.000+01	02	7.071+01	7.071+01
35	1.000+00	3.900+01	0.000+00	1.170+01	1.160+01	0.000+00	2.000+01	6.000+01	02	0.000+00	0.000+00
36	2.000+00	2.150+01	0.000+00	0.000+00	0.000+00	1.750+00	0.000+00	6.000+01	02	0.000+00	7.071+01
37	1.500+00	2.600+01	4.000+01	7.000+01	1.100+00	7.014+01	1.197+00	6.000+01	02	7.071+01	1.414+00
38	1.000+00	3.950+01	0.000+00	1.220+01	1.210+01	0.000+00	2.005+01	6.000+01	02	0.000+00	2.121+00
39	2.000+00	3.700+01	0.000+00	9.700+00	1.060+01	1.750+00	1.650+01	6.000+01	02	2.020+00	0.000+00
40	1.000+00	2.900+01	0.000+00	1.700+00	1.600+00	0.000+00	2.900+00	6.000+01	02	0.000+00	1.414+00
GROUP AVERAGE	1.700+00	3.070+01	6.000+01	3.400+00	4.000+00	1.172+00	5.012+00	6.000+01			



HEALTH PHYSICS inc.

2906 Industrial Blvd. Box 107 • Bethel Park, Pa. 15102 • Phone 412 • 863-2242

HEALTH PHYSICS LABORATORY REPORT: ANALYSES OF REMOVABLE CONTAMINATION

Client: CABOT CORPORATION PO# _____ Date: 3-17-89 Page # 1 of 2

Description of survey: SMEARS of RADIOACTIVE STORAGE AREA & LAB. #206

Survey by: J. HARSHMAN Date: 3-17-89 Suspected Activity: _____

Contact Name: _____ Phone: _____ Analysed by: _____

Counter Manufacturer: _____ Model: _____ Serial Number: _____

Background before counting: a _____ cpm b _____ cpm; After counting: a _____ cpm b _____ cpm

Efficiency before counting: _____ % After counting _____ %

SERIAL NUMBER	SAMPLE IDENTIFICATION		ALPHA					BETA GAMMA				
	TIME	LOCATION	CTG. TIME	GROSS	C/M	D/M	D/M/CM ²	CTG. TIME	GROSS	C/M	D/M	D/E/CM ²
252001		Door Knob - LAB.										
"	✓	Top Edge of LAB. Door										
"	3	Door - Threshold										
"	4	Telephone										
"	5	East Wall - South										
"	6	Hood Switches										
"	7	Internal Hood Window										
"	8	Hood - Working Area										
"	9	Hood - Intake										
"	10	Hood - LUBBERS										
"	11	SINK - Fixture										
"	12	" - Drain										
"	13	Heater - N.W. Corner "B"										
"	14	Power Switch Box										
"	15	Handles - Storage Rack										
"	16	Portable Shielding										
"	17	Portable Tongs										
"	18	Heater N.E. Corner "B"										
"	19	Window Blind										
"	20	Door to Room 207										



HEALTH PHYSICS Inc.

2000 Industrial Blvd. Box 107 • Bethel Park, Pa. 15102 • Phone 612 • 823-2242

HEALTH PHYSICS LABORATORY REPORT: ANALYSES OF REMOVABLE CONTAMINATION

Client: CABOT CORPORATION PO# _____ Date: 3-17-89 Page # 2 of 2

Description of Survey: SMears of Room 206

Survey by: J. HARSHMAN Date: _____ Suspected Activity: _____

Contact Name: _____ Phone: _____ Analysed by: _____

Counter Manufacturer: _____ Model: _____ Serial Number: _____

Background before counting: a _____ CPM b _____ CPM; After counting: a _____ CPM b _____ CPM

Efficiency before counting: _____ % After counting _____ %

SERIAL NUMBER	SAMPLE IDENTIFICATION		ALPHA					BETA GAMMA				
	TIME	LOCATION	CTG. TIME	GROSS	C/M	D/M	D/M/CM ²	CTG. TIME	GROSS	C/M	D/M	D/E/CM ²
CS2021		STAIRABLE CABINET-SHELVES										
" 22		WALL CABINET S.E. GLASS										
" 23		206-FLOOR THRESHOLD										
" 24		N.E. CORNER WINDOW										
" 25		E. WALL - ROOM 206										
" 26		206 ELECTRICAL BOX										
" 27		206 SINK DRAW										
" 28		206 " FIXTURES										
" 29		206-ENTRANCE DOOR										
" 30		ROOM 206-TRASH CAN										
" 31		" A-DOOR										
" 32		" A-THRESHOLD										
" 33		A-ROOM PB BRICKS										
" 34		" " ELECTRICAL BUS										
" 35		" " A/C VENT										
" 36		A-ROOM FLOOR - MIDDLE										
" 37		" " E. WALL										
" 38		SAFE - BOTTOM										
" 39		" - WALLS										
" 40		" - DOOR										
" 41		XXXXXXXXXXXXXXXXXXXX										
" 42		XXXXXXXXXXXXXXXXXXXX										

GROUP SAMPLE REPORT (CFM)

03/21/1989 12:45:24

GROUP = 05 TITLE: CABOT LEAK TESTS NUMBER OF SCANS = 02

ALPHA BACKGROUND = 1.100+00 BETA BACKGROUND = 2.730+01

CARRIER NUMBER	AVERAGE ALPHA	AVERAGE BETA	ALPHA COUNTS	BETA COUNTS	TOTAL COUNTS	ALPHA CPM	BETA CPM	AVERAGE ELAPSED TIME	# OF SCANS	ALPHA SIGMA	BETA SIGMA
	COUNTS	COUNTS	CORRECTED	CORRECTED	CORRECTED	MULT.	MULT.	TIME	DONE	SIGMA	SIGMA
41	0.000+00	3.400+01	0.000+00	3.400+01	3.400+01	0.000+00	5.159+06	6.000+01	02	0.000+00	4.243+00
42	5.000+01	2.000+01	0.000+00	2.000+01	1.000+01	0.000+00	3.390+07	6.000+01	02	7.071+01	5.657+00
43	1.500+00	2.900+01	4.000+01	1.700+00	2.100+00	3.520+07	1.309+06	6.000+01	02	7.071+01	4.243+00
44	1.000+00	2.900+01	0.000+00	1.700+00	1.600+00	0.000+00	1.309+06	6.000+01	02	1.414+00	2.020+00
45	0.000+00	2.650+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	2.121+00
46	5.000+01	2.750+01	0.000+00	2.000+01	0.000+00	0.000+00	1.540+07	6.000+01	02	7.071+01	2.121+00
47	5.000+01	2.500+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	7.071+01	7.071+00
48	0.000+00	2.250+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	2.121+00
49	2.000+00	3.950+01	0.000+00	1.220+01	1.310+01	7.920+07	9.394+06	6.000+01	02	0.000+00	1.405+01
50	5.000+01	2.550+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	7.071+01	7.071+01
GROUP AVERAGE	6.500+01	2.065+01	0.000+00	1.350+00	9.000+01	0.000+00	1.039+06	6.000+01			



HEALTH PHYSICS Inc.

2600 Industrial Blvd. Box 197 • Bethel Park, Pa. 15102 • Phone 412 • 963-2342

HEALTH PHYSICS LABORATORY REPORT: ANALYSES OF REMOVABLE CONTAMINATION

Client: CABOT CORPORATION PO# _____ Date: 3-17-89 Page 1 of 3

Description of Survey: WIPE TEST OF ROOF

Survey by: J. HARSHMAN Date: 3-17-89 Suspected Activity: _____

Contact Name: _____ Phone: _____ Analyzed by: _____

Counter Manufacturer: _____ Model: _____ Serial Number: _____

Background before counting: a _____ CPM b _____ CPM; After counting: a _____ CPM b _____ CPM

Efficiency before counting: _____ % After counting _____ %

SERIAL NUMBER	SAMPLE IDENTIFICATION		ALPHA				BETA GAMMA					
	TIME	LOCATION	CTG. TIME	GROSS	C/M	D/M	D/M/CM ²	CTG. TIME	GROSS	C/M	D/M	D/M/CM ²
		<u>WIPES - ROOF</u>										
<u>C-32043</u>		<u>HOOD MOTOR - SQUIREL CAGE</u>										
<u>"</u>	<u>44</u>	<u>H/C FILTER ROOM 206 A</u>										
<u>"</u>	<u>45</u>	<u>HOOD - VENT</u>										
<u>"</u>	<u>46</u>	<u>VENT MOTOR DRIVE SHAFT</u>										
<u>"</u>	<u>47</u>	<u>VENT MOTOR SURFACE</u>										
<u>"</u>	<u>48</u>	<u>VENT MOTOR DRAIN TUBE</u>										
<u>"</u>	<u>49</u>	<u>ROOF - SURFACE ABOVE ROOF</u>										
<u>"</u>	<u>50</u>	<u>ROOF VENT STACK AREA</u>										
		<u>ROOF</u>										
<u>C-32041</u>		<u>HOLE PG HEAD SHIELDING</u>										
<u>"</u>	<u>04</u>	<u>" " " OUTSIDE</u>										

Certificate of Radiological Safety

This is to certify that the facilities and/or equipment described below have been surveyed by the undersigned using calibrated instrumentation as indicated and at the time of survey, were found to comply with accepted radiological safety standards as noted on the reverse side of this certificate.

Facilities located at: CAEOT CORPORATION, Billerica, MA 01821
Room 206 Including Area's A and B
Radiation source: After Removal of: C-14, H-3, Na-22, S-35, Fe-55, Co-60, Kr-85
Cd-109, Ba-133, Cs-137 and Cm-244
Instrumentation: Bicron Model MA, Serial No. A392A

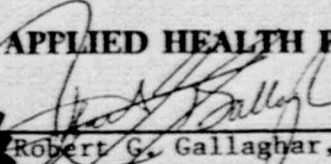
This survey was performed on March 17, 1989 and should be surveyed again on or before Not Applicable (Sealed Sources Removed - Room 206B).

Radiological survey by: John Harshman

Certificate No. 8904-314

This certificate expires Not Applicable

APPLIED HEALTH PHYSICS, inc.


Robert G. Gallagher, CHP, PE
President



OFFICIAL RECORD COPY ML 10

REC'D
REG 1

MAY 16 1989

120065

CABOT

MS-16
QΦ

April 24, 1989

John Jensen
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406

RE: NRC License # 20-08413-01
Docket #030-04676

Dear Mr. Jensen,

Attached is NRC form 314 and all pertinent information regarding the disposal of all byproduct materials held by Cabot Corporation under NRC License # 20-08413-01 and decommissioning of our facility at the Billerica Technical Center of Cabot Corporation.

As indicated on the attached report, all isotopes were prepared for shipment and subsequent disposal by personnel from Applied Health Physics, Inc. of Bethel Park, PA on March 17, 1989. All packaging, documentation, surveying, and labeling necessary for disposal and decommissioning were performed by Applied Health Physics.

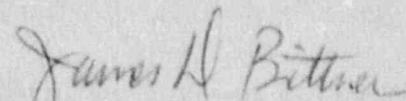
With the completion of this work, we intend to allow our byproduct license to lapse at the expiration date of April 30. All radioactive materials still held by the Billerica Technical Center are covered by general license and no future work is anticipated which will require a specific license.

During your previous communications, you requested that all documentation relevant to this disposal process should be forwarded to you by April 1 or as soon as possible after that date. Unfortunately, we did not receive a complete report from Applied Health Physics, Inc. until April 24. If you have any further inquiries, please contact Dr. Stephen A. Gasiorowski, Radiation Safety Office, Billerica Technical Center (508) 663-3455.

Sincerely,



Stephen A. Gasiorowski
Radiation Safety Officer



James D. Bittner
General Manager
Carbon Black Technology Division

Cabot Corporation
Billerica Technical Center
Concord Road
Billerica, Massachusetts 01821
(617) 663-3455

120865
110187

OFFICIAL RECORD COPY ML 10

APR 27 1989

CERTIFICATE OF DISPOSITION OF MATERIALS

(All items MUST be completed, please print)

LICENSEE NAME AND ADDRESS

Cabot Corporation
125 High Street
Boston, MA 02110

LICENSE NUMBER

20-08413-01

LICENSE EXPIRATION DATE

April 30, 1989

THE LICENSEE OR ANY INDIVIDUAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE LICENSEE CERTIFIES THAT (Check and/or complete the appropriate item(s) below.)

A. MATERIALS DATA (Check one and complete, as necessary)

1. NO MATERIALS HAVE EVER BEEN POSSESSED OR PROCURED BY THE LICENSEE UNDER THIS LICENSE.
- OR
2. ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSEE UNDER THE LICENSE NUMBER CITED ABOVE HAVE BEEN TRANSFERRED ON
- | | | |
|------|----|------------------------------|
| DATE | TO | WHICH HAS NRC LICENSE NUMBER |
| | | |
- OR
3. ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSEE UNDER THE LICENSE NUMBER CITED ABOVE HAVE BEEN TRANSFERRED ON
- | | | | |
|------|----|--------------------------|------------------------|
| DATE | TO | WHICH HAS LICENSE NUMBER | ISSUED BY THE STATE OF |
| | | | |

AN AGREEMENT STATE PURSUANT TO SECTION 274 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED, AND THE ENERGY REORGANIZATION ACT OF 1974.

4. MATERIALS HAVE BEEN DISPOSED OF IN THE FOLLOWING MANNER. (Describe specific disposal procedure—if additional space is needed, use the reverse of this form, or provide attach- ments)

Applied Health Physics, Inc. Bethel Park, PA; NRC License #37-14600-01, Surveyed, Analyzed, Packaged, and Prepared all inventoried radioactive materials for disposal on March 17, 1989. Containers were smeared and surveyed for shipping to U.S. Ecology for disposal.

B. OTHER DATA

1. OUR LICENSE HAS NOT YET EXPIRED. PLEASE TERMINATE IT
2. WAS A RADIATION SURVEY CONDUCTED TO CONFIRM THE ABSENCE OF LICENSED RADIOACTIVE MATERIALS AND TO DETERMINE WHETHER ANY CONTAMINATION REMAINS ON THE PREMISES COVERED BY THE LICENSE? (Check one)
- NO
- YES THE RESULTS (Check one)
- ARE ATTACHED, OR
- WERE FORWARDED TO NRC ON (Date)
3. THE PERSON TO BE CONTACTED REGARDING THE INFORMATION PROVIDED ON THIS FORM
- | | |
|----------------------------|------------------|
| NAME | TELEPHONE NUMBER |
| Dr. Stephen A. Gasiorowski | 508-663-3455 |
4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO
- Dr. Stephen A. Gasiorowsk Cabot Corporation
157 Concord Road Billerica, MA 01821

RETURN TO

DIRECTOR, DIVISION OF FUEL CYCLE AND MATERIAL SAFETY
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555

CERTIFYING OFFICIAL

SIGNATURE

DATE

PRINTED NAME AND TITLE



HEALTH PHYSICS inc.

2986 Industrial Blvd. • Box 197 • Bethel Park, Pa. 15102 • Phone 412 • 563-2242

REPORT NUMBER 1

DATE April 18, 1989

FIELD SERVICE REPORT

Mr. Steve Gasiorowski
CABOT CORPORATION

157 Concord Road

Billerica, MA 01821

Prepare Radioactive Material

Waste Disposal Shipment

C
P
R
O
D
U
C
T
S

S
E
R
V
I
C
E

DESCRIPTION OF SERVICES On March 17, 1989 John Harshman and Ed Andresky prepared all isotopes shown in Attachment A for shipment to U.S. Ecology, Inc. (Generator #MAR-99-003-8036) via Tri-State Motor Freight. Tri-State billing of lading is shown as Attachment B.

The isotopes were packaged into three(3) 17-H steel drums as shown in Attachment C, D and E. They were packed as described in the Attachments with isotopes identified, then surveyed for radiation levels and labeling. Waste shipment and disposal manifest was prepared and shown as Attachments F1 and F2. Packaging, documenting, surveying and labeling was completed and a complete radiation survey was accomplished in the room identified as Room 206 (Area's A and B) which isotopes were utilized and stored.

A total of forty(40) smears were taken of the Room 206. Results of the smears are shown as Attachment G. Location of each smeared area is shown in Attachments H and I (Carrier No. will be identified as C-32001, whereby 001 will correspond with Carrier 01, etc.)

A total of ten(10) wipes were conducted on the roof area above Room 206 and are shown in Attachments J and K as referred in the smear sampling. Shipping in accordance with CFR Title 49.

Services performed by: John Harshman and Ed Andresky

Date: April 18, 1989

FINDINGS

Results of smears and wipe tests were in compliance with applicable regulations. Certification for Room 206 use is shown in Attachment L.

RECOMMENDATIONS

Notify NRC on Form 314 of your notice to discontinue your NRC By-Product Material License.

Our Invoice No.: _____ Date: _____
Customer's Purchase Order No.: _____

E. L. Andresky
(SIGNATURE)

CABOT CORP., BILLERICA, MA. 01821

BUILDING 1, SECOND FLOOR

J. Scher/J. Carrier

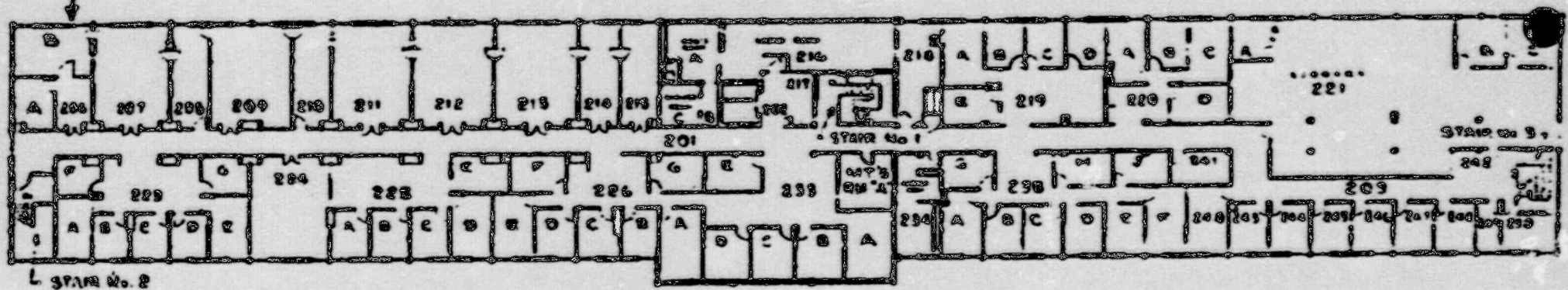
C. Cassello/J. Currie

M. Regent/L. Dion

T. Carco/A. Reid

APR 17 '89 15:13 FROM VICTOPEN INC

Isotope Utilization & Storage



L STAIR No. 2

Areas:

- 206:
- 207:
- 208:
- 209:
- 210:
- 221:
- 224

Areas:

- 211:
- 212:
- 213:
- 214:
- 215:
- 216:
- 217:
- 225:
- 226:
- 233:

Areas:

- 218:
- 219:
- 220:
- 234:
- 235:

Areas:

- 221:
- 240:
- 241:
- 242:
- 243:
- 244:
- 245:
- 246:
- 247:
- 248:
- 249:
- 250:

NR TOTAL PAGE 002 NR

FIGURE-1

ISOTOPE INVENTORY AS OF JULY 11, 1988

ISOTOPE	TYPE	ACTIVITY	DATE	MANUFACTURER/MODEL #
C-14	Sealed	200 μ Ci	12/77	NEN NER-006 CR029
C-14	Dodecane	0.1 mCi	?	NEN NEC-181 Lot 31-262-1
C-14	Naphtalene	0.1 mCi	11/65	Nuclear Research Chemicals
H-3	GC Detector	200 mCi	2/66	Perkin Elmer Model #2-2837 Serial # 567
H-3	GC Detector	200 mCi	7/65	Perkin Elmer Model #2-2837 Serial #433
Na-22	Sealed	1.18 μ Ci	11/82	NEN
S-35	H2SO4	2 mCi	8/78	NEN 035865-130B
Fe-55	Sealed	100 Ci	9/74	NEN 9174 #50038-S
Fe-55	Sealed	100 mCi	9/76	Isotope Products Labs #31110 PH-55
Co-60	Sealed	0.1 μ Ci	2/84	Isotope Products #11334-1
Co-60	Sealed	?	?	Tracerlab R-8 Calibration Source
Kr-85	Sealed	1 mCi	1973	
Kr-85	Sealed SS-Tubing	1 mCi	1975	
Kr-85	Sealed SS-Tubing	1 mCi	1979	
Cd-109	Sealed	14 mCi	2/81	NEN NER-466A D995
Ba-133	Sealed	1.14 μ Ci	11/80	NEN
Cs-137	Sealed	7.2 μ Ci	12/76	NEN
Cs-137	Sealed	10 μ Ci	12/83	Isotope Products 11205-4
Cs-137	Sealed	10 μ Ci	12/83	Isotope Products 11205-3
Cs-137	Sealed	10 mCi	?	Isotope Products #300-A
Cs-137	Sealed	100 mCi	10/21/86	Contained in USA DOT 7A Kam Ray Model 7063-P Container S/N 23033
 	 	 	 	
Cm-244	Sealed	30 mCi	4/81	Amersham CLC A1

PREVIOUSLY SHIPPED

$t_{1/2} = 17.6y$ $\alpha = 5.9 MeV$ $\beta = 42.58 keV$ $t_{1/2} = 6.027y$

STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE

Shipper No. AHP-3

Carrier No. _____

Date 3-17-89

Page 1 of 1

YELLOW FREIGHT LINES
(Name of Carrier) (BAC)

TO: **U.S. Ecology, Inc.**
In Collect on Delivery shipments, the letters "COD" must appear before consignee's name & rate otherwise provided in Item 430, Sec 1.

Street: **7066A-Commerce Circle**

Destination: **PLEASANTON, CAL.** Zip Code **94566**

FROM Shipper
Cabot Corporation
Billerica Technical Center
157 Concord Road
Billerica, MA 01821

Route _____ Vehicle Number _____

No. of Units & Container Type	HM	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name, Class and Identification Number per 172.101, 172.202, 172.203)	UNR or NAD	TOTAL QUANTITY (Weight, Volume, Gallons etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
3 DRUMS		RADIOACTIVE MATERIAL N.O.S. USA DOT 7A TYPE A	UN 2987	27.50 G.F.	860 LBS		

YELLOW BXC | 331-123271-6

UNR	CLASS NO.	DISTRICT
UNR	CLASS NO.	DISTRICT

PLACARDS TENDERED: YES NO

REMIT C.O.D. TO ADDRESS _____

Rate - Where the rate is dependent on value shippers are required to state specifically in writing the agreed or declared value of the property.
 The agreed or declared value of the property is hereby certified as not exceeding the actual value of the property.

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are in all respects in proper condition for transport by Rail & Highway. I hereby agree to indemnify the carrier from all liability (including reasonable and necessary expenses) incurred by the carrier in connection with the shipment of the contents of this consignment.

E.L. O'Leary Signature

COD Amt: \$ _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignment, the consignee shall sign the following statement:
 The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Signature of Consignor: _____

C.O.D. FEE: PREPAID COLLECT

TOTAL CHARGES: \$ _____

FREIGHT CHARGES: \$ _____

FREIGHT PREPAID: Check box if charges are to be collected at destination.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, labeled, and delivered as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or

any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
 Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER: **CABOT CORP.**
157 CONCORD ROAD
BELLERICA, MASS. 01821

CARRIER: **YELLOW FREIGHT LINES**

PER: *Wm Wm on Int'l*

DATE: **3-17-89**

3/DRUMS 1

APPLIED HEALTH PHYSICS, Inc.

RADIOACTIVE WASTE DRUM CONTENTS

CLIENT: CABOT Corp.

DRUM NO. 1

DATE LOADED: 3-17-89

DRUM WEIGHT 255 LBS.

LOADED BY: J. HARSHMAN & ED ANDRESKY

DRUM TYPE 17-H

DESCRIPTION OF CONTENTS: Kv 85 Sealed Sources in Stainless Steel tubing
< 1.5 atmospheres

STATE WASTE GENERATED IN: MASS.

COMPLETE PROPER BLOCKS:

TYPES OF MAT'L Kv 85

LABEL-RADIOACTIVE

MATERIAL SOLID

MATERIAL LIQUID

MATERIAL STABLE

MATERIAL UNSTABLE

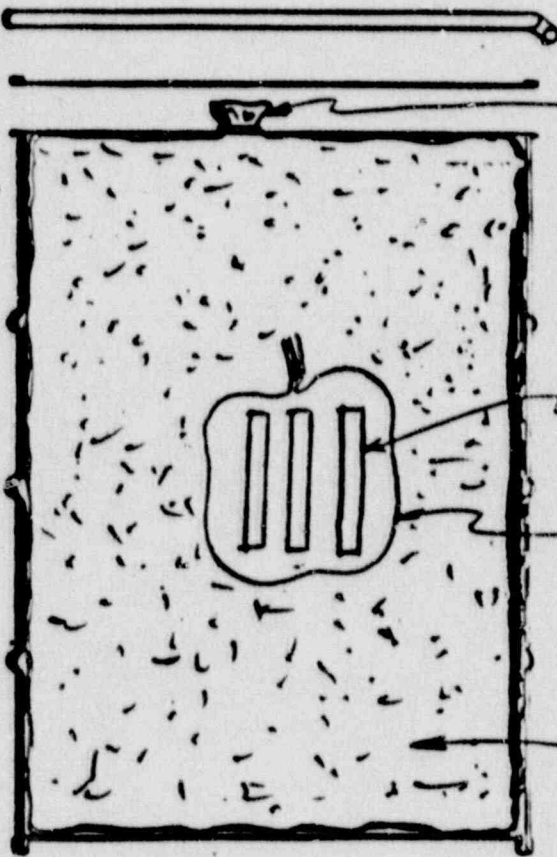
ABSORBENT MATERIAL

BSA

DOT APPROVED 1714

SEAL NUMBER 07724

PLASTIC INNER LINER (4MIL)
ACTIVITY 1.402 mCi
T.I. .03



S.S. TUBES (3)

PLASTIC LINER (4MIL)

OIL DRI

SHIPPED TO: U.S. Ecology, Pleasanton, CA.

DATE SHIPPED 3-17-89

CARRIER: YELLOW FREIGHT LINES

8BR
RADIATION SURVEYS
.12 MR/HR AT SURFACE
.05 MR/HR AT 1 FOOT
.03 MR/HR AT 1 METER

APPLIED HEALTH PHYSICS, Inc.

RADIOACTIVE WASTE DRUM CONTENTS

CLIENT: CABOT Corp.

DRUM NO. 2

DATE LOADED: 3-17-89

DRUM WEIGHT 370 LBS.

LOADED BY: J. HARSHMAN & ED ANDRESKY

DRUM TYPE 17-H

DESCRIPTION OF CONTENTS: ① Kay Ray 100mc sealed source

STATE WASTE GENERATED IN: MASS.

COMPLETE PROPER BLOCKS:

TYPES OF MAT'L Cs 137

LABEL-RADIOACTIVE

MATERIAL SOLID

MATERIAL LIQUID

MATERIAL STABLE

MATERIAL UNSTABLE

ABSORBENT MATERIAL

BSA

DOT APPROVED 1714

SEAL NUMBER 07745

ACTIVITY 110.027 mCi

T.I. 03



30 gallon steel drum

Kay Ray USA DOT 7A Type A container

Oil Dri

SHIPPED TO: U.S. Ecology Pleasanton, CA.

DATE SHIPPED 3-17-89

CARRIER: Yellow Freight Lines

RADIATION SURVEYS

1.5 MR/HR AT SURFACE

.5 MR/HR AT 1 FOOT

.3 MR/HR AT 3 FEET

8BR

APPLIED HEALTH PHYSICS, Inc.

RADIOACTIVE WASTE DRUM CONTENTS

CLIENT: CABOT CORP.

DRUM NO. 3

DATE LOADED: 3-17-89

DRUM WEIGHT V35 LBS.

LOADED BY: J. HARSHMAN & ED ANDRESKY

DRUM TYPE 17-H

DESCRIPTION OF CONTENTS: (2) ³⁴Pc soaked sources and assorted sealed check sources

STATE WASTE GENERATED IN: MASS.

COMPLETE PROPER BLOCKS:

LABEL-RADIOACTIVE

MATERIAL SOLID

MATERIAL LIQUID

MATERIAL STABLE

MATERIAL UNSTABLE

ABSORBENT MATERIAL

BSA

DOT APPROVED 17H

SEAL NUMBER

TYPES OF MAT'L C¹⁴ .4 mCi

H³ 108.415 mCi

N¹⁴ .00023 mCi

Fe⁵⁵ 2.821 mCi

Co⁶⁰ .010 mCi

Cd¹⁰⁹ .153 mCi

B¹³³ .0014 mCi

Cu⁶⁴ 30 mCi

~~ACTIVITY~~

~~DOT~~

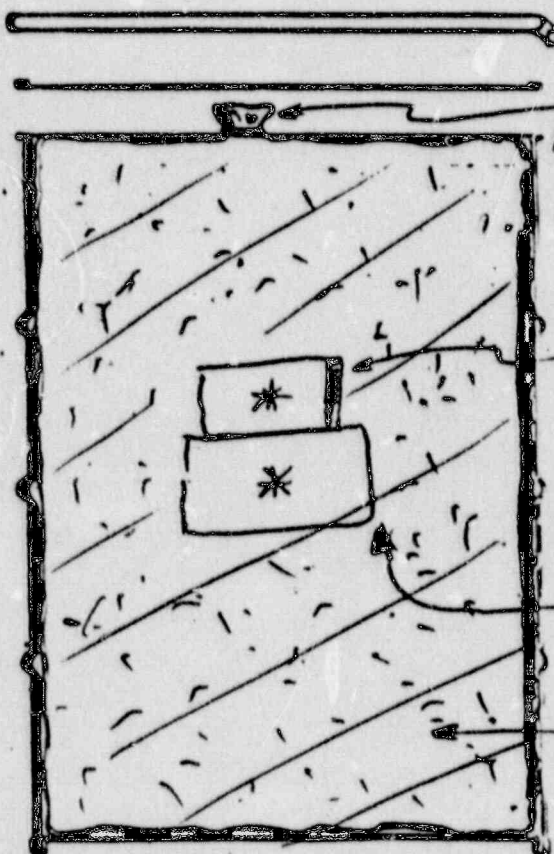
PLASTIC JAR

Total activity 142.8 mCi

T.I. .02

CARDBOARD BOX

OIL DRI



SHIPPED TO: U.S. Ecology, Pleasanton, Ca.

DATE SHIPPED 3-17-89

CARRIER: YELLOW FREIGHT LINES

RADIATION SURVEYS

.5 MR/HR AT SURFACE

.1 MR/HR AT 1 FOOT

.02 MR/HR AT 1 METER

8BR

MA R 99-003-18036

RADIOACTIVE WASTE SHIPMENT DISPOSAL MANIFEST

USE THIS NO ON ALL CONTINUATION PAGES 100422

SHIPPER NAME **Carb Corp.**
ADDRESS **Cooper Road**
Bellevue
CITY **Bellevue** STATE **WA** ZIP **98001**
CONTACT **Steve Conaway** PHONE **206 662 3465**

SHIPPER'S ADDRESS TO WHICH THIS WASTE IS BEING SHIPPED
RECEIVER'S NAME **US Ecology, Inc.**
ADDRESS **1500 W. Kentucky Ave.**
CITY **Louisville** STATE **KY** ZIP **40207**
CONTACT **Paul Conover** PHONE **502 626 6100**

DATE OF SHIPMENT **3-17-89**
SHIPMENT NO. **99-003-18036**
SHIPMENT TYPE **Radioactive Waste**
SHIPMENT WEIGHT **1100**
SHIPMENT VOLUME **1**

NUCLIDE	ACTIVITY	DATE	REMARKS
Plutonium-238	1.5E+05	3/17/89	Plutonium-238, 1.5E+05 Ci, 1100 lbs, 1 container

NUCLIDE	ACTIVITY	DATE	REMARKS
Plutonium-238	1.5E+05	3/17/89	Plutonium-238, 1.5E+05 Ci, 1100 lbs, 1 container

DATE	ACTIVITY	DATE	REMARKS
3/17/89	1.5E+05	3/17/89	Plutonium-238, 1.5E+05 Ci, 1100 lbs, 1 container

DATE	ACTIVITY	DATE	REMARKS
3/17/89	1.5E+05	3/17/89	Plutonium-238, 1.5E+05 Ci, 1100 lbs, 1 container

ATTACHMENT F1

DATE: MON NO. **MAR 91** [91] 003 8036

USBrookly Nuclear US Energy Inc. or American Energy Company

CONTINUATION SHEET

GENERATOR NAME: **Calot Corporation**
 AGENT/BOOKER: **US Energy Inc.**

FOR BROKER USE ONLY:
 Include one category for this page.
 The page describes PROCESSED waste.
 The page describes COLLECTED waste.

Subject: _____
 PAGE **7** OF **7**

ITEM #	DESCRIPTION	QTY	UNIT	DATE	LOCATION	STATUS	ESTIMATED QUANTITIES			WASTE TYPE	HAZARDOUS	REMARKS
							EST. 1	EST. 2	EST. 3			
1	Sealed Sources, 1.5 yrs	4										
2	Sealed Sources	4										
3	Sealed Sources	4										
4	Sealed Sources	4										
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6	Sealed Sources	4										
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100	Sealed Sources	4										

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CUSTOMER COPY

US Energy Inc.
 1-800-541-4488

GROUP SAMPLE REPORT (DFM)

03/21/1989 12:46:29

C-32001-50

GROUP = 04 TITLE: CABOT CORP. SMEARS NUMBER OF SCANS = 02

ALPHA BACKGROUND = 1.100+00 BETA BACKGROUND = 2.730+01

CARRIER NUMBER	AVERAGE ALPHA	AVERAGE BETA	ALPHA COUNTS	BETA COUNTS	TOTAL COUNTS	ALPHA DFM	BETA DFM	AVERAGE ELAPSED TIME	DF	ALPHA SIGMA	BETA SIGMA
	COUNTS	COUNTS	CORRECTED	CORRECTED	CORRECTED			TIME	DCNE		
01	4.000+00	2.700+01	2.900+00	0.000+00	2.900+00	5.665+00	0.200+00	6.000+01	02	2.000+00	0.400+00
02	5.000+01	3.250+01	0.000+00	5.200+00	4.600+00	0.000+00	0.000+00	6.000+01	02	7.071+01	7.770+00
03	2.500+00	3.000+01	1.400+00	1.700+01	1.210+01	2.735+00	1.029+01	6.000+01	02	7.071+01	7.071+00
04	1.000+00	2.150+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	7.071+01
05	2.500+00	4.000+01	1.400+00	1.270+01	1.410+01	2.735+00	2.171+01	6.000+01	02	2.121+00	1.000+01
06	1.000+00	3.100+01	0.000+00	3.700+01	3.600+00	0.000+00	6.325+00	6.000+01	02	0.000+00	5.657+00
07	2.000+00	2.900+01	0.000+00	1.700+00	2.600+00	1.750+00	2.900+00	6.000+01	02	0.000+00	2.000+00
08	0.000+00	2.650+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	6.364+00
09	1.000+00	2.400+01	0.000+00	1.700+00	1.600+00	0.000+00	2.900+00	6.000+01	02	1.414+00	9.959+00
10	1.000+00	2.150+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	7.071+01
11	1.000+00	3.200+01	0.000+00	4.700+00	4.600+00	0.000+00	0.000+00	6.000+01	02	0.000+00	0.000+00
12	2.500+00	3.050+01	1.400+00	3.200+00	4.600+00	2.735+00	5.470+00	6.000+01	02	7.071+01	3.536+00
13	1.000+00	3.300+01	0.000+00	5.700+00	5.600+00	0.000+00	9.744+00	6.000+01	02	1.414+00	0.400+00
14	1.500+00	3.300+01	4.000+01	5.700+00	6.100+00	7.014+01	9.744+00	6.000+01	02	7.071+01	4.243+00
15	2.500+00	2.550+01	1.400+00	0.000+00	0.000+00	2.735+00	0.000+00	6.000+01	02	2.121+00	9.192+00
16	3.000+00	3.350+01	1.900+00	6.200+00	0.100+00	3.712+00	1.060+01	6.000+01	02	1.414+00	4.950+00
17	0.000+00	3.450+01	0.000+00	7.200+00	6.100+00	0.000+00	1.231+01	6.000+01	02	0.000+00	6.364+00
18	3.000+00	3.700+01	1.900+00	9.700+00	1.100+01	3.712+00	1.650+01	6.000+01	02	2.000+00	0.400+00
19	2.500+00	3.950+01	1.400+00	1.220+01	1.350+01	2.735+00	2.000+01	6.000+01	02	7.071+01	4.950+00
20	3.000+00	3.600+01	1.900+00	0.700+00	1.000+01	3.712+00	1.400+01	6.000+01	02	0.000+00	0.000+00
21	1.000+00	3.100+01	0.000+00	3.700+00	3.600+00	0.000+00	6.325+00	6.000+01	02	0.000+00	0.000+00
22	2.000+00	3.250+01	0.000+00	5.200+00	6.100+00	1.750+00	0.000+00	6.000+01	02	2.000+00	3.536+00
23	1.500+00	2.650+01	4.000+01	0.000+00	0.000+00	7.014+01	0.000+00	6.000+01	02	7.071+01	3.536+00
24	5.000+01	3.100+01	0.000+00	3.700+00	3.100+00	0.000+00	6.325+00	6.000+01	02	7.071+01	0.000+00
25	1.500+00	2.700+01	4.000+01	0.000+00	1.000+01	7.014+01	0.000+00	6.000+01	02	7.071+01	7.071+01
26	2.000+00	3.150+01	0.000+00	4.200+00	5.100+00	1.750+00	7.179+00	6.000+01	02	1.414+00	7.071+01
27	1.500+00	2.050+01	4.000+01	1.200+00	1.600+00	7.014+01	2.051+00	6.000+01	02	2.121+00	3.536+00
28	2.500+00	3.000+01	1.400+00	2.700+00	4.100+00	2.735+00	4.615+00	6.000+01	02	7.071+01	4.243+00
29	2.500+00	2.900+01	1.400+00	1.700+00	3.100+00	2.735+00	2.900+00	6.000+01	02	7.071+01	1.414+00
30	3.000+00	3.000+01	1.900+00	2.700+00	4.600+00	3.712+00	4.615+00	6.000+01	02	1.414+00	4.243+00
31	2.000+00	2.750+01	0.000+00	2.000+01	1.100+00	1.750+00	3.419+01	6.000+01	02	0.000+00	9.192+00
32	2.500+00	2.400+01	1.400+00	0.000+00	0.000+00	2.735+00	0.000+00	6.000+01	02	7.071+01	2.000+00
33	0.000+00	3.050+01	0.000+00	3.200+00	2.100+00	0.000+00	5.470+00	6.000+01	02	0.000+00	4.950+00
34	1.500+00	2.450+01	4.000+01	0.000+00	0.000+00	7.014+01	0.000+00	6.000+01	02	7.071+01	7.071+01
35	1.000+00	3.900+01	0.000+00	1.170+01	1.100+01	0.000+00	2.000+01	6.000+01	02	0.000+00	0.000+00
36	2.000+00	2.150+01	0.000+00	0.000+00	0.000+00	1.750+00	0.000+00	6.000+01	02	0.000+00	7.071+01
37	1.500+00	2.600+01	4.000+01	7.000+01	1.100+00	7.014+01	1.197+00	6.000+01	02	7.071+01	1.414+00
38	1.000+00	3.950+01	0.000+00	1.220+01	1.210+01	0.000+00	2.000+01	6.000+01	02	0.000+00	2.121+00
39	2.000+00	3.700+01	0.000+00	9.700+00	1.000+01	1.750+00	1.650+01	6.000+01	02	2.000+00	0.000+00
40	1.000+00	2.900+01	0.000+00	1.700+00	1.600+00	0.000+00	2.900+00	6.000+01	02	0.000+00	1.414+00
GROUP AVERAGE	1.700+00	3.070+01	0.000+00	3.400+00	4.000+00	1.170+00	5.012+00	6.000+01			



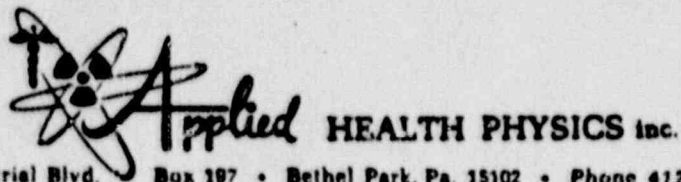
HEALTH PHYSICS Inc.

2096 Industrial Blvd. Box 197 • Bethel Park, Pa. 15102 • Phone 612 • 583-2242

HEALTH PHYSICS LABORATORY REPORT: ANALYSES OF REMOVABLE CONTAMINATION

Client: CABOT CORPORATION PO# _____ Date: 3-17-89 Page # 1 of 2
 Description of Survey: SWEARS of RADIOACTIVE STORAGE AREA of LAB. #306
 Survey by: J. HAASHMAN Date: 3-17-89 Suspected Activity: _____
 Contact Name: _____ Phone: _____ Analyzed by: _____
 Counter Manufacturer: _____ Model: _____ Serial Number: _____
 Background before counting: a _____ CPM b _____ CPM; After counting: a _____ CPM b _____ CPM
 Efficiency before counting: _____ % After counting _____ %

SERIAL NUMBER	SAMPLE IDENTIFICATION		ALPHA					BETA GAMMA					
			CTC. TIME	GROSS	C/M	D/M	D/M/CM ²	CTC. TIME	GROSS	C/M	D/M	D/R CM ²	
292001		Door Knob - LAB.											
"	2	Top Edge of LAB. Door											
"	3	Door - Threshold											
"	4	Telephone											
"	5	East Wall - South											
"	6	Hood Switches											
"	7	Internal Hook Window											
"	8	Hood - Working Area											
"	9	Hood - Intake											
"	10	Hood - Lubbers											
"	11	Sink - Fixture											
"	12	" - Drain											
"	13	Heater - N.W. Corner "B"											
"	14	Power Switch Box											
"	15	Handles - Storage Rack											
"	16	Portable Shielding											
"	17	Portable Tongs											
"	18	Heater N.E. Corner "B"											
"	19	Window Blind											
"	20	Door to Room 207											



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HEALTH PHYSICS LABORATORY REPORT: ANALYSES OF REMOVABLE CONTAMINATION

Client: CABOT CORPORATION PO# _____ Date: 3-17-89 Page # 2 of 3
Description of Survey: Smears of Room 206
Survey by: J. HARSHMAN Date: _____ Suspected Activity: _____
Contact Name: _____ Phone: _____ Analyzed by: _____
Counter Manufacturer: _____ Model: _____ Serial Number: _____
Background before counting: a _____ CPM b _____ CPM; After counting: a _____ CPM b _____ CPM
Efficiency before counting: _____ % After counting _____ %

SERIAL NUMBER	SAMPLE IDENTIFICATION		ALPHA					BETA GAMMA				
	TIME	LOCATION	CTG. TIME	GROSS	C/M	D/M	D/M/CM ²	CTG. TIME	GROSS	C/M	D/M	D/E/CM ²
21		STORAGE CABINET-SHELVES										
" 22		WALL CABINET S.E. GLASS										
" 23		206-FLOOR THRESHOLD										
" 24		N.E. CORNER WINDOW										
" 25		E. WALL - ROOM 206										
" 26		206 ELECTRICAL BOX										
" 27		206 SINK DRAW										
" 28		206 " FIXTURES										
" 29		206-ENTRANCE DOOR										
" 30		ROOM 206-TRASH CAN										
" 31		" A-DOOR										
" 32		" A-THRESHOLD										
" 33		A-ROOM PB BRICKS										
" 34		" " ELECTRICAL BUS										
" 35		" " A/C VENT										
" 36		A-ROOM FLOOR - MIDDLE										
" 37		" " E. WALL										
" 38		SAFE - BOTTOM										
" 39		" - WALLS										
" 40		" - DOOR										
" 41		[REDACTED]										
" 42		[REDACTED]										

GROUP SAMPLE REPORT (CFM)

03/21/1989 12:45:24

GROUP = 05 TITLE: CABOT LEAK TESTS NUMBER OF SCANS = 02

ALPHA BACKGROUND = 1.100+00 BETA BACKGROUND = 2.730+01

CARRIER	ALPHA	BETA	ALPHA	BETA	TOTAL	ALPHA	BETA	AVERAGE	OF	ALPHA	BETA
NUMBER	COUNTS	COUNTS	COUNTS	COUNTS	COUNTS	CPM X	CPM X	ELAPSED	SCANS	SIGMA	SIGMA
			CORRECTED	CORRECTED	CORRECTED	MULT.	MULT.	TIME	DONE		
41	0.020+00	3.480+01	0.300+00	6.700+00	5.680+00	0.000+00	5.159+06	6.000+01	02	0.300+00	4.243+00
42	5.000-01	2.030+01	0.300+00	7.000+01	1.020+01	0.020+00	5.390+07	6.000+01	02	7.071+01	5.657+00
43	1.500+00	2.900+01	4.000+01	1.700+00	2.100+00	3.520+07	1.309+06	6.000+01	02	7.071+01	4.243+00
44	1.020+00	2.920+01	0.000+00	1.700+00	1.600+00	0.000+00	1.329+06	6.000+01	02	1.414+00	2.020+00
45	0.000+00	2.650+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	2.121+00
46	5.000-01	2.750+01	0.000+00	2.000+01	0.000+00	0.000+00	1.540+07	6.000+01	02	7.071+01	2.121+00
47	5.000-01	2.500+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	7.071+01	7.071+00
48	0.000+00	2.250+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	0.000+00	2.121+00
49	2.000+00	3.950+01	9.000+01	1.220+01	1.310+01	7.920+07	9.394+06	6.000+01	02	0.000+00	1.485+01
50	5.000-01	2.550+01	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	6.000+01	02	7.071+01	7.071+01
GROUP	6.500-01	2.065+01	0.000+00	1.350+00	9.000-01	0.000+00	1.039+06	6.000+01			
AVERAGE											



HEALTH PHYSICS LABORATORY REPORT: ANALYSES OF REMOVABLE CONTAMINATION

2090 Industrial Blvd. Box 187 • Bethel Park, Pa. 15102 • Phone 412 • 563-2242

HEALTH PHYSICS LABORATORY REPORT: ANALYSES OF REMOVABLE CONTAMINATION

Client: CABOT CORPORATION PO# _____ Date: 3-17-89 Page # 3 of 3

Description of Survey: WIPE TEST OF ROOF

Survey by: J. HARSHMAN Date: 3-17-89 Suspected Activity: _____

Contact Name: _____ Phone: _____ Analyzed by: _____

Counter Manufacturer: _____ Model: _____ Serial Number: _____

Background before counting: a _____ CPM b _____ CPM; After counting: a _____ CPM b _____ CPM

Efficiency before counting: _____ % After counting _____ %

SERIAL NUMBER	SAMPLE IDENTIFICATION		ALPHA					BETA GAMMA				
	TIME	LOCATION	CTG. TIME	GROSS	C/M	D/M	D/M/CM ²	CTG. TIME	GROSS	C/M	D/M	D/M/CM ²
		<u>WIPES - ROOF</u>										
<u>C-32043</u>		<u>HOOD MOTOR - SQUIREL CAGE</u>										
<u>"</u>	<u>44</u>	<u>1/2 FILTER ROOM 206 A</u>										
<u>"</u>	<u>45</u>	<u>HOOD - VENT</u>										
<u>"</u>	<u>46</u>	<u>VENT MOTOR DRIVE SHAFT</u>										
<u>"</u>	<u>47</u>	<u>VENT MOTOR SURFACE</u>										
<u>"</u>	<u>48</u>	<u>VENT MOTOR DRAIN HOLE</u>										
<u>"</u>	<u>49</u>	<u>ROOF - SURFACE ABOVE ROOF</u>										
<u>"</u>	<u>50</u>	<u>ROOF VENT STACK AREA</u>										
		<u>ROOF</u>										
<u>C-32041</u>		<u>HOLE PB HEAD SHIELDING</u>										
<u>"</u>	<u>04</u>	<u>" " " OUTSIDE</u>										

Certificate of Radiological Safety

This is to certify that the facilities and/or equipment described below have been surveyed by the undersigned using calibrated instrumentation as indicated and at the time of survey, were found to comply with accepted radiological safety standards as noted on the reverse side of this certificate.

Facilities located at: CABOT CORPORATION, Billerica, MA 01821
Room 206 Including Area's A and B
Radiation source: After Removal of: C-14, H-3, Na-22, S-35, Fe-55, Co-60, Kr-85
Cd-109, Ba-133, Cs-137 and Cm-244
Instrumentation: Bicron Model MA, Serial No. A392A

This survey was performed on March 17, 1989 and should be surveyed again on or before Not Applicable (Sealed Sources Removed - Room 206B).

Radiological survey by: John Harshman

Certificate No. 8904-314

This certificate expires Not Applicable



APPLIED HEALTH PHYSICS, Inc.

Robert G. Gallagher
Robert G. Gallagher, CHP, PE
President

OFFICIAL RECORD COPY ML 10

APR 27 1989

110184

CONVERSATION RECORD

TIME 10:00 AM

DATE 3/14/89

TYPE

 VISIT CONFERENCE TELEPHONE INCOMING OUTGOING

ROUTING

NAME/SYMBOL

INT

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

STEPHEN GASIOROWSKI

ORGANIZATION (Office, dept., bureau, etc.)

CABOT LABS

TELEPHONE NO.

508-663-3455

SUBJECT

AMENDMENT - LICENSE No 20-08413-01

SUMMARY

S. GASIOROWSKI STATED THAT HE HAS CONTRACTED APPLIED HEALTH PHYSICS TO REMOVE MATERIALS FROM FACILITY AND PERFORM CLOSE-OUT SURVEY ON 3/17/89. HE WILL SUBMIT CERTIFICATE OF DISPOSITION AND SURVEY RESULTS BY 4/15/89. HE WILL ALSO REQUEST TERMINATION OF HIS LICENSE AT THAT TIME.

ACTION REQUIRED

NAME OF PERSON DOCUMENTING CONVERSATION

JOHN T. JENSEN

SIGNATURE

John T. Jensen

DATE

3/14/89

ACTION TAKEN

OFFICIAL RECORD COPY

ML10

SIGNATURE

TITLE

DATE

CABOT

MS-16
Q-0

February 8, 1989

John Jensen
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, Pennsylvania 19406

RE: NRC License #20-08413-01
Docket #030-04676

Dear Mr. Jensen,

As you requested during our telephone conversation of Feb. 2, 1989, I have compiled the attached information describing the status and use of all radioisotopes presently on hand at Cabot Corporation's Billerica Technical Center. Our intentions are to have all radioisotopes not presently in utilized instrumentation removed from our facility and disposed of according to regulations. A contract to arrange for packaging, shipping, and disposal of all of the designated isotopes was issued to Applied Health Physics, Inc. of Bethel Park Pa. on Oct. 31, 1987.

In preparation for disposal, the Am-241 source, EAD Metallurgical Model No. AMX-1100 was found to have removable activity. A report covering the findings of this leak test and subsequent actions was sent to F. Costello of your office on May 4, 1988. Due to the special handling required by this source, removal of all of the sources was substantially delayed. This Am-241 source was finally shipped to USEcology, Inc. in Pleasanton, CA. on Jan. 12, 1989. (See attachment). Representatives from Applied Health Physics have assured me that they will arrange disposal of all remaining isotopes on our present inventory by March 30, 1989, i.e. before the deadline for filing our request for renewal of our license. Thus, we do not expect to have any radioisotopes on site which are not sealed sources housed in commercially available instrumentation at the time we renew or discontinue our license.

All of the isotopes awaiting disposal are located in a designated radiation safety laboratory with access limited to the Radiation Safety Officer or people under his direct supervision. The majority of the sources are further secured by storage in a locked safe within this radiation lab. This laboratory and storage arrangements were inspected by Mr. Selvan Rajendran of your office during his survey conducted on 4/20/88 and found satisfactory.

OFFICIAL RECORD COPY ML 10

110184

FEB 09 1989

Cabot Corporation
Billerica Technical Center
Concord Road
Billerica, Massachusetts 01821
(617) 663-3455

508

Attachment #2 to this letter is documentation covering transfer of byproducts as 1/28/85, including a variety of unsealed, dry sources and three tritium containing Wilkens Detector cells. These materials were transferred to Applied Health Physics of Bethel Park, PA for subsequent packaging and disposal.

Item 12 of our license should be modified as follows:

Licensed material shall be used by, or under the supervision of Stephen A. Gasiorowski or Thomas Schuler.

Qualifications of R.S.O. and other users of radioisotopes.

Stephen A. Gasiorowski, Radiation Safety Officer

Supervisor, Microscopy and Particle Analysis group.

Ph. D. Analytical Chemistry, University of New Hampshire, 1980.

Use of unsealed radioisotope. (P-32) in dissertation research conducted under the supervision of Prof. C. W. Owens of UNH.

Trained in measurement of radiation with the use of G.M. meters,

Gas flow proportional counter and liquid scintillation counters.

Training in safety procedures for use of radiation producing equipment (X-ray fluorescence and diffraction and electron microscopes) at New York State University at Albany 1981, and Lehigh University, 1984.

Assistant radiation Safety Officer, Billerica Technical Center, Cabot Corporation, 1983-1988. (Robert E. Amrein, R.S.O. during this period.

Assumed R.S.O. duties upon retirement of R.E. Amrein, Jan. 1, 1988.

Thomas Schuler, Group Leader, Analytical Section, Cabot Corporation

Coursework in Radiation Chemistry, Boston University, Circa 1968.

10 Years experience in X-ray Fluorescence Analyses using both X-ray tube and Radioisotope source units.

Performed and supervised chemical analyses of depleted uranium while employed by Resource Engineering, Inc., Waltham, Ma.

Radiation Safety Officer for Resource Engineering, Inc. 1980-1983

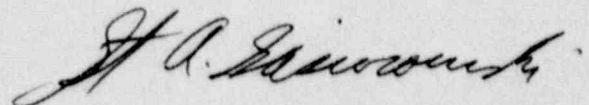
Radiation Monitoring at Cabot's Billerica Facility

In conjunction with the use of ionizing radiation producing equipment which is used extensively at Cabot. (Electron microscopes, X-ray fluorescence and diffraction equipment, particle size measuring equipment using X-ray attenuation), a program of exposure monitoring of individuals working with and near this equipment has been conducted for over 25 years and is continuing. For sixteen individuals and locations monitored in calendar 1988, personnel dosimetry readings to a maximum of 10 millirems were recorded. We are presently using the dosimetry badge program supported by Tech/Ops Landauer, Inc. of Glenwood, Illinois. In addition to the dosimetry badge program, periodic surveys are conducted by the Radiation Safety Office of all radiation producing equipment and radiation laboratory where the isotopes awaiting disposal are stored. Semi-annual blood testing of all individuals with possible exposure to radiation also conducted.

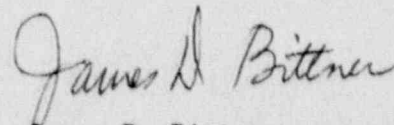
I have received further information regarding the Berthold sulfur analyzer, Model LB-375, NRC Registration # NR-186-D-104-B which was the subject of the requested amendment to our present license. We will now be receiving this equipment under General License and thus do not require the amendment. Since, after removal and disposal of all of the radioisotopes as designated in this letter, we will have byproducts only as sealed sources within devices distributed under the manufacturers specific licenses, we will be allowing our present byproduct license to expire on April 30, 1989. Of course if there are further delays in disposal of our present inventory of isotopes covered by this license, it will be necessary to extend the license for the period required to arrange disposal.

We thank you for your cooperation. Should you have any further questions regarding either the Berthold system or any other aspect of our radiation safety program or NRC license, please contact me at (508)663-3455.

Sincerely,



Stephen A. Gasiorowski
Radiation Safety Officer



James D. Bittner
General Manager
Carbon Black Technology
Division

Attachments: Radioisotope inventory and utilization as of Feb: 1, 1989
at the Billerica Technical Center, Cabot Corporation.

Record of Radioactive Material Transfer, Jan. 28, 1985

Record of Radioactive Material Transfer, Jan 12, 1989.

Specifications of Berthold Systems, Inc. Continuous Sulfur
Analyzer, Model LB-375.

cc: JDBittner, SHiggins, MEO'Dowd, DGrey
GDrissell, JRe, SAnderson, WWitzel, MCretella

ISOTOPE INVENTORY AS OF Jan. 25, 1989

Part. 1. Sources in storage pending disposal.

NRC

LICENSE

ITEM	ISOTOPE	TYPE	ACTIVITY	DATE	MANUFACTURER/MODEL #
A.	C-14	Sealed	200 μ Ci	12/77	NEN NER-006 CR029
A.	C-14	Dodecane	0.1 mCi	?	NEN NEC-181 Lot 31-262-1
A.	C-14	Naphtalene	0.1 mCi	11/65	Nuclear Research Chemicals
B.	I-131	No sources held at present.			
C.	S-35	H2SO4	2 mCi	8/78	NEN 035865-130B
D.	Cl-36	No sources on hand at present time.			
E.	Na-22	Sealed	1.18 μ Ci	11/82	NEN
F.	K-42	No sources on hand at present time.			
G.	P-32	No sources on hand at present time.			
H.	H-3	No sources on hand at present time.			
I.	H-3	GC Detector	200 mCi	2/66	Perkin Elmer Model #2-2837 Serial # 567
I.	H-3	GC Detector	200 mCi	7/65	Perkin Elmer Model #2-2837 Serial #433
J.	Ni-63	No sources on hand at present time.			
K.	Fe-55	Sealed	100 μ Ci	9/74	NEN #500038-S
L.	Kr-85	Sealed SS-Tubing	1 mCi	1973	3M Model #7330
L.	Kr-85	Sealed SS-Tubing	1 mCi	1975	3M Model #7330
L.	Kr-85	Sealed SS-Tubing	1 mCi	1979	3M Model #7330
M.	Fe-55	Sealed	10 mCi	9/76	Isotope Products Labs \checkmark #31110 <u>PH-55</u>
N.	Sr-90	No sources on hand at present time.			
O.	Cd-109	Sealed	14 mCi	2/81	NEN NER- <u>466A</u> D995 \checkmark
P.	Cu-244	No sources on hand at present time.			
Q.	Cs-137	Sealed	10 mCi	?	Isotope Products <u>#300-A</u> \checkmark
R.	Cm-244	Sealed	30 mCi	4/81	Amersham <u>CLC,A1</u> \checkmark

S.	Am-241	No sources on hand at present time.			
T.	Cf-252	No sources on hand at present time.			
U.	Cs-137	Sealed	7.2 μ Ci	12/76	NEN
U.	Cs-137	Sealed	10 μ Ci	12/83	Isotope Products 11205-4
U.	Cs-137	Sealed	10 μ Ci	12/83	Isotope Products 11205-3
U.	Cs-137	Sealed	100 mCi	10/21/86	Contained in USA DOT 7A Container

ITEMS EXEMPT FROM NRC LICENSE AS PER NRC 10CFR30.18

Waiting Disposal

Co-60	Sealed	0.1 μ Ci	2/84	Isotope Products #11334-1
Co-60	Sealed	<1.0 μ Ci	?	Tracerlab R-8 Calibration source
Ba-133	Sealed	1.14 μ Ci	11/80	NEN

ITEMS HELD UNDER GENERAL LICENSE

Fe-55	Sealed	10 mCi	9/84	NER-462 Installed in Panametrics Panalyser Model 4000 Probe#627 for X-ray Fluorescence
Am-241	Sealed	10 mCi	1980	Amersham Model AMC 14 installed in Panametrics Panalyzer Model 4000 Probe #624 for X-ray Fluorescence

ITEMS ON ORDER

Cs-137	Sealed	300 mCi	Installed in Berthold Sulphur Analyzer, Model LB-375
Am-241	Sealed	100 mCi	For continuous monitoring of Sulfur content and density of process fuel oil
Cm-244	Sealed	10 mCi	

USE THIS NO. ON ALL
CORRECTION PAPERS → 109953

PAGE 1 OF 2
 (4) CONSIDERED TO US Ecology, Inc.
 F.O. BOX 828
 HAZARDOUS WASTE
 505-377-2411
 P.O. BOX 578
 HAZARDOUS WASTE
 702-555-7203

Other CONTACT: **Broker**
 ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 PHONE: _____

(5) CARRIER: **Yellow Freight**
 CARRIER EPA # (if any): _____
 ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 PHONE: _____
 CASK TYPE: **20 WC-3**
 CASK SURFACE EXPOSURE RATE: _____

SHIPPING DATE: **1-12-89**

RADIOACTIVE WASTE SHIPMENT & DISPOSAL MANIFEST
 US Ecology, Inc.
 an American Ecology company
 EXECUTIVE OFFICE: (502) 426-7190
 P.O. BOX 72-66 • LOUISVILLE, KENTUCKY 40207

SHIPPER'S NAME: **USECOLOGY INC**
 ADDRESS: **CAR 49-001-8726**
 CITY: **2060 A Commerce**
 STATE: **CA**
 ZIP: **94566**
 CONTACT: **John C. Harshbarger**
 PHONE: **415-463-9200**
 BROKER'S NAME: **John C. Harshbarger**
 ADDRESS: **PO Box 311**
 CITY: **Richmond**
 STATE: **VA**
 ZIP: **23261**

(1) GENERATOR NAME: **Capitol Corp**
 ADDRESS: **Capitol Corp**
 CITY: **Bethel Park**
 STATE: **PA**
 ZIP: **15102**

(2) BEL DISPOSALES TO: **Applied Health Products**
 NAME: **Applied Health Products**
 ADDRESS: **2486 Industrial Rd**
 CITY: **Bethel Park**
 STATE: **PA**
 ZIP: **15102**

REPORTABLE QUANTITY NAME (if any)	PROPER SHIPPING NAME & HAZARD CLASSIFICATION (PER 49 CFR 172.101)	UN NUMBER
1	Radioactive Material, fissile, n.o.s. - Radioactive Material	UN2916
1	Radioactive Material, low specific activity, n.o.s. - Radioactive Material	UN2912
1	Radioactive Material, n.o.s. - Radioactive Material	UN2982
1	Radioactive Material, fissile, n.o.s. - Radioactive Material	UN2910
1	Radioactive Material, fissile, n.o.s. - Radioactive Material	UN2974
1	Radioactive Material, fissile, n.o.s. - Radioactive Material	UN2911
1	Radioactive Material, fissile, n.o.s. - Radioactive Material	UN2910

To be Overpacked in 30

DATE: **1-12-89**

SIGNATURE: **John C. Harshbarger**
 TITLE: **Field Supervisor**

SHIPMENT TOTALS (DO NOT WRITE IN SHIPPED AREAS)

SOURCE MATERIAL (kg)	VOLUME (cu ft)	TOTAL # OF PACKAGES	ACTIVITY	ACTIVITY TOTALS
1	1.01	1	U-235	U-235
1	1.01	1	U-238	U-238
1	1.01	1	Plutonium	Plutonium
1	1.01	1	ALL ISOTOPES	ALL ISOTOPES

(6) THIS IS TO CERTIFY THAT THE HEREIN NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, LABELED AND ARE IN CONFORMITY WITH THE REQUIREMENTS OF 49 CFR, PART 172, SUBPART I, AND THAT THE SHIPPER HAS BEEN ADVISED OF THE REQUIREMENTS OF 49 CFR, PART 173, SUBPART I, AND THAT THE SHIPPER HAS BEEN ADVISED OF THE REQUIREMENTS OF 49 CFR, PART 173, SUBPART I, AND THAT THE SHIPPER HAS BEEN ADVISED OF THE REQUIREMENTS OF 49 CFR, PART 173, SUBPART I.

FOR USECOLOGY'S USE ONLY

LOAD EVALUATION

CHECK ALL THAT APPLY TO THIS LOAD. DESCRIBE EXCESSIVE LOADS IN COMMENT SECTION

Multiple Waste Description Inadequate
 Contamination or Leakage Detected
 Unacceptable Exposure Rate Detected
 No Violations Detected on this Load

OTHER: **1/25/89 Signed copy sent to generator. RC**

DATE RECEIVED: _____
 DATE DISPATCHED: _____
 TRENCH NO.: _____

US ECOLOGY INVOICE # _____
 US ECOLOGY CUSTOMER # _____
 US ECOLOGY INVOICE DATE: _____

DISPATCH CODES: _____

BATES # _____

CUSTOMER COPY



HEALTH PHYSICS

RADIOACTIVE MATERIAL TRANSFER RECORD

7886 Industrial Blvd. P. O. Box 197 - Bethel Park, Pa 15102

SHIPMENT DATA

TRANSFERRED TO: Applied Health Physics Inc. (RECEIVER'S NAME & ADDRESS)
Bethel Park PA 15102 611-563-2412 (TELEPHONE NO.)
 SHIPMENT NO. _____ CONTRACT NO. CA107
15-2-12929

SHIPPER (NAME & ADDRESS): Carbot Corp. Hill ... REASON FOR TRANSFER _____
Pennwood Rd. ...

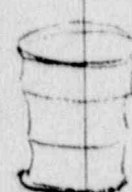
DESCRIPTION OF SHIPMENT: _____ DESCRIPTION OF CONTAINER _____ NO. OF SIMILAR CONTAINERS _____

LOCATION OF SHIPMENT: _____ TO BE SHIPPED VIA TRUCK DATE 1-25-85 BILL OF LADING # 05120 VALUATION \$ new

RAIL RWY EXPRESS TRUCK U.S. MAIL ^{HV} COURIER AIR CARGO DR. PASS.

COMMODITY LISTING:
 RADIOACTIVE MATERIALS, NORMAL FORM N.O.S. RADIOACTIVE MATERIALS, SPECIAL FORM N.O.S. RADIOACTIVE DEVICES
 RADIOACTIVE MATERIALS, LOW SPECIFIC ACTIVITY RADIOACTIVE WASTES THORIUM URANIUM
 FISSILE RADIOACTIVE MATERIALS ~~TYPE A~~ ~~TYPE B~~ CLASS III LARGE QUANTITY RADIOACTIVE MAT'L'S.

MONITORING DATA

Container No.	Type	Vol. (Ft. ³)	Wt. (Lbs.)	Radiation (m Rad/hr)		Surface Contamination		CONTENTS			Transport	
				Surface	@ 3 Ft.	Alpha	Beta-gamma	Isotopes	Curies	Form	U-235	U-238
1	7A			0.8				C	2.3	Special		
 <p>TOP 0.8 mrad/hr at surface (1 ft. from top) - survey with bottom mrad/hr</p>												

DATE OF SURVEY 1/25/85 R. Gallagher Jan 25, 1985 COMMENTS _____

LABELING

- No Labeling required - shipment meets the conditions for exemption.
- Package is approved for shipment since it will be escorted by courier.
- Label reading "Radioactive material - gamma radiation at surface of parcel less than 10 milliroentgens for 24 hours - no significant alpha, beta or neutron radiation."
- Packages are approved for shipment under applicable regulations provided each bears the following label:

Container Numbers	RADIOACTIVE		
	White I	Yellow I	Yellow III
1	X		

Vehicle must be marked on each side, front and rear - "Radioactive." (4" black letters on yellow)

CERTIFICATE

This is to certify that the above named articles 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.

Date Jan 25, 1985 Signed for the shipper by _____ (shipper's name)

In the event of an accident or damage to this shipment:

Immediately contact: Robert ... Telephone: Area Code (617) 663-3435

RECEIVING RECORD

To Receiver: Notify shipper of any damage without delay. The attached copy of this form MUST BE RETURNED to sender with the following information:

Shipment received by R. Gallagher Date 1-25-85 Freight Bill # _____ Charges _____

Shipment monitored on _____ by _____ Results: _____
 Condition of shipment (Note any physical or operating discrepancy and IMMEDIATELY notify sender and freight carrier.)

FILE

THIS COPY FOR SENDER RECEIVER SHIPPER TO ACCOMPANY SHIPMENT HP RECORD _____

BILLERICA TECHNICAL CENTER

CABOT

CABOT CORPORATION CONCORD ROAD, BILLERICA, MASSACHUSETTS 01821

CABLE ADDRESS "CABLAK" BOSTON

TELEPHONE BILLERICA -- 863-3455

AREA CODE
617 VIA BOSTON -- 423-6000

January 28, 1985

RADIOACTIVE WASTE DISPOSAL

<u>QUANTITY</u>	<u>ISOTOPES</u>	<u>CONTENTS</u>	<u>MR/Hr at SURFACE</u>
<0.1 mc	¹⁴ C Standards	Dry	0
<0.1 mc	³⁵ S Standards	Dry	0
<0.2 mc	¹⁴ C Acetone DNPH	Dry	0
<0.2 mc	¹⁴ C Acetone	Dry	0
<0.2 mc	¹⁴ C Toluene	Dry	0
<0.2 mc	¹⁴ C Decane	Dry	0
<0.2 mc	¹⁴ C Methyloctene	Dry	0
0.2 mc	¹⁴ C Methyliodide	Dry	0
0.1 mc	¹⁴ C Isopropanol	Dry	0
0.1 mc	³⁵ Sulfur	Dry	0
3 detectors @ 250mc/ea.	³ H Titanium Tritide Foils in Wilkens Detector Cell (sealed)	Dry	0

Enclosure I
(Addendum Page)

Device #3:

- a) Device name: Sulphur Analyzer
- b) Device Model #: LB 375
- c) NRC Registration #: NR-186-D-104-B
- d) Isotope Type: Am-241 Point Source Rod Source
- e) Up To Maximum Activity: 100 mCi
- f) Source Drawing #: P2611-100

Device #4:

- a) Device name
- b) Device Model #
- c) NRC Registration
- d) Isotope Type Point Source Rod Source
- e) Up To Maximum Activity
- f) Source Drawing #

Device #5:

- a) Device name
- b) Device Model #
- c) NRC Registration #
- d) Isotope Type Point Source Rod Source
- e) Up To Maximum Activity
- f) Source Drawing #

Device #6:

- a) Device name
- b) Device Model #
- c) NRC Registration #
- d) Isotope Type Point Source Rod Source
- e) Up To Maximum Activity
- f) Source Drawing #

Device #7:

- a) Device name
- b) Device Model #
- c) NRC Registration #
- d) Isotope Type Point Source Rod Source
- e) Up To Maximum Activity
- f) Source Drawing #

Enclosure I
(Page 1 of 2)Preparation Guide
for Receipt of a Berthold Radiation Gauge

A. Customer Options to Receive the Berthold Device:

- General License
- General or Specific License (Your Choice)
- Specific License

If you have a choice, please notify us in writing via mail or telefax, as soon as possible of your intent.

B. If you receive under a General License:

- 1) Please read the enclosed "Guide for Receipt Under General License."
- 2) Receipt under a General License requires commissioning and training by Berthold, or a licensed representative, available at standard service rates.

C. If you receive under a Specific License:

- 1) Please amend your present license or apply for an original license as soon as possible (the process can take from 2 to 4 months). We can help here, if necessary. BSI must have a copy of your Specific License before shipment of the radioactive source can be made.
- 2) Below are specifications of the Berthold device needed for an amendment or original license (You will have to provide this information to the licensing agency).

The following sources will be shipped in the shielding designated for service.

Device #1: Quantity: 1

- a) Device name: Sulphur Analyzer
- b) Device Model #: LB 375
- c) NRC Registration #: NR-186-D-104-B
- d) Isotope Type: Cm-244 Point Source Rod Source
- e) Up To Maximum Activity: 10 mCi -
- f) Source Drawing #: 2657.000-000

Device #2: Quantity: 1

- a) Device name: Sulphur Analyzer
- b) Device Model #: LB 375
- c) NRC Registration #: NR-186-D-104-B
- d) Isotope Type: Cs-137 Point Source Rod Source
- e) Up To Maximum Activity: 300 mCi
- f) Source Drawing #: P2623-100

120865
110184

(FOR LFMS USE)
INFORMATION FROM LTS

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

Program Code: 03620
Status Code: 0
Fee Category: 3M
Exp. Date: 19890430
Fee Comments:

LICENSE FEE TRANSMITTAL

A. REGION RT

1. APPLICATION ATTACHED
Applicant/Licensee: CABOT CORP.
Received Date: 890428
Docket No: 3004676
Control No.: 120865
License No.: 20-08413-01
Action Type: Termination

2. FEE ATTACHED
Amount:
Check No.:

3. COMMENTS

Signed M. Moriarty
Date 5-1-89

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone is entered)

1. Fee Category and Amount: 3M **FEE EXEMPT**
2. Correct Fee Paid. Application may be processed for: Termination
Amendment
Renewal
License

3. OTHER

Signed S. Semler
Date 5/8/89

MS-10
1-31-89

(FOR LFMS USE)
INFORMATION FROM LTS

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

PROGRAM CODE: 03620
STATUS CODE: 0
FEE CATEGORY: 3M
EXP. DATE: 19890430
FEE COMMENTS:

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: CABOT CORP.
RECEIVED DATE: 890126
DOCKET NO: 3004676
CONTROL NO.: 110184
LICENSE NO.: 20-08413-01
ACTION TYPE: AMENDMENT

2. FEE ATTACHED

AMOUNT: \$120.00
CHECK NO.: 26536

Voided

3. COMMENTS

SIGNED E.M.W.
DATE 1-31-89

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED 1-11)

1. FEE CATEGORY AND AMOUNT: 3M \$120

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT _____
RENEWAL _____
LICENSE _____

3. OTHER _____

SIGNED S. Kimberley
DATE FEB 08 1989

VOID SHEET

TO: License Fee Management Branch
FROM: REGION I
SUBJECT: VOIDED APPLICATION

Feb. 4^F ✓ SK
3M
110184

Control Number: 110184
Applicant: CABOT CORP
Date Voided: 7-10-89
Reason for Void: COMBINED WITH 120865

After Review

EMLW
Signature

7-10-89
Date

Attachment:
Official Record Copy of **ML 10**
Voided Action

FOR LFMB USE ONLY

Final Review of VOID Completed:

- Refund Authorized and processed
- No Refund Due
- Fee Exempt or Fee Not Required

Comments: _____

Log completed
Processed by: _____