DL-022598_07

**Cruachem**

EASY O[illegible]

US Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W., Suite 2900
Atlanta, Georgia 30323-0199
Attn: Wade Loo

February 25, 1998

Dear Mr. Loo,

Thank-you for your help on the phone on Wednesday. I have assembled the information that is required and enclosed it. I hope it is sufficient to terminate our license no. 45-23826-01.

Cruachem has disposed of all radioactive substances and any waste materials used with them in accordance with federal and state law. I have included a copy of our disposal receipt.

Although Cruachem was licensed to use $^{3}H$ and $^{14}C$, none was ever purchased, used or stored at this facility. Only $^{32}P$ and $^{35}S$ were ever used.

In order to verify the releasable condition of this facility, we contracted RSO Inc. to conduct a close-out survey.

Again I appreciate your assistance in helping us through the termination process. If you should have any questions please call or fax me at the numbers above.

Best regards,

Jonathan Sargent, QC Supervisor

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

# TELEFAX

To: JONATHAN SARGENT License No. ~~30~~ 45-23826-01
Company CRYOCHEM (DULLES, VA) Title
Fax No. ( 703 ) 689 - 3392

FROM: WADE LOO 8 PAGES INCLUDING COVER SHEET
Nuclear Materials Licensing/Inspection Branch 1,
Nuclear Materials Safety Division Fax No. (404) ~~331-7437~~ 562-4899
Voice (404) ~~331~~ 562- 4727 Date 2/25/98

**SUBJECT: YOUR REQUEST FOR TRANSFER OR TERMINATION OF NRC LICENSE**

Please provide the following information, in addition to the NRC Form 314 (Certificate of Disposition of Materials):

All records considered important to the safe and effective decommissioning of the facility, in accordance with 10 CFR 30.35(g), 40.36(f), §70.25(g) and §72.30(d); and all records concerning public dose and waste disposal, have been transferred to:

☐ 1. Name _____ (Successor)
License No. _____
Address _____
City _____ State _____
Phone (____) ____-_____ Fax No. (____) ____-____

**OR**

☐ 2. US NRC Region II, Nuclear Materials Licensing/Inspection Branch, Division of Nuclear Materials Safety

**OR**

☒ 3. There is no residual contamination of the facility or environs from licensed materials.
Signature _____

Printed Name and Title Jonathan Sargent, [illegible]

G:\DRSS\NMLS\Termform.fax 2/25/98 Date

NRC FORM 314
(5-90)
10 CFR 30.36(d)(1)(iv)
10 CFR 40.42(d)(1)(ii)
10 CFR 70.38(e)(1)(iv)

U.S. NUCLEAR REGULATORY COMMISSION

# CERTIFICATE OF DISPOSITION OF MATERIALS

INSTRUCTIONS SEND THE COMPLETED CERTIFICATE TO THE NRC OFFICE SPECIFIED ON THE REVERSE. *(All items MUST be completed—print or type)*

APPROVED BY OMB 3150-0028
EXPIRES 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 30 MIN FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB-7714) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0028), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503

LICENSEE NAME AND ADDRESS
CRUACHEM, INC
45150 BUSINESS COURT SUITE 550
DULLES, VA 20166

LICENSE NUMBER
45-23826-01

LICENSE EXPIRATION DATE
September 30, 1999

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 PROCURED OR POSSESSED 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 DISPOSED OF IN THE FOLLOWING MANNER. *(If additional space is needed, use the reverse side or provide attachments.)*

Describe specific materials transferred, amounts and, if there were radioactive wastes generated in terms having the license, the disposal arrangements including the disposal of low-level radioactive waste, mixed waste, Class+Class C waste, and sealed sources, if applicable.

For transfers, specify the date of the transfer, the name of the licensee receiving, and the recipient's NRC license number or Agreement State license number.

If materials were stored or directly on the license rather than transferred to another licensee, describe disposal of the waste contacted, including the specific disposal procedures key decay in storage.

## 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 *(Attach explanation)*
☒ 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: JONATHAN SARGENT
TELEPHONE NUMBER: (703) 689-3390

4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO

Dr. [illegible]

## CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

SIGNATURE: [signature]
DATE: 2/11/98

PRINTED NAME AND TITLE: Jonathan Sargent, QC Supervisor

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.

# NRC License # 45-23826-01
# CLOSE-OUT REPORT

## Radiological Close-Out Survey of
## Cruachem, Inc.
## 45150 Business Court Suite 550
## Dulles, Virginia 20166

February 1998

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Submitted To:
Cruachem, Inc.

Prepared By:
RSO, Inc.
Laurel, Maryland

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257540

# RSO, Inc.

Cruachem. Inc.

## NRC License # 45-23826-01 CLOSE-OUT REPORT

Prepared by: David Bisson Date 2/16/98
David R. Bisson
Health Physicist

Reviewed by: Gregory D. Smith Date 2/16/98
Gregory D. Smith, CHP
General Manager

Prepared By:

RSO, Inc.
Laurel, Maryland

February 1998

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# 1.0 INTRODUCTION AND SCOPE

## 1.1 Introduction

This report presents the results of the close-out survey performed by RSO, Inc. on January 19, 1998 at the Cruachem, Inc. facility at 45150 Business Court, Suite 550, Dulles, Virginia. The purpose of the survey is to document all areas as meeting the unrestricted use limits as a stipulation of license termination and free release of the facility.

The following sections of this report present the survey measurement data and the final evaluation of the radiological conditions of the Cruachem Facility.

## 1.2 Historical Site Assessment

Cruachem, Inc. conducted routine biomedical research utilizing short lived radioisotopes ($^{32}P$ and $^{35}S$) from November of 1994 through November of 1997 at this facility. This research was limited to utilizing only these short lived isotopes. The radioactive material license allows for the use of $^{3}H$ and $^{14}C$ but neither had ever been used or delivered to this facility. No discrete sources of radioactivity were at the Cruachem facility at the time of the survey.

Lab documentation shows that the last use of $^{32}P$ was in October 1997 and of $^{35}S$ was in June 1997. All radioactive material had been removed from the facility prior to this survey.

Three radioactive material use areas were determined from the records provided from Cruachem, Inc. The primary use area was the main research lab (see attached drawings Appendix A). This area was where source vials and dry waste were stored. The secondary use areas were the HPLC Lab and the Dark Room were samples were worked with but not stored. No indication of any contamination incidents were documented in any of the records reviewed by RSO, Inc.

# 2.0 SURVEY APPROACH

## 2.1 Survey Approach

Detailed surveys were performed as follows:

- Assessment of beta, and gamma contamination on floor surfaces

was accomplished by utilizing a 582 $cm^2$ gas flow proportional floor monitor (see Section 3 for instrumentation details) for scans and direct readings.

- Assessment of beta, and gamma contamination on bench top and on fume hood surfaces was accomplished by utilizing an Eberline Model ESP-2 coupled to a shielded Pan-GM probe (see Section 3 for instrumentation details) direct readings.

- The evaluation of removable surface contamination was accomplished by wipe samples at the locations indicated on the enclosed drawings (see Appendix A). These wipe sample were first analyzed for gross gamma activity using a gamma counter then they were analyzed for gross beta activity by using a liquid scintillation counter.

- Sink drains were surveyed for contamination using 6-inch cotton swabs extended down into the drains and rotated to smear the inside of the drain pipe. The swabs were analyzed with the same procedure as described above for the wipe samples.

- Assessment of contamination on all other surfaces was accomplished by utilizing a sodium iodide NaI(Tl) detector for gamma contamination, and a pancake GM (Pan-GM) for beta contamination (see section 3 for instrumentation details).

- Exposure rate measurements were made using a μR survey meter

## 3.0 SURVEY INSTRUMENTATION

### 3.1 Description of Instrumentation

The survey instruments that were used during the close-out survey are described in the following table.

Table 1

| Survey Meter | Probe Model | Probe Type | Probe Area ($cm^2$) | Description |
|---|---|---|---|---|
| Ludlum Model 3 | 44-3 | NaI(Tl) | 2 | Low Energy Gamma Scintillator |
| Ludlum Model 3 | 44-9 | Pan-GM | 15 | Beta/Gamma |
| Ludlum Model 19 | 1"x1" NaI(Tl) Scintillator | | | μR Survey Meter |
| Ludlum Model 239-1F | Gas Proportional Detector | | 580 | Floor Monitor |
| Eberline Model ESP-2 | HP-210L | Shielded Pan-GM | 15 | Beta/Gamma |

### 3.2 Instrument Calibration and Efficiency Data

The calibration and efficiency data for the survey meters that were used during the close-out survey are summarized in the following table.

Table 2

| Meter w/ Probe | Serial Number | Calibration Date | Calibration Source | Efficiency (%) |
|---|---|---|---|---|
| Model 3 44-3 | 50555 | 12/16/97 | I-129 | 20 |
| Model 3 44-9 | 50555 | 12/16/97 | Sr-90,C-14 | 18,5 |
| Model 19 | 32881 | 8/22/97 | Cs-137 | Exposure Rate |
| Model 239-1F | 108857 | 8/22/97 | Beta Source Set | 10 |
| Model ESP-2 HP210L | 00107 | 1/2/98 | Sr-90,C-14 | 19,11 |

## 4.0 SURVEY RESULTS

### 4.1 Data Analysis

Measurements for removable surface activity were based on analysis of wipe samples collected over an area of 100 cm². Gross counts were converted into net activity per unit area using the following equation:

$$A = \frac{\left(\frac{C}{t}\right) - R_b}{E * \left(\frac{a}{100}\right)} \qquad (1)$$

Where:

A = net removable activity (dpm/100 cm²),
C = integrated gross counts (counts),
t = sample counting time (min),
$R_b$ = instrument background count rate (cpm),
E = efficiency (c/d), and
a = wipe collection area.

Wipe samples were analyzed for gross gamma activity in groups of 10 per gamma scan prior to being analyzed with the liquid scintillation counter.

Measurements of total surface activity were based on direct measurement readings with the probe of the detector in close proximity with the surface being measured. Net count rates were converted to units of activity per unit area using the equation 1 above with:

A = net total surface activity (dpm/100 $cm^2$),
C = integrated gross counts (counts),
t = sample counting time (min),
$R_b$ = instrument background count rate (cpm),
E = efficiency (c/d), and
a = probe area ($cm^2$).

### 4.2 Results

Attachment A includes the drawings of the 3 radiation use areas and the two walkways connecting them. Wipe locations and exposure rate measurement results are included on the drawings.

Attachment B includes numerical results of the total surface activity (measured with the portable survey meters and gas flow meter) and the total removable surface activity from the wipe surveys.

### 4.3 Summary

- All radioactive material had been removed prior to the completion of the survey (see Attached manifests for final radioactive material transfer).
- Beta and gamma scans showed no residual contamination. Direct measurements from the floor monitor showed slightly elevated level in the main lab which were determined to be well below the release criteria.
- Wipe tests for removable contamination were all less than 100 dpm/100 $cm^2$ gross beta.
- Gamma exposure rates in all areas are consistent with natural background level.

## 5.0 RECOMENDATIONS AND CONCLUSIONS

### 5.1 Facility

Survey results showed that no surface contamination was found in any of the areas in suite 550. Three direct measurement taken with the floor monitor indicated slightly elevated residual radioactivity on the floor of the main lab. Wipe results of these areas indicated that this contamination was non-removable. The direct reading of 950, and the two readings of 830 dpm/100 $cm^2$ were well below the average release criteria of 5000 dpm ($\beta\gamma$)/100 $cm^2$ and only a fraction of the maximum 15,000 dpm ($\beta\gamma$)/100 $cm^2$ release limit.

### 5.2 Recommendations and Conclusions

The results found in this survey indicate that Suite 550 meets the unrestricted use limits for free release of the facility. It is recommended that Cruachem, Inc. submit this report in support of a license termination request to the NRC.

## 6.0 REFERENCES

6.1 USNRC, *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination for License for Byproduct, Source or Special Nuclear Material*, May 1987.

6.2 USNRC NUREG/CR-5849, *Manual for Conducting Radiological Survey in Support of License Termination: NRC Staff's Draft Report for Comment*, June 92.

## 7.0 ATTACHMENTS

Attachment A, Area Survey Maps

Attachment B, Total and Removable Surface Activity Measurement Results

# Attachment A,
# Area Survey Maps



257840

☐ Direct Measurements
☐ Surface Scan
☐ Removable Contamination
☐ Other

# RADIOLOGICAL SURVEY

RSO, Inc.
P.O. Box 1526
Laurel, MD 20725-1526
301-953-2482

FACILITY: Cryachem, Inc
CONTACT:
PHONE NO.:

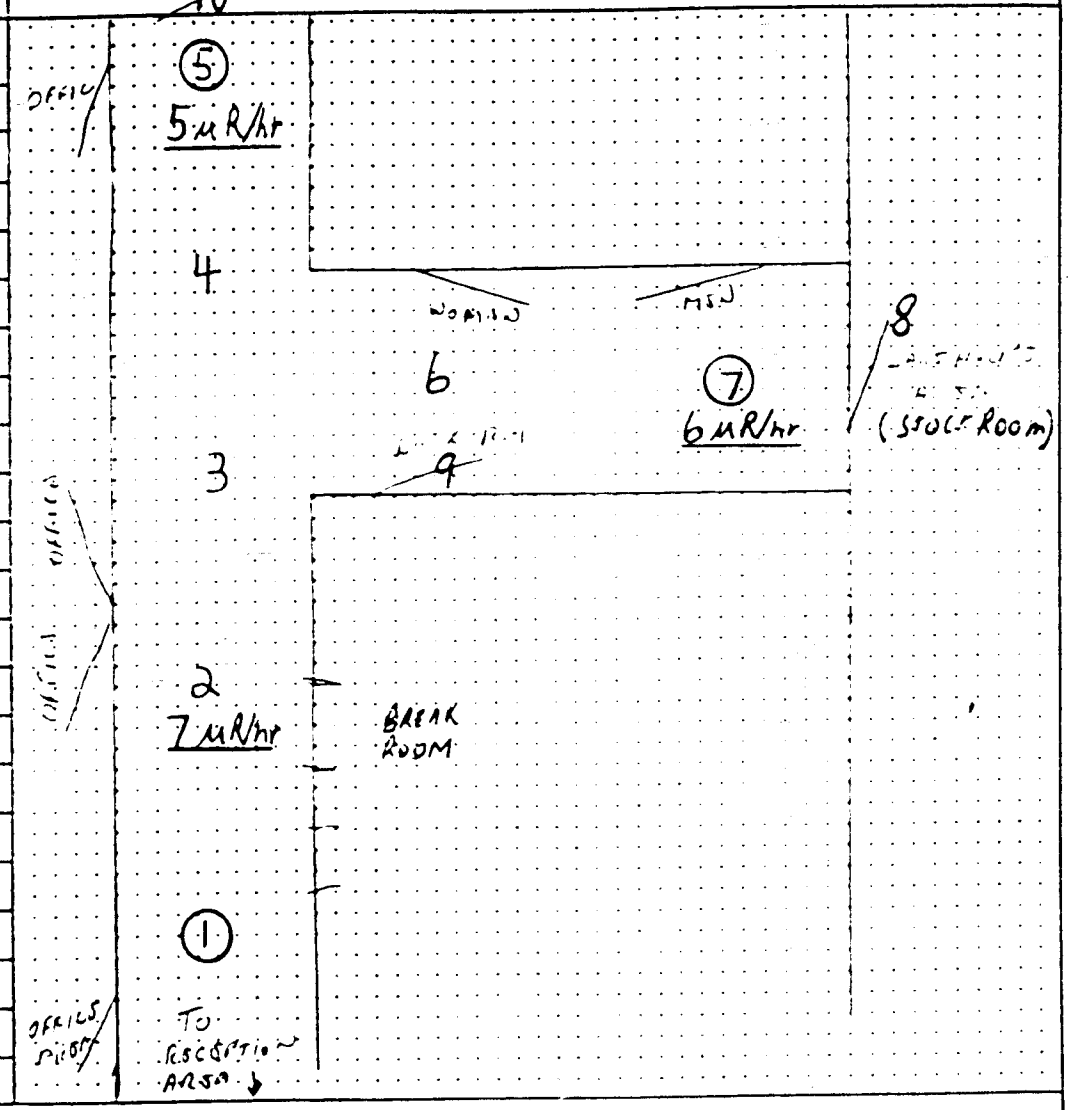
| SURVEYOR | Last name, first name | | Survey Date |
|---|---|---|---|
| | Bisson, D. Sink D | | 1/19/98 |

Swipes 1-10

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 0 | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 0 | | | |

AREA DIAGRAM

~~Scale~~ Hallway




REMARKS ◯ = Static Measurement Location

☐ Direct Measurements
☐ Surface Scan
☐ Removable Contamination
☐ Other

RADIOLOGICAL SURVEY

RSO, Inc.
P.O. Box 1526
Laurel, MD 20725-1526
301-953-2482

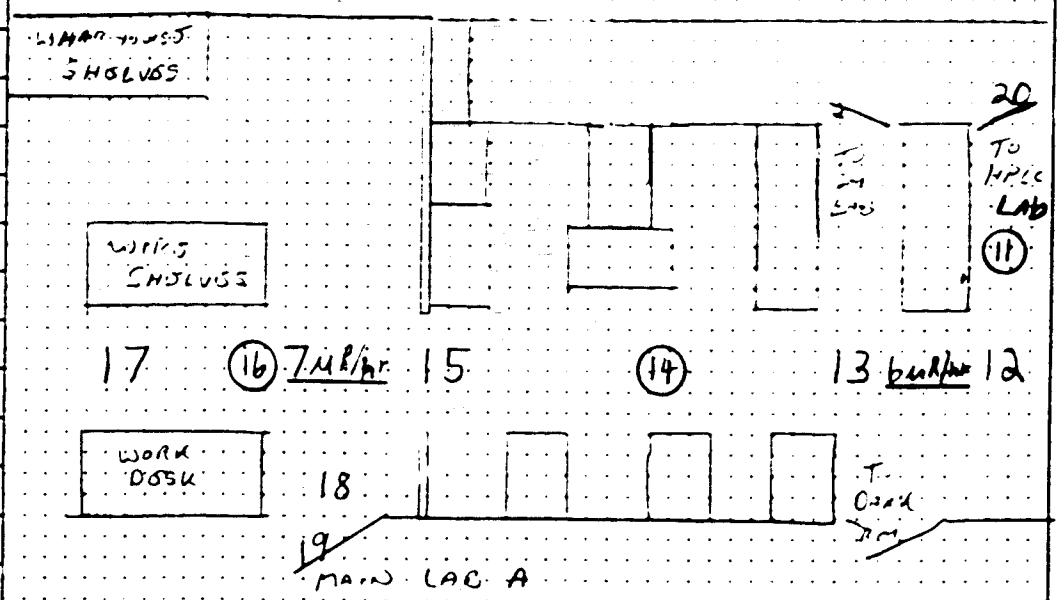
FACILITY: Cruachem, Inc.
CONTACT:
PHONE NO.:

| SURVEYOR | Last name, first name | | Survey Date |
|---|---|---|---|
| | Bisson D., Sink D. | | 1/19/98 |

Swipes 11-20

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 0 | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 0 | | | |

AREA DIAGRAM
~~Scale~~ Stock Room




REMARKS ◯ = Static Measurement Location

Page ____ of ____

| | | |
|---|---|---|
| ☐ Direct Measurements<br>☐ Surface Scan<br>☐ Removable Contamination<br>☐ Other<br>RADIOLOGICAL SURVEY | RSO, Inc.<br>P.O. Box 1526<br>Laurel, MD 20725-1526<br>301-953-2482 | FACILITY Cruachem Inc<br>CONTACT<br>PHONE NO. |

| SURVEYOR | Last name, first name | | Survey Date |
|---|---|---|---|
| | Bisson D, Sink D | | 1/19/9[illegible] |

swipes 21-30

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 0 | | | |
| 1 | | | |
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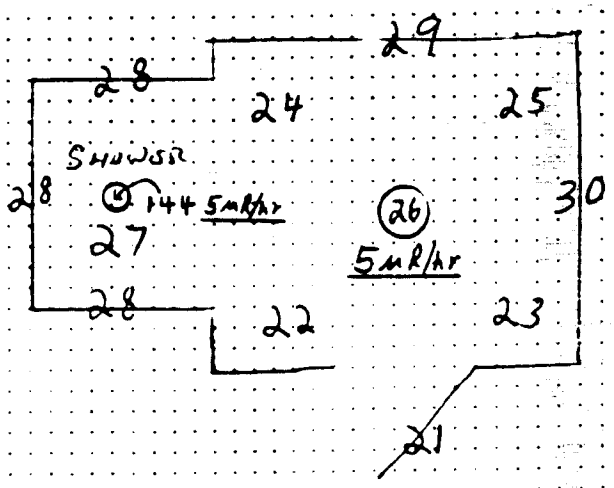
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 0 | | | |

AREA DIAGRAM

~~Scale~~ Dark Room




REMARKS ◯ = Static Measurement Location

RSO, INC. Rev 4 3/97

Page ____ of ____

☐ Direct Measurements
☐ Surface Scan
☐ Removable Contamination
☐ Other

RADIOLOGICAL SURVEY

RSO, Inc.
P.O. Box 1526
Laurel, MD 20725-1526
301-953-2482

FACILITY Cruachem, Inc.

CONTACT

PHONE NO.

| SURVEYOR | Last name, first name | | Survey Date |
|---|---|---|---|
| | Sink D. Bisson, D. | | 1/19/98 |

Swipes 31-50

| | | | |
|---|---|---|---|
| | | | |
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| 1 | | | |
| 2 | | | |
| 3 | | | |
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| 7 | | | |
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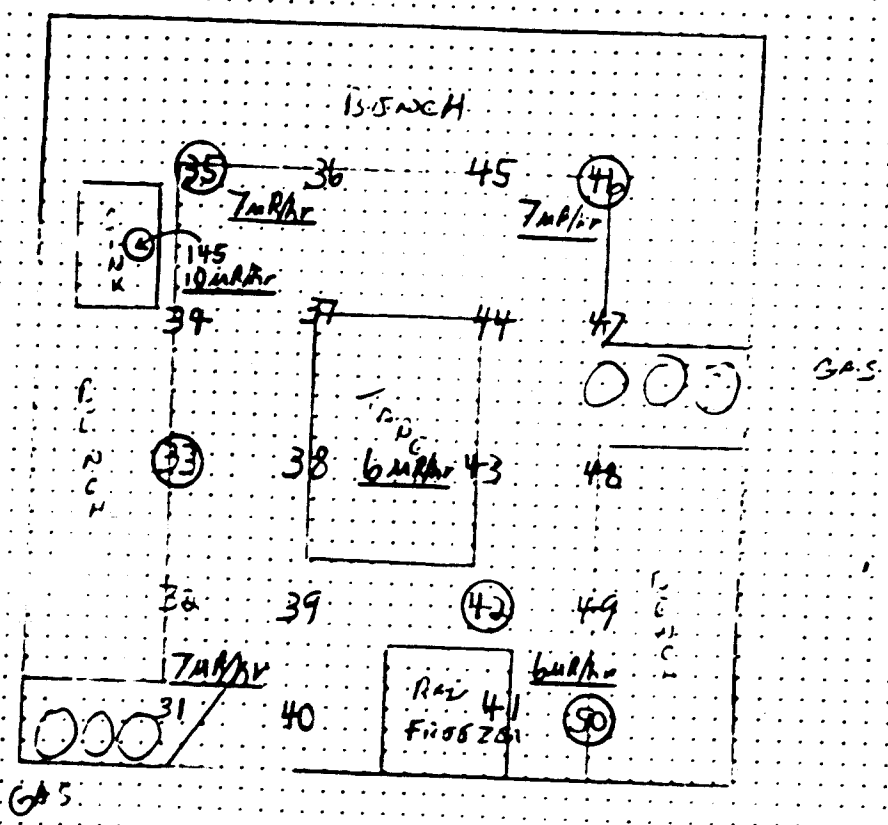
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 0 | | | |

AREA DIAGRAM

~~Scale~~ HPLC Lab




REMARKS ◯ = Static Measurement Location

RSO, INC. Rev 4 3/97

Page ____ of ____

- ☐ Direct Measurements
- ☐ Surface Scan
- ☐ Removable Contamination
- ☐ Other

RADIOLOGICAL SURVEY

**RSO, Inc.**
P.O. Box 1526
Laurel, MD 20725-1526
301-953-2482

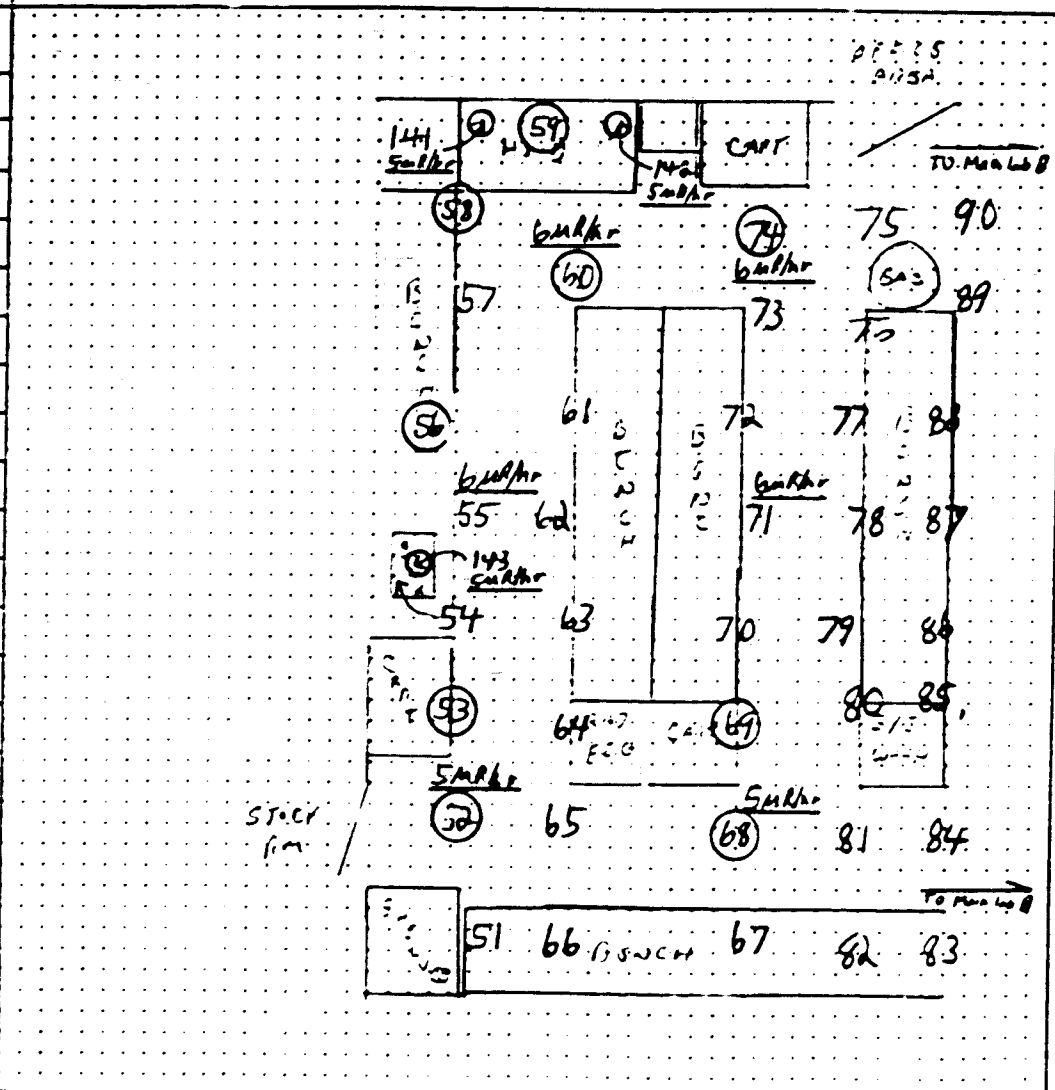
FACILITY: Crucchon, Inc
CONTACT:
PHONE NO.:

| SURVEYOR | Last name, first name | | Survey Date |
|---|---|---|---|
| | Sink D. Bisson, D. | | 1/19/98 |

Swipes 51-90

AREA DIAGRAM

~~Scale~~ Main Lab A




REMARKS ◯ = Static Measurement Location

RSO, INC. Rev 4 3/97

Page ____ of ____

☐ Direct Measurements
☐ Surface Scan
☐ Removable Contamination
☐ Other

RADIOLOGICAL SURVEY

RSO Inc
P.O. Box 1526
Laurel, MD 20725-1526
301-953-2482

FACILITY: Cynachem, Inc.
CONTACT:
PHONE NO.:

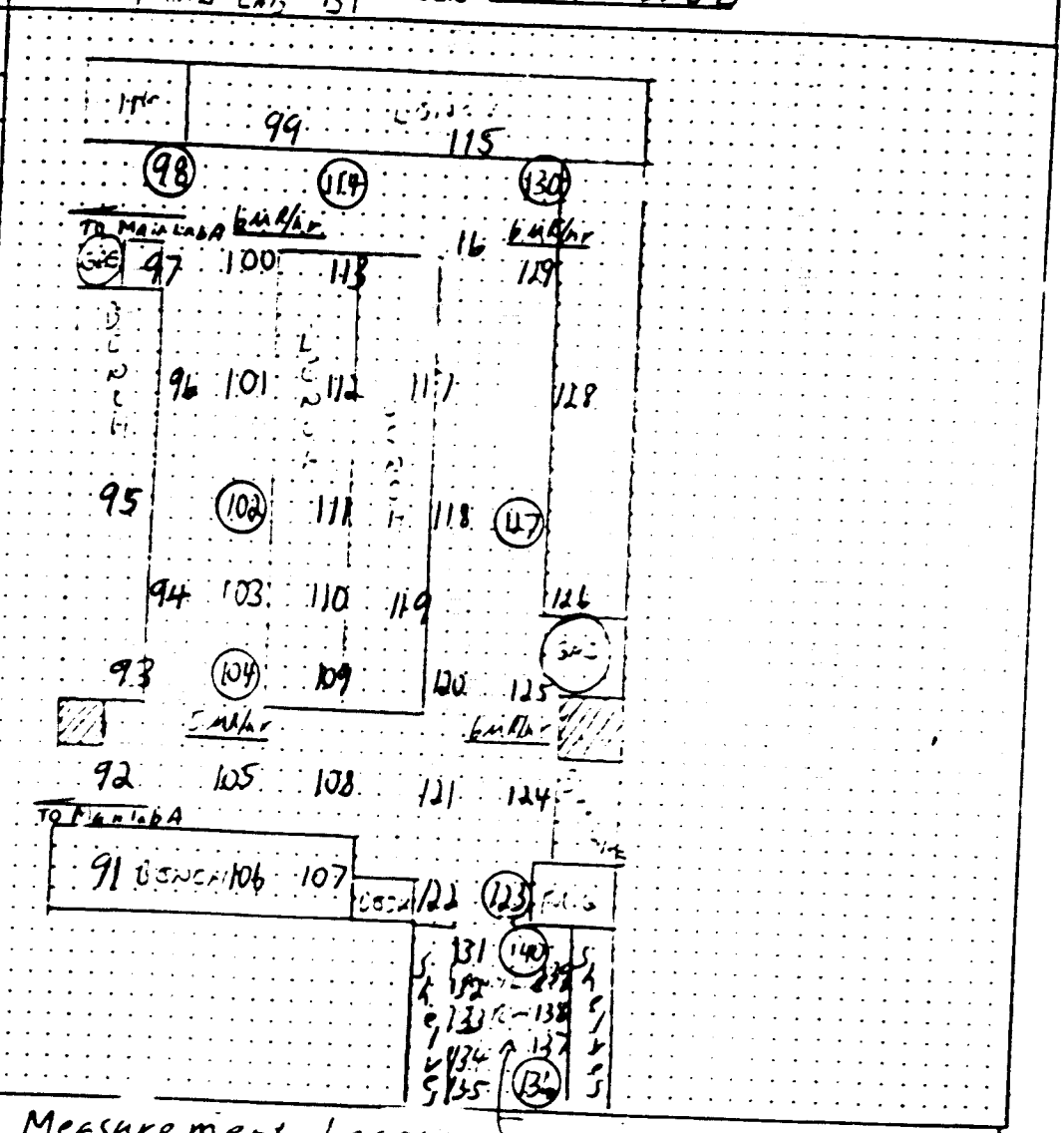
SURVEYOR: Last name, first name: Sink, D. + Bisson, D.

Survey Date: 1/17/98

Swipes 91-140

AREA DIAGRAM

Scale: Main Lab B




REMARKS ◯ = Static Measurement Location



RSO, INC. Rev 4 3/97

# Attachment B,
# Total and Removable Surface Activity Measurement Results

Radiation Survey
Field Results
**Beta Scan**

Surveyor: David Bisson, Daryl Sink  Survey Date: 1/19/98

Survey Meter: Ludlum Model 3 w/ Pancake-GM  S/N: 50555  Background: 40 cpm

Cal Date: 12/16/97  Efficiency: 0.10 cpm/dpm  MDA= 9.32E+02 dpm

| Sample # | Location | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| Background | Conference Room | 4.00E+01 | 1 | - | 15 | - | Background |
| 8 | Hallway | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 9 | Hallway | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 10 | Hallway | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| - | Hallway Doors | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 19 | Stock Room | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 20 | Stock Room | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| - | Stock Rm Shelves | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 21 | Dark Room | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 27 | Dark Room | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 28 | Dark Room | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 29 | Dark Room | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 30 | Dark Room | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 32 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 33 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 34 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 35 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 36 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 37 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 38 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 43 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 44 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 45 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 46 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 47 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 48 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 49 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 50 | HPLC Lab | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 51 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 54 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 55 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 56 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 57 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 58 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 59 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 61 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 62 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 63 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 66 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 67 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |

Radiation Survey
Field Results
**Beta Scan**

| Sample # | Location | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 70 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 71 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 72 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 73 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 76 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 77 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 78 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 79 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 80 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 82 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 83 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 85 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 86 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 87 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 88 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 89 | Main Lab A | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 91 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 93 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 94 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 95 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 96 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 97 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 99 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 106 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 107 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 109 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 110 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 111 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 112 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 113 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 115 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 116 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 117 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 118 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 119 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 120 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 126 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 127 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 128 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 129 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 130 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 131 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 132 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 133 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 134 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 135 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 137 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 138 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 139 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |

Radiation Survey
Field Results
**Beta Scan**

| Sample # | Location | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 140 | Main Lab B | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 141 | Main Lab A Drain | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 142 | Main Lab A Drain | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 143 | Main Lab A Drain | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 144 | Dark Room Drain | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |
| 145 | HPLC Lab Drain | 4.00E+01 | 0.1 | 0.00 | 15 | 0.0E+00 | < MDA |

Radiation Survey
Field Results
**Gamma and Exposure Rate**

Surveyor: David Bisson, Daryl Sink

Survey Date: 1/19/98

| | | Gamma Scan | | | Exposure Rate | | |
|---|---|---|---|---|---|---|---|
| | | Survey Meter: | | Ludlum 3 | Survey Meter: | | Ludlum 19 |
| | | erial Number: | | 50555 | Serial Number: | | 53223 |
| | | Cal Date: | | 12/16/97 | Cal Date: | | 8/22/97 |
| | | Sensitivity: | | about 4 kcpm | Sensitivity: | | about 2 uR/h |
| Sample # | Location | Contact (kcpm) | | | Contact (uR/h) | | At 1 m (uR/h) |
| Background | Conference Room | 0.15 | | | 6 | | 6 |
| 2 | Hallway | - | | | - | | 7 |
| 5 | Hallway | - | | | - | | 5 |
| 7 | Hallway | - | | | - | | 7 |
| 8 | Hallway | 0.15 | | | - | | - |
| 9 | Hallway | 0.15 | | | - | | - |
| 10 | Hallway | 0.15 | | | - | | - |
| - | Hallway Doors | 0.15 | | | - | | - |
| 16 | Stock Room | - | | | - | | 7 |
| 13 | Stock Room | - | | | - | | 6 |
| 19 | Stock Room | 0.15 | | | - | | - |
| 20 | Stock Room | 0.15 | | | - | | - |
| - | Stock Rm Shelves | 0.15 | | | - | | - |
| 21 | Dark Room | 0.15 | | | - | | - |
| 26 | Dark Room | - | | | - | | 5 |
| 27 | Dark Room | 0.15 | | | - | | - |
| 28 | Dark Room | 0.15 | | | - | | - |
| 29 | Dark Room | 0.15 | | | - | | - |
| 30 | Dark Room | 0.15 | | | - | | - |
| 31 | HPLC Lab | - | | | - | | 7 |
| 32 | HPLC Lab | 0.15 | | | - | | - |
| 33 | HPLC Lab | 0.15 | | | - | | - |
| 34 | HPLC Lab | 0.15 | | | - | | - |
| 35 | HPLC Lab | 0.15 | | | - | | 7 |
| 36 | HPLC Lab | 0.15 | | | - | | - |
| 37 | HPLC Lab | 0.15 | | | - | | - |
| 38 | HPLC Lab | 0.15 | | | - | | 6 |
| 41 | HPLC Lab | - | | | - | | 6 |
| 43 | HPLC Lab | 0.15 | | | - | | - |
| 44 | HPLC Lab | 0.15 | | | - | | - |
| 45 | HPLC Lab | 0.15 | | | - | | - |
| 46 | HPLC Lab | 0.15 | | | - | | 7 |
| 47 | HPLC Lab | 0.15 | | | - | | - |
| 48 | HPLC Lab | 0.15 | | | - | | - |
| 49 | HPLC Lab | 0.15 | | | - | | - |
| 50 | HPLC Lab | 0.15 | | | - | | - |
| 51 | Main Lab A | 0.15 | | | - | | - |
| 52 | Main Lab A | - | | | - | | 5 |

Radiation Surve ,
Field Results
**Gamma and Exposure Rate**

| Sample # | Location | Contact (kcpm) | | | Contact (uR/h) | | At 1 m (uR/h) |
|---|---|---|---|---|---|---|---|
| 54 | Main Lab A | 0.15 | | | - | | - |
| 55 | Main Lab A | 0.15 | | | - | | 6 |
| 56 | Main Lab A | 0.15 | | | - | | - |
| 57 | Main Lab A | 0.15 | | | - | | - |
| 58 | Main Lab A | 0.15 | | | - | | - |
| 59 | Main Lab A | 0.15 | | | - | | - |
| 60 | Main Lab A | - | | | | | 6 |
| 61 | Main Lab A | 0.15 | | | - | | - |
| 62 | Main Lab A | 0.15 | | | - | | - |
| 63 | Main Lab A | 0.15 | | | - | | - |
| 66 | Main Lab A | 0.15 | | | - | | - |
| 67 | Main Lab A | 0.15 | | | - | | - |
| 68 | Main Lab A | - | | | - | | 5 |
| 70 | Main Lab A | 0.15 | | | - | | - |
| 71 | Main Lab A | 0.15 | | | - | | 6 |
| 72 | Main Lab A | 0.15 | | | - | | - |
| 73 | Main Lab A | 0.15 | | | - | | - |
| 74 | Main Lab A | - | | | - | | 6 |
| 76 | Main Lab A | 0.15 | | | - | | - |
| 77 | Main Lab A | 0.15 | | | - | | - |
| 78 | Main Lab A | 0.15 | | | - | | - |
| 79 | Main Lab A | 0.15 | | | - | | - |
| 80 | Main Lab A | 0.15 | | | - | | - |
| 82 | Main Lab A | 0.15 | | | - | | - |
| 83 | Main Lab A | 0.15 | | | - | | - |
| 85 | Main Lab A | 0.15 | | | - | | - |
| 86 | Main Lab A | 0.15 | | | - | | - |
| 87 | Main Lab A | 0.15 | | | - | | - |
| 88 | Main Lab A | 0.15 | | | - | | - |
| 89 | Main Lab A | 0.15 | | | - | | - |
| 91 | Main Lab B | 0.15 | | | - | | - |
| 93 | Main Lab B | 0.15 | | | - | | - |
| 94 | Main Lab B | 0.15 | | | - | | - |
| 95 | Main Lab B | 0.15 | | | - | | - |
| 96 | Main Lab B | 0.15 | | | - | | - |
| 97 | Main Lab B | 0.15 | | | - | | - |
| 99 | Main Lab B | 0.15 | | | - | | - |
| 100 | Main Lab B | - | | | - | | 6 |
| 104 | Main Lab B | - | | | - | | 5 |
| 106 | Main Lab B | 0.15 | | | - | | - |
| 107 | Main Lab B | 0.15 | | | - | | - |
| 109 | Main Lab B | 0.15 | | | - | | - |
| 110 | Main Lab B | 0.15 | | | - | | - |
| 111 | Main Lab B | 0.15 | | | - | | - |
| 112 | Main Lab B | 0.15 | | | - | | - |
| 113 | Main Lab B | 0.15 | | | - | | - |
| 115 | Main Lab B | 0.15 | | | - | | - |

Radiation Survey
Field Results
**Gamma and Exposure Rate**

| Sample # | Location | Contact (kcpm) | | | Contact (uR/h) | | At 1 m (uR/h) |
|---|---|---|---|---|---|---|---|
| 116 | Main Lab B | 0.15 | | | - | | - |
| 117 | Main Lab B | 0.15 | | | - | | - |
| 118 | Main Lab B | 0.15 | | | - | | - |
| 119 | Main Lab B | 0.15 | | | - | | - |
| 120 | Main Lab B | 0.15 | | | - | | - |
| 125 | Main Lab B | - | | | - | | 6 |
| 126 | Main Lab B | 0.15 | | | - | | - |
| 127 | Main Lab B | 0.15 | | | - | | - |
| 128 | Main Lab B | 0.15 | | | - | | - |
| 129 | Main Lab B | 0.15 | | | - | | 6 |
| 130 | Main Lab B | 0.15 | | | - | | - |
| 131 | Main Lab B | 0.15 | | | - | | - |
| 132 | Main Lab B | 0.15 | | | - | | - |
| 133 | Main Lab B | 0.15 | | | - | | - |
| 134 | Main Lab B | 0.15 | | | - | | - |
| 135 | Main Lab B | 0.15 | | | - | | - |
| 137 | Main Lab B | 0.15 | | | - | | - |
| 138 | Main Lab B | 0.15 | | | - | | 5 |
| 139 | Main Lab B | 0.15 | | | - | | - |
| 140 | Main Lab B | 0.15 | | | - | | - |
| 141 | Main Lab A Drain | 0.15 | | | 5 | | - |
| 142 | Main Lab A Drain | 0.15 | | | 5 | | - |
| 143 | Main Lab A Drain | 0.15 | | | 5 | | - |
| 144 | Dark Room Drain | 0.15 | | | 5 | | - |
| 145 | HPLC Lab Drain | 0 15 | | | 10 | | - |

Radiation Survey
Field Results
**Direct Floor Measurements**

Surveyor: David Bisson, Daryl Sink  Survey Date 1/19/98

Survey Meter: Ludlum 2221 w/ Floor Gas Flow Probes  S/N: 108857  Average Background: 1060 cpm

Cal Date: 8/22/97  Efficiency: 0.10 cpm/dpm  MDA= 4.80E+03 dpm

| Sample # | Location Conference | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| Background | Room | 1.06E+03 | 10 | - | 582 | - | Background |
| 1 | Hallway | 5.94E+02 | 1 | -466.00 | 582 | -8.0E+02 | < MDA |
| 5 | Hallway | 6.16E+02 | 1 | -444.00 | 582 | -7.6E+02 | < MDA |
| 7 | Hallway | 6.39E+02 | 1 | -421.00 | 582 | -7.2E+02 | < MDA |
| 11 | Stock Room | 8.95E+02 | 1 | -165.00 | 582 | -2.8E+02 | < MDA |
| 14 | Stock Room | 8.98E+02 | 1 | -162.00 | 582 | -2.8E+02 | < MDA |
| 15 | Stock Room | 8.98E+02 | 1 | -162.00 | 582 | -2.8E+02 | < MDA |
| 26 | Dark Room | 7.46E+02 | 1 | -314.00 | 582 | -5.4E+02 | < MDA |
| 33 | HPLC Lab | 1.13E+03 | 1 | 70.00 | 582 | 1.2E+02 | < MDA |
| 35 | HPLC Lab | 1.10E+03 | 1 | 38.00 | 582 | 6.5E+01 | < MDA |
| 42 | HPLC Lab | 1.18E+03 | 1 | 121.00 | 582 | 2.1E+02 | < MDA |
| 46 | HPLC Lab | 1.07E+03 | 1 | 5.00 | 582 | 8.6E+00 | < MDA |
| 50 | HPLC Lab | 1.15E+03 | 1 | 89.00 | 582 | 1.5E+02 | < MDA |
| 52 | Main Lab A | 1.35E+03 | 1 | 292.00 | 582 | 5.0E+02 | < MDA |
| 53 | Main Lab A | 1.42E+03 | 1 | 364.00 | 582 | 6.3E+02 | < MDA |
| 60 | Main Lab A | 1.39E+03 | 1 | 329.00 | 582 | 5.7E+02 | < MDA |
| 68 | Main Lab A | 1.31E+03 | 1 | 248.00 | 582 | 4.3E+02 | < MDA |
| 69 | Main Lab A | 1.42E+03 | 1 | 360.00 | 582 | 6.2E+02 | < MDA |
| 74 | Main Lab A | 1.40E+03 | 1 | 342.00 | 582 | 5.9E+02 | < MDA |
| 98 | Main Lab B | 1.54E+03 | 1 | 480.00 | 582 | 8.2E+02 | > MDA |
| 102 | Main Lab B | 1.61E+03 | 1 | 551.00 | 582 | 9.5E+02 | > MDA |
| 104 | Main Lab B | 1.54E+03 | 1 | 481.00 | 582 | 8.3E+02 | > MDA |
| 114 | Main Lab B | 1.28E+03 | 1 | 220.00 | 582 | 3.8E+02 | < MDA |
| 123 | Main Lab B | 1.53E+03 | 1 | 469.00 | 582 | 8.1E+02 | < MDA |
| 127 | Main Lab B | 1.21E+03 | 1 | 146.00 | 582 | 2.5E+02 | < MDA |
| 130 | Main Lab B | 1.30E+03 | 1 | 238.00 | 582 | 4.1E+02 | < MDA |
| 136 | Main Lab B | 1.13E+03 | 1 | 66.00 | 582 | 1.1E+02 | < MDA |
| 140 | Main Lab B | 1.35E+03 | 1 | 292.00 | 582 | 5.0E+02 | < MDA |

Radiation Survey

**Gross Beta Wipe Test Results**

Surveyor: David Bisson, Daryl Sink

Survey Date: 1/10/98

Counting Instrument: Beckman LS 6000

Background: 38 83 cpm

Cal Date: 1/19/98 Efficiency: 0.50 cpm/dpm MDA= 5.28E+01 dpm

| Sample # | Location | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| Background | | 5.82E+01 | 1.5 | - | 100 | - | Background |
| 1 | Hallway | 7.50E+01 | 1.5 | 11.2 | 100 | 2.2E+01 | < MDA |
| 2 | Hallway | 5.50E+01 | 1.5 | -2.2 | 100 | -4.3E+00 | < MDA |
| 3 | Hallway | 5.20E+01 | 1.5 | -4.2 | 100 | -8.3E+00 | < MDA |
| 4 | Hallway | 6.20E+01 | 1.5 | 2.5 | 100 | 5.0E+00 | < MDA |
| 5 | Hallway | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 6 | Hallway | 4.90E+01 | 1.5 | -6.2 | 100 | -1.2E+01 | < MDA |
| 7 | Hallway | 6.20E+01 | 1.5 | 2.5 | 100 | 5.0E+00 | < MDA |
| 8 | Hallway | 5.70E+01 | 1.5 | -0.8 | 100 | -1.7E+00 | < MDA |
| 9 | Hallway | 5.10E+01 | 1.5 | -4.8 | 100 | -9.6E+00 | < MDA |
| 10 | Hallway | 4.10E+01 | 1.5 | -11.5 | 100 | -2.3E+01 | < MDA |
| 11 | Stock Room | 5.80E+01 | 1.5 | -0.2 | 100 | -3.2E-01 | < MDA |
| 12 | Stock Room | 4.20E+01 | 1.5 | -10.8 | 100 | -2.2E+01 | < MDA |
| 13 | Stock Room | 5.20E+01 | 1.5 | -4.2 | 100 | -8.3E+00 | < MDA |
| 14 | Stock Room | 6.50E+01 | 1.5 | 4.5 | 100 | 9.0E+00 | < MDA |
| 15 | Stock Room | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 16 | Stock Room | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 17 | Stock Room | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 18 | Stock Room | 4.00E+01 | 1.5 | -12.2 | 100 | -2.4E+01 | < MDA |
| 19 | Stock Room | 4.40E+01 | 1.5 | -9.5 | 100 | -1.9E+01 | < MDA |
| 20 | Stock Room | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 21 | Dark Room | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 22 | Dark Room | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 23 | Dark Room | 5.80E+01 | 1.5 | -0.2 | 100 | -3.2E-01 | < MDA |
| 24 | Dark Room | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 25 | Dark Room | 4.90E+01 | 1.5 | -6.2 | 100 | -1.2E+01 | < MDA |
| 26 | Dark Room | 5.52E+01 | 1.5 | -2.1 | 100 | -4.1E+00 | < MDA |
| 27 | Dark Room | 5.60E+01 | 1.5 | -1.5 | 100 | -3.0E+00 | < MDA |
| 28 | Dark Room | 4.00E+01 | 1.5 | -12.2 | 100 | -2.4E+01 | < MDA |
| 29 | Dark Room | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 30 | Dark Room | 4.70E+01 | 1.5 | -7.5 | 100 | -1.5E+01 | < MDA |
| 31 | HPLC Lab | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 32 | HPLC Lab | 3.80E+01 | 1.5 | -13.5 | 100 | -2.7E+01 | < MDA |
| 33 | HPLC Lab | 3.80E+01 | 1.5 | -13.5 | 100 | -2.7E+01 | < MDA |
| 34 | HPLC Lab | 6.00E+01 | 1.5 | 1.2 | 100 | 2.3E+00 | < MDA |
| 35 | HPLC Lab | 5.20E+01 | 1.5 | -4.2 | 100 | -8.3E+00 | < MDA |
| 36 | HPLC Lab | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 37 | HPLC Lab | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 38 | HPLC Lab | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 39 | HPLC Lab | 3.52E+01 | 1.5 | -15.4 | 100 | -3.1E+01 | < MDA |

Radiation Survey
**Gross Beta Wipe Test Results**

| Sample # | Location | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 40 | HPLC Lab | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 41 | HPLC Lab | 5.60E+01 | 1.5 | -1.5 | 100 | -3.0E+00 | < MDA |
| 42 | HPLC Lab | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 43 | HPLC Lab | 4.10E+01 | 1.5 | -11.5 | 100 | -2.3E+01 | < MDA |
| 44 | HPLC Lab | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 45 | HPLC Lab | 3.40E+01 | 1.5 | -16.2 | 100 | -3.2E+01 | < MDA |
| 46 | HPLC Lab | 3.60E+01 | 1.5 | -14.8 | 100 | -3.0E+01 | < MDA |
| 47 | HPLC Lab | 4.32E+01 | 1.5 | -10.0 | 100 | -2.0E+01 | < MDA |
| 48 | HPLC Lab | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 49 | HPLC Lab | 4.26E+01 | 1.5 | -10.4 | 100 | -2.1E+01 | < MDA |
| 50 | HPLC Lab | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 51 | Main Lab A | 5.70E+01 | 1.5 | -0.8 | 100 | -1.6E+00 | < MDA |
| 52 | Main Lab A | 4.40E+01 | 1.5 | -9.5 | 100 | -1.9E+01 | < MDA |
| 53 | Main Lab A | 5.30E+01 | 1.5 | -3.5 | 100 | -7.0E+00 | < MDA |
| 54 | Main Lab A | 4.00E+01 | 1.5 | -12.2 | 100 | -2.4E+01 | < MDA |
| 55 | Main Lab A | 4.60E+01 | 1.5 | -8.2 | 100 | -1.6E+01 | < MDA |
| 56 | Main Lab A | 5.70E+01 | 1.5 | -0.8 | 100 | -1.7E+00 | < MDA |
| 57 | Main Lab A | 3.60E+01 | 1.5 | -14.8 | 100 | -3.0E+01 | < MDA |
| 58 | Main Lab A | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 59 | Main Lab A | 3.90E+01 | 1.5 | -12.8 | 100 | -2.6E+01 | < MDA |
| 60 | Main Lab A | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 61 | Main Lab A | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 62 | Main Lab A | 4.00E+01 | 1.5 | -12.2 | 100 | -2.4E+01 | < MDA |
| 63 | Main Lab A | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 64 | Main Lab A | 5.70E+01 | 1.5 | -0.8 | 100 | -1.7E+00 | < MDA |
| 65 | Main Lab A | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 66 | Main Lab A | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 67 | Main Lab A | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 68 | Main Lab A | 5.90E+01 | 1.5 | 0.5 | 100 | 1.0E+00 | < MDA |
| 69 | Main Lab A | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 70 | Main Lab A | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 71 | Main Lab A | 5.70E+01 | 1.5 | -0.8 | 100 | -1.6E+00 | < MDA |
| 72 | Main Lab A | 4.60E+01 | 1.5 | -8.2 | 100 | -1.6E+01 | < MDA |
| 73 | Main Lab A | 4.60E+01 | 1.5 | -8.2 | 100 | -1.6E+01 | < MDA |
| 74 | Main Lab A | 3.50E+01 | 1.5 | -15.5 | 100 | -3.1E+01 | < MDA |
| 75 | Main Lab A | 3.90E+01 | 1.5 | -12.8 | 100 | -2.6E+01 | < MDA |
| 76 | Main Lab A | 4.60E+01 | 1.5 | -8.2 | 100 | -1.6E+01 | < MDA |
| 77 | Main Lab A | 3.70E+01 | 1.5 | -14.2 | 100 | -2.8E+01 | < MDA |
| 78 | Main Lab A | 5.90E+01 | 1.5 | 0.5 | 100 | 1.0E+00 | < MDA |
| 79 | Main Lab A | 3.80E+01 | 1.5 | -13.5 | 100 | -2.7E+01 | < MDA |
| 80 | Main Lab A | 5.60E+01 | 1.5 | -1.5 | 100 | -3.0E+00 | < MDA |
| 81 | Main Lab A | 4.00E+01 | 1.5 | -12.2 | 100 | -2.4E+01 | < MDA |
| 82 | Main Lab A | 4.40E+01 | 1.5 | -9.5 | 100 | -1.9E+01 | < MDA |
| 83 | Main Lab A | 5.30E+01 | 1.5 | -3.5 | 100 | -7.0E+00 | < MDA |
| 84 | Main Lab A | 4.70E+01 | 1.5 | -7.5 | 100 | -1.5E+01 | < MDA |
| 85 | Main Lab A | 6.90E+01 | 1.5 | 7.2 | 100 | 1.4E+01 | < MDA |
| 86 | Main Lab A | 5.20E+01 | 1.5 | -4.2 | 100 | -8.3E+00 | < MDA |
| 87 | Main Lab A | 3.50E+01 | 1.5 | -15.5 | 100 | -3.1E+01 | < MDA |
| 88 | Main Lab A | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |

Radiation Survey

**Gross Beta Wipe Test Results**

| Sample # | Location | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 89 | Main Lab A | 4.40E+01 | 1.5 | -9.5 | 100 | -1.9E+01 | < MDA |
| 90 | Main Lab A | 3.30E+01 | 1.5 | -16.8 | 100 | -3.4E+01 | < MDA |
| 91 | Main Lab B | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 92 | Main Lab B | 5.70E+01 | 1.5 | -0.8 | 100 | -1.7E+00 | < MDA |
| 93 | Main Lab B | 4.90E+01 | 1.5 | -6.2 | 100 | -1.2E+01 | < MDA |
| 94 | Main Lab B | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 95 | Main Lab B | 2.90E+01 | 1.5 | -19.5 | 100 | -3.9E+01 | < MDA |
| 96 | Main Lab B | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 97 | Main Lab B | 6.00E+01 | 1.5 | 1.2 | 100 | 2.3E+00 | < MDA |
| 98 | Main Lab B | 4.20E+01 | 1.5 | -10.8 | 100 | -2.2E+01 | < MDA |
| 99 | Main Lab B | 5.80E+01 | 1.5 | -0.2 | 100 | -3.4E-01 | < MDA |
| 100 | Main Lab B | 4.40E+01 | 1.5 | -9.5 | 100 | -1.9E+01 | < MDA |
| 101 | Main Lab B | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 102 | Main Lab B | 5.20E+01 | 1.5 | -4.2 | 100 | -8.3E+00 | < MDA |
| 103 | Main Lab B | 5.60E+01 | 1.5 | -1.5 | 100 | -3.0E+00 | < MDA |
| 104 | Main Lab B | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 105 | Main Lab B | 3.00E+01 | 1.5 | -18.8 | 100 | -3.8E+01 | < MDA |
| 106 | Main Lab B | 5.50E+01 | 1.5 | -2.2 | 100 | -4.3E+00 | < MDA |
| 107 | Main Lab B | 4.60E+01 | 1.5 | -8.2 | 100 | -1.6E+01 | < MDA |
| 108 | Main Lab B | 4.00E+01 | 1.5 | -12.2 | 100 | -2.4E+01 | < MDA |
| 109 | Main Lab B | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 110 | Main Lab B | 5.00E+01 | 1.5 | -5.5 | 00 | -1.1E+01 | < MDA |
| 111 | Main Lab B | 3.74E+01 | 1.5 | -13.9 | 100 | -2.8E+01 | < MDA |
| 112 | Main Lab B | 3.83E+01 | 1.5 | -13.3 | 100 | -2.7E+01 | < MDA |
| 113 | Main Lab B | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 114 | Main Lab B | 4.00E+01 | 1.5 | -12.2 | 100 | -2.4E+01 | < MDA |
| 115 | Main Lab B | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 116 | Main Lab B | 4.20E+01 | 1.5 | -10.8 | 100 | -2.2E+01 | < MDA |
| 117 | Main Lab B | 2.60E+01 | 1.5 | -21.5 | 100 | -4.3E+01 | < MDA |
| 118 | Main Lab B | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 119 | Main Lab B | 3.20E+01 | 1.5 | -17.5 | 100 | -3.5E+01 | < MDA |
| 120 | Main Lab B | 5.40E+01 | 1.5 | -2.8 | 100 | -5.7E+00 | < MDA |
| 121 | Main Lab B | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 122 | Main Lab B | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 123 | Main Lab B | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 124 | Main Lab B | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 125 | Main Lab B | 5.30E+01 | 1.5 | -3.5 | 100 | -7.0E+00 | < MDA |
| 126 | Main Lab B | 4.40E+01 | 1.5 | -9.5 | 100 | -1.9E+01 | < MDA |
| 127 | Main Lab B | 4.70E+01 | 1.5 | -7.5 | 100 | -1.5E+01 | < MDA |
| 128 | Main Lab B | 4.30E+01 | 1.5 | -10.2 | 100 | -2.0E+01 | < MDA |
| 129 | Main Lab B | 4.70E+01 | 1.5 | -7.5 | 100 | -1.5E+01 | < MDA |
| 130 | Main Lab B | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 131 | Main Lab B | 6.50E+01 | 1.5 | 4.5 | 100 | 9.0E+00 | < MDA |
| 132 | Main Lab B | 5.20E+01 | 1.5 | -4.2 | 100 | -8.3E+00 | < MDA |
| 133 | Main Lab B | 5.70E+01 | 1.5 | -0.8 | 100 | -1.7E+00 | < MDA |
| 134 | Main Lab B | 4.50E+01 | 1.5 | -8.8 | 100 | -1.8E+01 | < MDA |
| 135 | Main Lab B | 5.10E+01 | 1.5 | -4.8 | 100 | -9.7E+00 | < MDA |
| 136 | Main Lab B | 3.92E+01 | 1.5 | -12.7 | 100 | -2.5E+01 | < MDA |
| 137 | Main Lab B | 4.10E+01 | 1.5 | -11.5 | 100 | -2.3E+01 | < MDA |

RSO, Inc. Laurel, MD

Radiation Survey

**Gross Beta Wipe Test Results**

| Sample # | Location | Observed count Rate (cpm) | Scan Time (min) | Net Count Rate (cpm) | Probe Area (sq cm) | Estimated DPM / 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 138 | Main Lab B | 4.80E+01 | 1.5 | -6.8 | 100 | -1.4E+01 | < MDA |
| 139 | Main Lab B | 4.40E+01 | 1.5 | -9.5 | 100 | -1.9E+01 | < MDA |
| 140 | Main Lab B | 5.00E+01 | 1.5 | -5.5 | 100 | -1.1E+01 | < MDA |
| 141 | Main Lab A Drain | 6.00E+01 | 1.5 | 1.2 | 100 | 2.3E+00 | < MDA |
| 142 | Main Lab A Drain | 4.10E+01 | 1.5 | -11.5 | 100 | -2.3E+01 | < MDA |
| 143 | Main Lab A Drain | 6.80E+01 | 1.5 | 6.5 | 100 | 1.3E+01 | < MDA |
| 144 | Dark Room Drain | 5.80E+01 | 1.5 | -0.2 | 100 | -3.4E-01 | < MDA |
| 145 | HPLC Lab Drain | 7.20E+01 | 1.5 | 9.2 | 100 | 1.8E+01 | < MDA |

Radiation Survey

**Gross Gamma Wipe Test Results**

Surveyor: David Bisson, Daryl Sink  Survey Date: 1/19/98

Counting Instrument: LKB Compugamma  Background: 388.00 cpm

Cal Date: 1/26/98  Efficiency: 0.57 cpm/dpm  MDA= 5.12E+01 dpm

| Sample# | Location | Gross Count (counts) | Count Time (min) | Net Count Rate (cpm) | Wipe Area (sq cm) | DPM/ 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| Background | | 582 | 1.5 | - | 100 | - | Background |
| 1 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 2 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 3 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 4 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 5 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 6 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 7 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 8 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 9 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 10 | Hallway | 643 | 1.5 | 40.7 | 100 | 7.1E+01 | < 100 DPM |
| 11 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 12 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 13 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 14 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 15 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 16 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 17 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 18 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 19 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 20 | Stock Room | 681 | 1.5 | 66.0 | 100 | 1.2E+02 | > 100 DPM |
| 21 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 22 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 23 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 24 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 25 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 26 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 27 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 28 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 29 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 30 | Dark Room | 577 | 1.5 | -3.3 | 100 | -5.8E+00 | < MDA |
| 31 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 32 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |

Radiation Survey

**Gross Gamma Wipe Test Results**

| Sample# | Location | Gross Count (counts) | Count Time (min) | Net Count Rate (cpm) | Wipe Area (sq cm) | DPM/ 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 33 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 34 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 35 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 36 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 37 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 38 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 39 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 40 | HPLC Lab | 568 | 1.5 | -9.3 | 100 | -1.6E+01 | < MDA |
| 41 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 42 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 43 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 44 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 45 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 46 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 47 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 48 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 49 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 50 | HPLC Lab | 548 | 1.5 | -22.7 | 100 | -4.0E+01 | < MDA |
| 51 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 52 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 53 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 54 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 55 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 56 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 57 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 58 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 59 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 60 | Main Lab A | 658 | 1.5 | 50.7 | 100 | 8.9E+01 | < 100 DPM |
| 61 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 62 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 63 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 64 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 65 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 66 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 67 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 68 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 69 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 70 | Main Lab A | 542 | 1.5 | -26.7 | 100 | -4.7E+01 | < MDA |
| 71 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 72 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 73 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |

Radiation Survey

**Gross Gamma Wipe Test Results**

| Sample# | Location | Gross Count (counts) | Count Time (min) | Net Count Rate (cpm) | Wipe Area (sq cm) | DPM/ 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 74 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 75 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 76 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 77 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 78 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 79 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 80 | Main Lab A | 597 | 1.5 | 10.0 | 100 | 1.8E+01 | < MDA |
| 81 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 82 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 83 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 84 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 85 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 86 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 87 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 88 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 89 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 90 | Main Lab A | 611 | 1.5 | 19.3 | 100 | 3.4E+01 | < MDA |
| 91 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 92 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 93 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 94 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 95 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 96 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 97 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 98 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 99 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 100 | Main Lab B | 560 | 1.5 | -14.7 | 100 | -2.6E+01 | < MDA |
| 101 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 102 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 103 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 104 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 105 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 106 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 107 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 108 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 109 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 110 | Main Lab B | 539 | 1.5 | -28.7 | 100 | -5.0E+01 | < MDA |
| 111 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 112 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 113 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 114 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |

Radiation Survey

**Gross Gamma Wipe Test Results**

| Sample# | Location | Gross Count (counts) | Count Time (min) | Net Count Rate (cpm) | Wipe Area (sq cm) | DPM/ 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 115 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 116 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 117 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 118 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 119 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 120 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 121 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 122 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 123 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 124 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 125 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 126 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 127 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 128 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 129 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 130 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 131 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 132 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 133 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 134 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 135 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 136 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 137 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 138 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 139 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 140 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 141 | Main Lab A Drain | 598 | 1.5 | 10.7 | 100 | 1.9E+01 | < MDA |
| 142 | Main Lab A Drain | 575 | 1.5 | -4.7 | 100 | -8.2E+00 | < MDA |
| 143 | Main Lab A Drain | 664 | 1.5 | 54.7 | 100 | 9.6E+01 | < 100 DPM |
| 144 | Dark Room Drain | 536 | 1.5 | -30.7 | 100 | -5.4E+01 | < MDA |
| 145 | HPLC Lab Drain | 555 | 1.5 | [illegible].0 | 100 | -3.2E+01 | < MDA |

Radiation Survey

**Gross Gamma Wipe Test Results**

| Sample# | Location | Gross Count (counts) | Count Time (min) | Net Count Rate (cpm) | Wipe Area (sq cm) | DPM/ 100 sq cm | Remarks |
|---|---|---|---|---|---|---|---|
| 115 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 116 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 117 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 118 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 119 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 120 | Main Lab B | 530 | 1.5 | -34.7 | 100 | -6.1E+01 | < MDA |
| 121 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 122 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 123 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 124 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 125 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 126 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 127 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 128 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 129 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 130 | Main Lab B | 513 | 1.5 | -46.0 | 100 | -8.1E+01 | < MDA |
| 131 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 132 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 133 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 134 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 135 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 136 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 137 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 138 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 139 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 140 | Main Lab B | 614 | 1.5 | 21.3 | 100 | 3.7E+01 | < MDA |
| 141 | Main Lab A Drain | 598 | 1.5 | 10.7 | 100 | 1.9E+01 | < MDA |
| 142 | Main Lab A Drain | 575 | 1.5 | -4.7 | 100 | -8.2E+00 | < MDA |
| 143 | Main Lab A Drain | 664 | 1.5 | 54.7 | 100 | 9.6E+01 | < 100 DPM |
| 144 | Dark Room Drain | 536 | 1.5 | -30.7 | 100 | -5.4E+01 | < MDA |
| 145 | HPLC Lab Drain | 555 | 1.5 | [illegible].0 | 100 | -3.2E+01 | < MDA |

# RSO, Inc. SL-5

Local 24 Hour Emergency Number: (301) 953-4997

## Shipment Record & Transfer Manifest
## Decay-in-Storage Program

**DOT Emergency Response Telephone Number**

CHEM-TREC: 1 - 800 - 424 - 9300

Shipment Date: 11-24-97

Page 1 of 1 pages

Shipment Number: 13943

Generator: Cruachem
Address: 45150 Business Court
Suite 550
City: Dulles State: VA Zip: 20166
Contact: Jonathan Sargent
Telephone: 703-689-3390

Shipping & Receiving Facility: Transporter RSO, Inc. Radioactive Materials License # MD 33 021 02
Address: 5204 Minnick Road
P.O. Box 1526
City: Laurel State: MD Zip: 20725-1526
Contact: David E. Wellner
Telephone: (301) 953-2482

| No. Pkgs. | Type | Weight (lbs) | Volume (cu. ft.) | RQ | HM | Proper Shipping Name and Hazard Class "Exclusive Use Shipment" | ID Number |
|---|---|---|---|---|---|---|---|
| 2 | Boxes | 20 | 2.6 | | X | Radioactive Material, L.S.A., n.o.s., 7 | UN2912 |
| | | | | | | Radioactive Material, Limited Quantity, n.o.s., 7 | UN2910 |
| | | | | | | | |
| 2 | | 20 | 2.6 | | | Shipment Totals | |

| RSO Item Number | Customer Item Number | RQ | Item Type | Item Volume (Cu Ft) | Item Weight (Lbs) | Physical Form | ID Number | Physical Description | LSA Class | Radionuclide | Activity (mCi) | Radiation Level Surface | Radiation Level 1M (Ti) | DOT Label Applied |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35458 | 1 | | Box | 1.3 | 10 | Solid | 2912 | Paper, Plastic, Glass | LSA II | 32P | 14.8 | 0.0002 | 0.0002 | Radioactive- LSA |
| | | | | | | | | | | | | | | Radioactive- |
| 35459 | 2 | | ↓ | 1.3 | 10 | ↓ | ↓ | ↓ | LSA II | 32P | 18.5 | 0.0002 | 0.0002 | Radioactive- LSA |
| | | | | | | | | | | 35S | 7.4 | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| 2 | | | | 2.6 | 20 | | | | | | 40.4 | | | |

Shippers Certification: This is to certify that the materials named in this manifest are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation, and are in compliance with all applicable regulations of the Environmental Protection Agency, Nuclear Regulatory Commission, or equivalent State regulations.

Authorized Signature: QC Supervisor Title: 24NOV97 Date:

Acknowledgement of Receipt: The materials named in this manifest have been received in good condition, except as noted.

Authorized Signature: Field Engineer Title: 11-24-97 Date:

For decay-in-storage at RSO Inc. and incineration by Stericycle

# RECEIPT

Pickup of
Radioactive Waste
Delivery of Supplies

RSO, INC.
P.O. Box 1526
Laurel, MD 20725-1526
Wash (301) 953-2482
Balt (410) 792-7444
FAX (301) 498-3017

13943

Company Crunches
Address 45150 Business Court
Suite 550
City NE Dulles
State VA
Zip Code 20166
Contact Jonathan Sarrent
Telephone 703-689-5590
Contract or PO No. 6322
Zone: A B C D E
Initials

## RADIOACTIVE WASTE PICK UP

| REQUESTED | ACTUAL | |
|---|---|---|
| 55 Gal Drum | 55 Gal Drum | |
| 30 Gal Drum | 30 Gal Drum | |
| 3.9 ft 3 Box | 3.9 ft 3 Box | |
| 1.3 ft 3 Box | 1.3 ft 3 Box | |

COMMENTS

## DELIVERY OF SUPPLIES

| REQUESTED | ACTUAL |
|---|---|
| 55 Gal Drum New / Recon | 55 Gal Drum New / Recon |
| 55 Gal Drum Liner | 55 Gal Drum Liner |
| 30 Gal Drum New / Recon | 30 Gal Drum New / Recon |
| 30 Gal Drum Liner | 30 Gal Drum Liner |
| Bags Absorbent | Bags Absorbent |
| 3.9 ft 3 Box | 3.9 ft 3 Box |
| 1.3 ft 3 Box | 1.3 ft 3 Box |

COMMENTS

Signature of Company Representative

Signature of RSO, INC. Representative

Date

Original - Accounting Copy 1 - Accounting Copy 2 - Warehouse Copy 3 - Customer RSC, INC. Rev. 1 6/94

# RSO, Inc.

**Local 24 Hour Emergency Number: (301) 953-4997**

## Shipment Record & Transfer Manifest
## Decay-in-Storage Program

**DOT Emergency Response Telephone Number**

CHEM-TREC: 1 - 800 - 424 - 9300

Shipment Date: 11-24-97

Page 1 of 1 pages

Shipment Number: 13943

Generator: Crutchens
Address: 45150 Business Court
Suite 550
City: Dulles State: VA Zip: 20166
Contact: Jonathan Sargent
Telephone: 703-689-3390

Shipping & Receiving Facility: Transporter
RSO, Inc. Radioactive Materials License # MD 33 021-02
Address: 5204 Minnick Road
P.O. Box 1526
City: Laurel State: MD Zip: 20725-1526
Contact: David E. Wellner
Telephone: (301) 953-2482

| No. Pkgs. | Type | Weight (lbs) | Volume (cu. ft.) | RQ | HM | Proper Shipping Name and Hazard Class "Exclusive Use Shipment" | ID Number |
|---|---|---|---|---|---|---|---|
| 2 | Boxes | 20 | 2.6 | | X | Radioactive Material, L.S.A., n.o.s., 7 | UN2912 |
| | | | | | | Radioactive Material, Limited Quantity, n.o.s., 7 | UN2910 |
| | | | | | | | |
| 2 | | 20 | 2.6 | | | Shipment Totals | |

| RSO Item Number | Customer Item Number | RQ | Item Type | Item Volume (Cu Ft) | Item Weight (Lbs) | Physical Form | ID Number | Physical Description | | Radionuclide | Activity (mCi) | Radiation Level Surface | Radiation Level 1M (TI) | DOT Label Applied |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | Box | 1.3 | 10 | Solid | 2912 | [illegible] | LSA II | S-P | 14.8 | [illegible] | [illegible] | Radioactive- LSA. |
| | | | ↓ | | | ↓ | ↓ | "Class | | | | | | Radioactive- |
| | 2 | | ↓ | 1.3 | 10 | ↓ | ↓ | ↓ | LSA II | S-P | 18.5 | [illegible] | [illegible] | Radioactive- LSA. |
| | | | | | | | | | | 35S | 7.4 | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| | | | | | | | | | | | | | | Radioactive- |
| 2 | | | | 2.6 | 20 | Page Totals | | | | | 40.4 | | | |

Shippers Certification: This is to certify that the materials named in this manifest are properly described, described, packaged, marked, and labeled, and are in proper condition for transportation according to applicable regulations of the Department of Transportation, and are in compliance with all applicable regulations of the Environmental Protection Agency, Nuclear Regulatory Commission, or equivalent State regulations.

Authorized Signature [illegible] Title [illegible] Date [illegible]

Acknowledgement of Receipt: The materials named in this manifest have been received in good condition, except as noted.

Authorized Signature [illegible] Title [illegible] Date 11-24-97