

ExxonMobil Biomedical Sciences, Inc.  
Clinton Township  
1545 Route 22 East, P. O. Box 971  
Annandale, NJ 08801-0971  
908-730-1028 Telephone  
908-730-1190 Fax  
steven.e.berman@exxonmobil.com

Steven E. Lerman, M.D.  
Vice President

**ExxonMobil**

Q-5

October 25, 2004

Licensing Assistant Section  
Nuclear Materials Safety Branch  
U.S. Nuclear Regulatory Commission, Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

03017541

**Subject: License Termination Request - NRC License Number 29-19396-01**

Dear Sir or Madam:

We are requesting to terminate our US NRC Materials License number 29-19396-01. Attached is completed and signed NRC Form 314, "Certificate of Disposition of Materials."

All radiolabeled materials and associated wastes were removed from the licensed site for disposal in accordance with applicable NRC regulations during the period between August 23, 2004 and October 18, 2004. The sealed source containing Ni-63 was returned to the original vendor on October 19, 2004. These activities are summarized in section B, "Disposal of Radioactive Materials" on the attached NRC Form 314.

Regarding residual contamination, we routinely performed and documented radiation contamination surveys in all areas where licensed material was stored or used. The only radionuclides possessed at this site in unsealed form were H-3 and C-14. The only radionuclide actually used has been H-3 in the form of H-3 labeled thymidine for occasional animal studies using less than 1 mCi per study. This amounts to about 24 mCi over the past four years. About 165 mCi of C-14 and 55 mCi of H-3 labeled chemical compounds were possessed but remained in storage and were never used at this site. The H-3 labeled materials and associated wastes that were used in tests were stored and used in selected rooms as outlined in the license application and amendments. The remaining C-14 and H-3 labeled compounds that were not used were also stored as described in the license application and amendments.

We have made use of NRC regulation 10 CFR 20 Subpart E to determine that any residual radioactivity is below the associated 25 mrem/yr limit and is ALARA such that it would be releasable for unrestricted use. The surface contamination limits associated with 25 mrem/yr are  $1.2 \times 10^8$  dpm/100 cm<sup>2</sup> for H-3 and  $3.7 \times 10^6$  dpm/100 cm<sup>2</sup> for C-14. (See Appendix Q of NUREG-1556, Vol. 7, "Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Academic, Research and Development, and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers") Taking the more limiting  $3.7 \times 10^6$  dpm/100 cm<sup>2</sup> for C-14 and applying a planning factor of 10 for ALARA, we have established a conservative decontamination goal of  $3.7 \times 10^5$  dpm/100 cm<sup>2</sup>.

A review of the results of routine contamination surveys over the past four years shows contamination to be mostly non-detectable or well below any action level. As a precaution, we contracted with Radcor LLC to conduct a final contamination status survey after all unsealed radioactive materials had been disposed. The results of this final status survey are attached.

135896

**NMSS/RGNI MATERIALS-002**

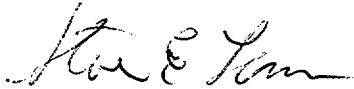
An ExxonMobil Subsidiary

During the final contamination survey by Radcor, a small amount of contamination was found under the refrigerator in Room LG386. Although the contamination concentration was well under our goal of  $3.7 \times 10^5$  dpm/100 cm<sup>2</sup>, we decided to decontaminate the surfaces anyway, resulting in approximately 3 gallons of dry solid material (paper, plastic, glass sharps, etc.) containing less than an estimated 10 microcuries of H-3 plus C-14. These materials along with waste materials from liquid scintillation surveys and sample analyses were disposed on October 18, 2004.

Under license 29-19396-01 we possessed a single Ni-63 sealed source (plated foil electron capture detector cell for a gas chromatograph). As stated above this source was returned to the authorized vendor (Agilent Technologies, Inc., Wilmington, DE). Since we intend to continue to use this type of source in the future, we have requested from the vendor to possess any such sealed sources under a general license and we will comply with applicable regulations for a general licensee.

Please feel free to contact our Radiation Safety Officer (W. James Bover, Ph.D. at 908-730-1048) or me, if you need further information.

Very truly yours,

A handwritten signature in black ink, appearing to read "Steven E. Lerman", written in a cursive style.

Steven E. Lerman

## CERTIFICATE OF DISPOSITION OF MATERIALS

Estimated burden per response to comply with this mandatory collection request: 30 minutes. This submittal is used by NRC as part of the basis for its determination that the facility is released for unrestricted use. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0028), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

## LICENSEE NAME AND ADDRESS

ExxonMobil Biomedical Sciences, Inc.  
Clinton Township  
1545 Route 22 East / P.O. Box 971  
Annandale, NJ 08801-0971

## LICENSE NUMBER

29-19396-01

## DOCKET NUMBER

030-17541

## LICENSE EXPIRATION DATE

31 October 2011

- ☐ This license has expired. ☒ This license has not yet expired; please terminate it.

## B. DISPOSAL OF RADIOACTIVE MATERIAL

(Check the appropriate boxes and complete as necessary. If additional space is needed, provide attachments)

The licensee, or any individual executing this certificate on behalf of the licensee, certifies that:

- ☐ 1. No radioactive materials have ever been procured or possessed by the licensee under this license.
- ☒ 2. All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner:
- ☒ a. Transfer of radioactive materials to the licensee listed below:  
15mCi, Ni-63 sealed source to Agilent Technologies, Inc. (license #07-28762-01)
- ☒ b. Disposal of radioactive materials:
- ☐ 1. Directly by the licensee:
- ☐ 2. By licensed disposal site:
- ☒ 3. By waste contractor:  
See attached table
- ☒ c. All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA. See attached letter and Radiological Decommissioning Report

## C. SURVEYS PERFORMED AND REPORTED

- ☒ 1. A radiation survey was conducted by the licensee. The survey confirms:
- ☐ a. the absence of licensed radioactive materials
- ☒ b. that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.
- ☒ 2. A copy of the radiation survey results:
- ☒ a. is attached; or ☐ b. is not attached (Provide explanation); or ☐ c. was forwarded to NRC on: \_\_\_\_\_ Date \_\_\_\_\_
- ☐ 3. A radiation survey is not required as only sealed sources were ever possessed under this license, and
- ☐ a. The results of the latest leak test are attached; and/or ☐ b. No leaking sources have ever been identified.

The person to be contacted regarding the information provided on this form:

NAME: W. James Borer TITLE: RSO TELEPHONE (Include Area Code): (908) 730-1048 E-MAIL ADDRESS: W.J. borer@exxonmobil.com

Mail all future correspondence regarding this license to:  
ExxonMobil Biomedical Sciences, Inc. 1545 Route 22 East, Annandale, NJ 08801-0971

## C. CERTIFYING OFFICIAL

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

## PRINTED NAME AND TITLE

Steven E. Lerman, MD Vice President

## SIGNATURE

*[Signature]*

## DATE

10/26/07

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 RESPECT. 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.

**Attachment to NRC Form 314  
ExxonMobil Biomedical Sciences, Inc.**

<b>DISPOSAL OF RADIOACTIVE MATERIALS BY WASTE CONTRACTOR</b>				
<b>Disposal Shipment Date</b>	<b>Manifest No.</b>	<b>Waste Contractor</b>	<b>Licensed Disposal Site</b>	<b>Materials</b>
August 23, 2004	NJA 4122655	Onyx Environmental Services 1 Eden Lane Flanders, NJ 07836 Phone: 973-347-7111	Perma-Fix of Florida, Inc. 1940 NW 67th Place Gainesville, FL 32653 Phone: 352-373-6056	<ul style="list-style-type: none"> <li>• Dry active waste (6) w/ H-3</li> <li>• Labpack, urine, milk, blood w/ C-14</li> <li>• Labpack, liquid wastes w/ C-14, H-3</li> <li>• Labpack, liquid corrosive waste w/ C-14</li> </ul>
August 23, 2004	NJA 4122658	Onyx Environmental Services 1 Eden Lane Flanders, NJ 07836 Phone: 973-347-7111	Diversified Sci. Services, Inc. - DSSI 657 Gallaher Road Kingston, TN 37763 Phone: 865-376-0084	<ul style="list-style-type: none"> <li>• Labpack, liquid wastes w/ C-14, H-3</li> <li>• Labpack, liquid wastes w/ C-14</li> </ul>
August 24, 2004	Z132962	Onyx Environmental Services 1 Eden Lane Flanders, NJ 07836 Phone: 973-347-7111	Perma-Fix of Florida, Inc. 1940 NW 67th Place Gainesville, FL 32653 Phone: 352-373-6056	<ul style="list-style-type: none"> <li>• Labpack, liquid waste w/C-14</li> </ul>
August 30, 2004	15580	Radiation Service Organization, Inc. (RSO) 5204 Minnick, Rd. Laurel, MD 20725-1450 Phone: 301-953-2482	Barnwell Waste Management Facility Operated by Chem-Nuclear Systems 740 Osborne Road Barnwell, SC 29812 Phone: 803-259-1781	<ul style="list-style-type: none"> <li>• Solid animal carcasses w/ H-3</li> </ul>
October 18, 2004	Z132906	Onyx Environmental Services 1 Eden Lane Flanders, NJ 07836 Phone: 973-347-7111	Perma-Fix of Florida, Inc. 1940 NW 67th Place Gainesville, FL 32653 Phone: 352-373-6056	<ul style="list-style-type: none"> <li>• Exempt liquid Scint. Vials w/ H-3</li> <li>• Labpack liquid waste w/ H-3</li> <li>• Dry active waste w/ H-3 and C-14</li> </ul>
<b>RETURN OF SEALED SOURCE</b>				
<b>Shipment Date</b>	<b>Shipping No.</b>	<b>Receiving Licensee:</b>	<b>Material</b>	
October 19, 2004	82519	Agilent Technologies, Inc. Attn: ECD LAB 2850 Centerville Road Wilmington, DE 19808-1606 Phone: 302-633-8262	<ul style="list-style-type: none"> <li>• Ni-63 sealed source (GC detector Serial No. K2041)</li> </ul>	



# **RADIOLOGICAL DECOMMISSIONING REPORT**

**EXXONMOBIL BIOMEDICAL SCIENCES, INC.**  
1545 Route 22 East  
Annandale, New Jersey

October 4, 2004

*Performed by*  
Radcor, LLC  
345 Laurelwood Drive  
Salem, CT 06420  
(860) 887-1538

## **EXECUTIVE SUMMARY**

Between September 20 and October 4, 2004, a radiological assessment for the purpose of decommissioning was performed at the ExxonMobil Biomedical Sciences, Inc. facility located at 1545 Route 22 East in Annandale, New Jersey. This assessment was conducted by Radcor, LLC of Salem, Connecticut.

After performing a radiological assessment and decontamination of the use and storage areas designated by the licensee, it is the opinion of Radcor, LLC that the areas assessed do not present any significant radiological hazard to facility personnel, the public, or the environment, and that these areas may be released for unrestricted use.

## **SCOPE**

Radcor, LLC of Salem, Connecticut was contracted to perform a radiological assessment of selected areas of the ExxonMobil Biomedical Sciences, Inc. facility located at 1545 Route 22 East, Annandale, New Jersey. This facility is licensed by the U.S. Nuclear Regulatory Commission (NRC) for the possession and use of radioactive materials under license No. 29-19396-01.

ExxonMobil Biomedical Sciences, Inc. no longer has a need to work with loose radioactive materials at this facility and therefore wishes to terminate their radioactive materials license for this facility.

## **FACILITY DESCRIPTION**

ExxonMobil Biomedical Sciences, Inc. used licensed material at their facility located at 1545 Route 22 East, Annandale, New Jersey, between April 23, 2001 and July 28, 2004.

ExxonMobil's facility at this location comprises approximately 900,000 square feet of offices, laboratories, and outer buildings. The site is owned by ExxonMobil Capital Corporation, an ExxonMobil affiliate, and operated by ExxonMobil Research and Engineering, which occupies the majority of the laboratory and office space. Some laboratory and office space is also leased by non-ExxonMobil tenant companies.

The site covers approximately 755 acres in the southeastern portion of Clinton Township, New Jersey. The site is bounded on the north by New Jersey Route 22, on the east by Sand Hill Road, on the south by Valley Crest Road, and on the west by Route 31 and Allerton Road.

The areas where licensed materials were used and/or stored under this license comprised approximately 1,950 square feet of the facility. Floor plans identifying these areas are provided as Attachment A to this report.

## **Identity of Potential Contaminants**

ExxonMobil Biomedical Sciences, Inc. is currently licensed for the possession and use of hydrogen-3, carbon-14, and Ni-63. Work with loose radioisotopes was limited to 24 tests that consumed 1 mCi each of H-3 radiolabeled material. These tests were conducted in LE367 (solution preparation) and in selected animal rooms (PE101, PE103, PE112, PE113, PE114, and PE115) and in the necropsy lab (PE116). H-3 and C-14 labeled material was stored in LE367 (radioisotope lab) and WI-2 (walk-in freezer). Licensed material was not used in LE343/345, LG335, or LG359. A sealed Ni-63 source in an electron capture detector is located in LG337/343, but no other licensed materials were used in this lab.

Between September 20 and October 4, 2004, the areas where licensed materials were known to have been used and/or stored were assessed for the purpose of decommissioning.

## **RELEASE CRITERIA**

The applicable release criteria were based upon Appendix Q of NUREG-1556, Vol. 7, "Consolidated Guidance about Materials Licenses: Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope." The criteria used are presented in Table 1 below.

**Table 1. Acceptable Surface Contamination Levels**

NUCLIDES	AVERAGE (dpm/100 cm <sup>2</sup> )	MAXIMUM (dpm/100 cm <sup>2</sup> )	REMOVABLE (dpm/100 cm <sup>2</sup> )
H-3, C-14	5,000 $\beta\gamma$	15,000 $\beta\gamma$	1,000 $\beta\gamma$

**ASSESSMENT PERSONNEL**

A professional health physicist, Mr. David J. Durkee, performed the radiological assessment. Mr. Durkee's resume is included as Attachment B to this report.

**INSTRUMENTATION**

Table 2 lists the instruments used in the performance of the surveys, along with other parameters and detection sensitivities for the instrumentation, and survey techniques. All instruments used were calibrated using NIST-traceable standards. The calibration isotopes used for these instruments included H-3 and C-14. Minimum detectable activities (MDAs) were calculated in accordance with the *Manual for Conducting Radiological Surveys in Support of License Termination, NUREG/CR-5849*. These calculations are included as Attachment C to this report.

Operational and background checks were performed at least once each day of instrument use.

**Table 2. Instrumentation for Radiological Surveys**

Type of Measurement	Instrumentation		Bkgd. <sup>a</sup>	2 $\pi$ <sup>a</sup> Eff & Cal Isotope	Detection Sensitivity
	Detector	Meter			
Surface scans - $\beta$	Gas Prop. Det. Ludlum model 43-68	Count-rate meter <sup>b</sup> Ludlum mod. 2241-2	230 cpm	9% C-14	3,194 dpm/100 cm <sup>2</sup>
Integrated measurement - $\beta$	Gas Prop. Det. Ludlum model 43-68	Count-rate meter <sup>c</sup> Ludlum mod. 2241-2	230 cpm	9% C-14	814 dpm/100 cm <sup>2</sup>
Dose equivalent rates	Scintillation Bicron Microrem LE	(same as detector)	3 – 8 $\mu$ rem/h	100%	1 $\mu$ rem/h
Smears, $\beta/\gamma$	Liquid Scintillation Beckman LS 6500	(same as detector)	12 cpm H-3	45% H-3	54 dpm/100 cm <sup>2</sup>
			6 cpm C-14	75% C-14	25 dpm/100 cm <sup>2</sup>

<sup>a</sup>Nominal Values

<sup>b</sup>Monitoring audible signal

<sup>c</sup>1 minute integrated count, slow response

**SURVEY PROCEDURES**

Survey planning and procedures were based upon the *Manual for Conducting Radiological Surveys in Support of License Termination, NUREG/CR-5849*. Actual procedures are described below.

### **Area Classification**

The licensee identified nine (9) areas where licensed radioactive material may have been used and/or stored. The areas identified are as follows:

- LE367: Radioisotope laboratory
- LE116: Necropsy laboratory
- PE101, PE103, PE112, PE113, PE114, and PE115: Animal rooms
- WI-2: Walk in freezer

These areas were designated Affected Areas for the purpose of this survey. All other areas were designated Unaffected Areas.

Facility floor plans clearly identifying the above referenced areas have been included as Attachment A to this report.

### **Site Conditions at Time of Survey**

The designated Affected Areas were still occupied and in use at the time of the radiological assessment. Equipment, chemicals and other materials were stored within the laboratory areas.

All known licensed material and waste had been disposed of through a licensed waste broker prior to the assessment.

### **Reference Grids**

Affected areas were gridded at approximately 1-meter intervals, up to a height of 2 meters. Unaffected Areas were not gridded.

### **Dose Rate Measurements**

Gamma exposure rates were measured at 1 m above the floor using a gamma scintillation instrument. Recorded measurements in Affected Areas were spaced at approximately one measurement per 4 m<sup>2</sup>.

### **Surface Activity Measurements**

#### Removable Contamination Measurements

Wipe samples for removable contamination were taken in each accessible grid area (every 1 m<sup>2</sup> of lower surfaces and walls up to a height of 2 meters). Additional samples were also obtained from areas where activity would have been likely to collect (i.e., fume hoods, sinks, inside cabinets, corners, etc.).

Wipes were also obtained from several Unaffected Areas. Spot checks were performed in the hallways between Affected Areas on the first floor as well as in 3<sup>rd</sup> floor laboratories listed in the initial license application. With the exception of LG337/343 where only the Ni-63 sealed source was used, licensed radioactive materials were supposedly never used in these areas.

#### Surface Scans for Total Contamination

Scanning is an initial evaluation technique performed by moving the detection device over a surface at a constant speed and at a fixed distance above the surface to identify areas having elevated radiation levels. Areas thus identified are followed up by integrated measurements.

Instrumentation used for scanning is listed in Table 2. Scanning speeds did not exceed 1 detector-width per second. Audible indicators were used to help identify locations having elevated ( $>1.25$  times ambient) levels of direct radiation.

Scanning of surfaces to identify locations of residual surface and near-surface activity was performed according to the following schedule:

- Affected Area Surfaces: 100% of accessible lower surfaces (floors, countertops, cabinets and walls up to 2 meters above the floor);
- Upper Surfaces ( $>2$  meters above the floor and/or countertop) in Affected Areas: in the immediate vicinity of any elevated measurement found on the lower surfaces;
- Unaffected Area Surfaces: Wipes were also obtained from several Unaffected Areas. Spot checks were performed in the hallways between Affected Areas on the first floor as well as in 3<sup>rd</sup> floor laboratories listed in the initial license application. With the exception of LG337/343 where only the Ni-63 sealed source was used, licensed radioactive materials were supposedly never used in these areas.

Integrated measurements would be obtained from any area noted to have detectable activity.

#### **Background Level Determinations**

Background count rates were determined initially for the building interior by taking measurements in different unaffected locations near the Affected Areas.

#### **Sample Analysis**

Wipe samples for removable contamination were analyzed for activity using the Liquid Scintillation Counter (LSC) specified in Table 2.

#### **Data Interpretation**

Data conversions and evaluations were performed following guidance specified in NUREG/CR-5849. Measurement data were converted to units of dpm/100 cm<sup>2</sup> (surface activity) for comparison with guidelines. Average values for survey levels were determined and compared with established release criteria.

#### **Records**

A copy of the survey documentation is enclosed as Attachment D to this report.

### **SURVEY FINDINGS AND RESULTS**

#### **Background Levels**

Instrumentation background count rates are listed in Table 2.

#### **Dose Rate Measurements**

No areas in excess of normal background levels were identified at the facility.

## **Surface Activity Measurements**

### Surface Scans and Integrated Measurements

Surface scans of the Affected Areas identified one (1) area of contamination. The floor area under the freezer within LE367 was found to be contaminated to a level of 18,144 dpm/100 cm<sup>2</sup> (C-14). This area was decontaminated to a level indistinguishable from normal background.

Surface scans of Unaffected Areas did not identify any activity in excess of normal background levels.

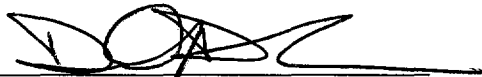
### Removable Contamination Measurements

A total of 879 wipes were obtained throughout the nine (9) designated Affected Areas and the seven (7) Unaffected Areas. One (1) sample was found to be in excess of the minimum detectable activity (MDA). This sample was obtained from the floor under the freezer in LE367 which was found to contain loose activity of 1,097 dpm/100 cm<sup>2</sup>. This area was decontaminated to a level indistinguishable from normal background.

## **SUMMARY**

Between September 20 and October 4, 2004, a radiological assessment for the purpose of decommissioning was performed at the ExxonMobil Biomedical Sciences, Inc. facility located at 1545 Route 22 East in Annandale, New Jersey. This assessment was conducted by Radcor, LLC of Salem, Connecticut.

After performing a radiological assessment and decontamination of the use and storage areas designated by the licensee, it is the opinion of Radcor, LLC that the areas assessed do not present any significant radiological hazard to facility personnel, the public, or the environment, and that these areas may be released for unrestricted use.



David J. Durkee  
*Health Physicist, RRPT*

## **Attachment A**

### **Floor Plans**

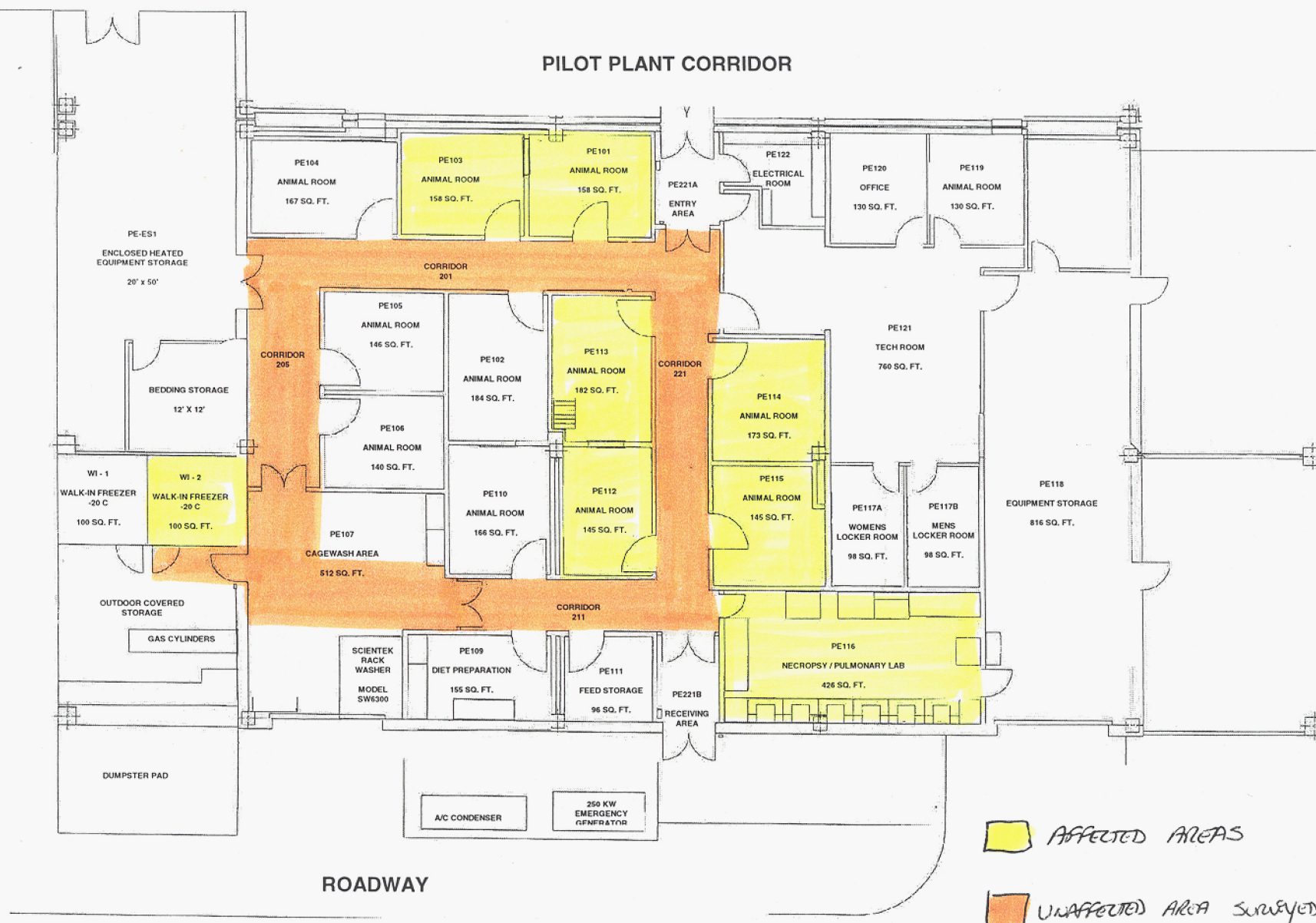


# APPENDIX H - FACILITY FLOOR PLAN

## PILOT PLANT CORRIDOR

DRIVEWAY

DRIVEWAY



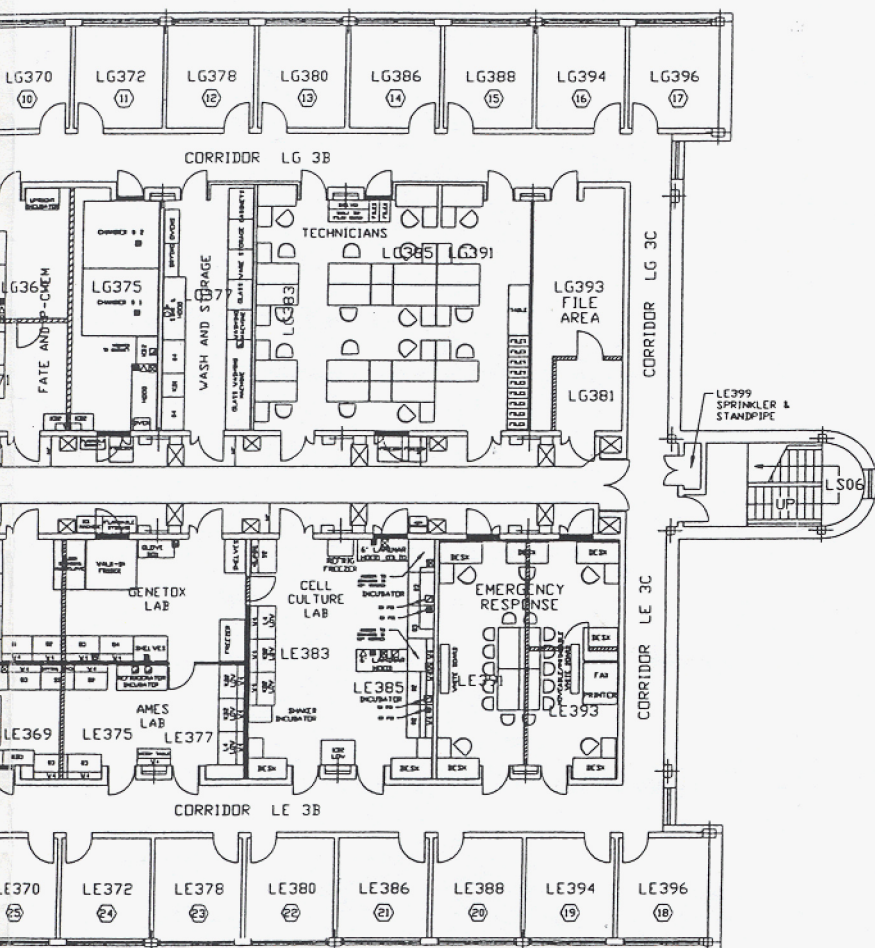
ROADWAY







G. Trimmer

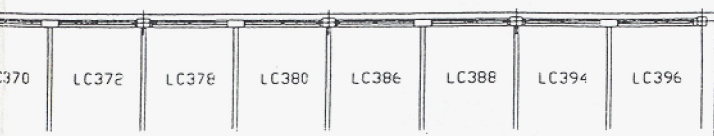


## SUMMARY :

PRESIDENT (1)  
MANAGER (2)  
PRESIDENT SECRETARY (1)  
SECRETARIAL (2)  
CONFERENCE ROOMS (2)  
OFFICES (33)

## LEGEND:

- TO BE DEMOLISHED  
NEW CONSTRUCTION
- SALT WATER
  - NON-POTABLE WATER
  - AIR
  - ARGON
  - ▲ DEIONIZED WATER
  - △ NITROGEN
  - ⊗ VACUUM
  - ⊙ CARBON DIOXIDE
  - ⊠ SNORKLE VENT
  - HELIUM
  - HYDROGEN
  - ⊙ CYLINDER N.O.S.



0 5 10 15 20

SCALE IN FEET

REF.  
10/22/2004  
E-mailed. Next

REV NO	DATE	DRAWN BY	DESCRIPTION
1	06/22/99	JOC	DEIONIZED WATER IN LE359
2	06/21/99	JOC	RENUMBERED OFFICES
3	06/16/99	JOC	RELOCATED GS-MS LAB WITH WASH & STORAGE
4	06/15/99	JOC	ENG'R REVIEW
5	03/03/99	JOC	ENG'R REVIEW
6	02/17/99	JOC	UPDATED LG359 & LG369
7	01/20/99	JOC	EQUIPMENT LAYOUT
8	01/08/99	JOC	REVISED LAYOUT

EXXON RSD		RESEARCH & ENGINEERING CO.
		CLINTON TOWNSHIP ROUTE 22 EAST ANNANDALE, N.J. 08801 RESEARCH SERVICES DIVISION

LEVEL '3' LE AND LG WINGS EBSI LABS LAYOUT PLAN WITH UTILITIES		
ENGINEER R. P. PALLUZI	DATE 10/30/96	SCALE AS SHOWN
DESIGNER/DRAFTER JB/JOC	PROJECT NUMBER 81597	SHEET OF DRAWING NUMBER
CUSTOMER EBSI	JOB NUMBER 003125	DRAWING NUMBER LELG-3-A
LOCATION CLINTON	DIV/SEC BB65	CADNT-03

EXXON PROPRIETARY  
FOR AUTHORIZED COMPANY USE ONLY

## **Attachment B**

Resume

**RADCOR, LLC**  
345 Laurelwood Drive  
Salem, CT 06420  
(860) 887-1538

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**David J. Durkee**

**EDUCATION:**

Regents College, NY. - B.S. Technology (Nuclear/Health Physics)  
University of Phoenix, AZ. - A.A. Nuclear Technology  
Health Physics Technician Level I Basic - Radiation Safety Associates, Inc.  
*Health Physics Technician Level II* - Radiation Safety Associates, Inc.  
*Respiratory Protection at Nuclear Facilities* - Radiation Safety Associates, Inc.  
*Environmental Monitoring for Radioactivity* - Oak Ridge Associated Universities.  
*Liquid Scintillation and Gamma Spectrum Analysis* - Rutgers University  
*Health Physics Audits* - Radiation Safety Associates, Inc.

Navy

Naval Nuclear Power School (24 wks)	Diesel Operator/Maint. School
Nuclear Prototype Training Unit (26 wks)	Scuba Diver School
Engineering Laboratory Technician School	Advanced Auxiliary Package Course
Machinist Mate "A" School	Quality Assurance Inspector School

**EXPERIENCE:**

December 1996 to Present

**Radcor, LLC, Salem, Connecticut**

**Health Physicist/Owner.** Responsible for providing radiological consulting services to general industry, academic institutions, and companies involved in research and development. These services include: development and presentation of professional training; performance of program audits; performance of radiological surveys, decontamination and decommissioning; development of license applications, amendments and safety procedures; radiation protection program oversight; and, regulatory compliance. Serve as the Radiation Safety Officer for ExxonMobil Research and Eng. Co., Paulsboro, New Jersey.

March 1994 to December 1996

**Radiation Safety Associates, Inc., Hebron Connecticut**

**Vice President-Technical Services.** Responsible for the preparation of job proposals and operating budgets; making technical and manpower recommendations; supervising workers at job sites; performing technical evaluations as required; writing, editing, and developing course materials, working procedures and technical articles; and, performed duties as a health physicist.

Responsible for oversight of various site decontamination/decommissioning projects. These involved: the development of decommissioning plans; hiring and oversight of workers; hands-on performance of radiological surveys and site decontamination efforts; and the development and submittal of final reports.

Instructor for the following professional training courses: Fundamentals of Radiological Protection; Health Physics Technician Level I and II; Radiation Safety Officer; Radiation Safety Officer Refresher; and, Basic Radiation Worker.

Assistant Editor of *Radiation Protection Management*, the Journal of Applied Health Physics. Assistant RSO and Quality Control Officer for a radioanalytical laboratory.

October 1991 to March 1994

**Radiation Safety Associates, Inc.**, Hebron, Connecticut

**Health Physicist.** Responsible for providing consulting services to the nuclear industry; general industry; local, state, and federal governments; and academic institutions. These services included performing audits, radiological surveys, instrument calibrations, site decontamination services, writing license applications and amendments, maintaining radiological safety programs, providing technical advice and performing training.

September 1983 to October 1991

**United States Navy, Submarine Qualified.** Served on-board two nuclear-powered submarines. Qualified as Leading Engineering Laboratory Technician, Engineroom Supervisor, Quality Assurance Inspector, Duty Section Leading Mechanic and Ship's Diver.

Supervised and performed chemistry and radiological controls on reactor plant primary and secondary systems. Sampled primary coolant and secondary water chemistry and analyzed results to detect abnormal trends and out of specification conditions. Established and certified radiologically controlled areas, conducted radiation and contamination surveys, evaluated man-rem exposure and processed radioactive waste. Calibrated and operated radiation detectors and chemistry analytical equipment.

Directed the day-to-day efforts of five junior Laboratory Technicians. Awarded a Navy Achievement Medal for being "the driving force behind a dramatic turnaround in the professionalism of the (Reactor Laboratory) division." Instituted a training program that significantly upgraded the level of knowledge of the division.

Drafted detailed work procedures and quality assurance work packages for nuclear and non-nuclear maintenance efforts. Performed in-process inspections to verify that materials and procedures met required specifications.

#### **PROFESSIONAL ACTIVITIES:**

**Registered Radiation Protection Technologist (NRRPT)**

**Plenary Member**, Health Physics Society

**Member**, Connecticut Chapter, Health Physics Society

#### **PUBLICATIONS**

"NRC License Application, Renewal, or Amendment for Byproduct Material" *RSO Magazine*, 1:6: pp. 25-30; Nov/Dec, 1996.

"Personal Whole-Body Dosimetry" *RSO Magazine*, 1:4: pp. 26-28; Jul/Aug, 1996.

"Prenatal Radiation Exposure," *RSO Magazine*, 1:2: pp. 12-13; Mar/Apr, 1996.

"Loose Contamination Survey Methods," *RSO Magazine*, 1:1: pp. 19-20; Jan/Feb, 1996.

Steinmeyer, K. Paul, David J. Durkee and Paul R. Steinmeyer. *Mathematics Review for Health Physics Technicians*. Hebron, CT: RSA Publications, 1994. (393 pages).

## **Attachment C**

### **Minimum Detectable Activity Calculations and Calibration Information**

**The equations used for determining the MDAs are as follows:**

Variables:      MDA = Minimum Detectable Activity in dpm/100 cm<sup>2</sup>  
                     R<sub>b</sub> = Background count rate in cpm  
                     t = Counting time in minutes  
                     τ = Detector time constant in minutes  
                     E = Detector efficiency in cpm/dpm  
                     A = Active detector area in cm<sup>2</sup>  
                     X = Multiple of background audibly discernable to tech. as increase

MDA for surface scans using Ludlum Model 43-68:

$$\text{MDA} = (X)(R_b) \div (E)(A/100)$$

$$\text{MDA} = (1.25)(230 \text{ cpm}) \div (0.09)(100/100) = 3,194 \text{ dpm/100 cm}^2$$

MDA for integrated measurement using Ludlum Model 43-68:

$$\text{MDA} = [2.71 + 4.65\sqrt{(R_b)(t)}] \div (t)(E)(A/100)$$

$$\text{MDA} = [2.71 + 4.65\sqrt{(230 \text{ cpm})(1 \text{ min.})}] \div (1 \text{ min.})(0.09)(100/100) = 814 \text{ dpm/100 cm}^2$$

MDA for counting 100 cm<sup>2</sup> wipe samples on LSC:

*Beckman LS 6500:*       $\text{MDA} = [2.71 + 4.65\sqrt{(R_b)(t)}] \div (t)(E)$

$$\text{MDA (For H-3)} = [2.71 + 4.65\sqrt{(22 \text{ cpm})(1 \text{ min.})}] \div (1 \text{ min.})(0.45) = 54 \text{ dpm/100 cm}^2$$

$$\text{MDA (For C-14)} = [2.71 + 4.65\sqrt{(12 \text{ cpm})(1 \text{ min.})}] \div (1 \text{ min.})(0.75) = 25 \text{ dpm/100 cm}^2$$

$$\text{MDA (Wide)} = [2.71 + 4.65\sqrt{(46 \text{ cpm})(1 \text{ min.})}] \div (1 \text{ min.})(0.75) = 46 \text{ dpm/100 cm}^2$$

### **Instrument Calibration Information**

Ludlum Model 2241-2 with 43-68: Calibrated by RSCS of Stratham, NH on 4/6/04.

Bicron Microrem LE: Calibrated by RSCS of Stratham, NH on 1/05/04.

Beckman LS6500: Calibrated by the manufacturer on 5/26/04.





## Calibration Certificate

A Division of RSCS, Inc.

Contact: David J Durkee

Instrument

Serial Number

Customer: Radcor, LLC.  
345 Laurelwood Drive  
Salem, CT 06420-

Ludlum Model 2241-2

137751

Probe Model

Serial Number

Ludlum 43-68

140899

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
16.10 kcpm	16.10 kcpm	16.00 kcpm	16.07 kcpm	Satisfactory

Accuracy Check				
Range	Target Value	As Found		As Left
X100	640 Kcpm	642 Kcpm	#	642 Kcpm #
X100	160 Kcpm	157 Kcpm	#	157 Kcpm #
X10	64 Kcpm	64 Kcpm	#	64 Kcpm #
X10	16 Kcpm	16.1 Kcpm	#	16.1 Kcpm #
X1	6.4 Kcpm	6.4 Kcpm	#	6.4 Kcpm #
X1	1.6 Kcpm	1.6 Kcpm	#	1.6 Kcpm #

Readings in Blue indicate ranges where As-Found readings are >20% of Target value. Readings in red indicate As-left readings are >10% of Target value.

Probe Model & S/N	Isotope	Efficiency	NIST Source ID	Geometry
43-68 140899	P-32	0.2617 C/D	Sr/Y-90 (97SR4700625)	On Flat Surface
43-68 140899	C-14	0.1053 C/D	C-14 (488-10-9)	On Flat Surface
43-68 140899	Pu-239	0.2662 C/D	Pu-239 (93Pu470-3140)	On Flat Surface
43-68 140899	Th-230	0.2692 C/D	Th-230 (S-963)	On Flat Surface

Outer Physical Check	<input checked="" type="checkbox"/>	Mechanical Zero	<input checked="" type="checkbox"/>
Internal Check	<input checked="" type="checkbox"/>	Tap Test	<input checked="" type="checkbox"/>
Geotropism Check	<input checked="" type="checkbox"/>	Dessicant Check	<input type="checkbox"/>

Comments: # Indicates scale calibrated with pulser Model 500 SN: 134720. Other: As Found High Voltage- Det 1 1200 V / Det. 2 1650 V

Calibrated by:

Date: 04/06/2004

Expires: 04/06/2005

QA Review

This calibration was performed using a NIST Traceable radiation source, in conformance to the following standards: ANSI N423A (1997), NCRP 112 (1991), RSCS New Hampshire Radiative Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.

Radiation Safety and Control Services, Inc.

91 Portsmouth Ave. Stratham, NH 03885

1-800-525-8339

(603) 778-2871

Fax (603) 778-6879

www.radsafety.com



## Calibration Certificate

A Division of RSCS, Inc.

Contact: David J Durkee

Instrument

Serial Number

Customer: Radcor, LLC.  
345 Laurelwood Drive  
Salem, CT 06420-

Bicron Model MicroRem

B466Y

### Precision Check

Test 1	Test 2	Test 3	Mean	Results
4.00 mR/Hr	4.00 mR/Hr	4.00 mR/Hr	4.00 mR/Hr	<b>Satisfactory</b>

### Accuracy Check

Range	Target Value		As Found		As Left	
X1000	160	mrem/hr	170	mrem/hr	170	mrem/hr
X1000	40	mrem/hr	40	mrem/hr	40	mrem/hr
X100	16	mrem/hr	16.5	mrem/hr	16.5	mrem/hr
X100	4	mrem/hr	4	mrem/hr	4	mrem/hr
X10	1.6	mrem/hr	1.65	mrem/hr	1.65	mrem/hr
X10	0.4	mrem/hr	.4	mrem/hr	.4	mrem/hr
X1	160	µrem/hr	160	µrem/hr	160	µrem/hr
X1	40	µrem/hr	40	µrem/hr	40	µrem/hr
X0.1	16	µrem/hr	16	µrem/hr	16	µrem/hr
X0.1	4	µrem/hr	4	µrem/hr	4	µrem/hr

Readings in bold indicate ranges where As-Found readings are >20% of Target value

Outer Physical Check	<input checked="" type="checkbox"/>	Mechanical Zero	<input checked="" type="checkbox"/>
Internal Check	<input checked="" type="checkbox"/>	Tap Test	<input checked="" type="checkbox"/>
Geotropism Check	<input type="checkbox"/>	Dessicant Check	<input type="checkbox"/>

Comments: # Indicates scale calibrated with pulser Model 500 SN: 134720

Calibrated by:

Date: 01/05/2004

Expires: 01/05/2005

This calibration was performed using a NIST Traceable radiation source, in conformance to the following standards: MIL-STD 45662, ANSI N323A (1997), NCRP 112 (1991), RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and all applicable sections of 10 CFR 21.

Cs-137 Calibration source: S-364, Activity 145,300.00 uCi on 7/13/81

Radiation Safety and Control Services, Inc.

91 Portsmouth Ave. Stratham, NH 03885

1-800-525-8339

(603) 778-2871

Fax (603) 778-6879

www.radsafety.com

## **Attachment D**

### **Survey Documentation**

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 3

Survey Purpose: Decommissioning PE115

Date: 9/20/2004

Performed By: David Durkee/Ed Gailor

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 6 $\mu\text{rem/h}$
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0715	1	Background	1	46	N/A	
	2	Door and Handle	1	46	0.0	
	3	Floor	1	54	10.7	
	4	Upper wall	1	57	14.7	
	5	Lower Wall	1	57	14.7	
	6	Upper wall	1	47	1.3	
	7	Lower Wall	1	50	5.3	
	8	Upper wall	1	66	26.7	
	9	Lower Wall	1	42	-5.3	
	10	Upper wall	1	51	6.7	
	11	Lower Wall	1	42	-5.3	
	12	Upper wall	1	47	1.3	
	13	Lower Wall	1	62	21.3	
	14	Upper wall	1	55	12.0	
	15	Lower Wall	1	39	-9.3	
	16	Upper wall	1	61	20.0	
	17	Lower Wall	1	23	-30.7	
	18	Upper wall	1	36	-13.3	
	19	Lower Wall	1	68	29.3	
	20	Upper wall	1	40	-8.0	
	21	Lower Wall	1	45	-1.3	
	22	Upper wall	1	68	29.3	
	23	Lower Wall	1	45	-1.3	
	24	Upper wall	1	32	-18.7	
	25	Lower Wall	1	57	14.7	
	26	Sink	1	55	12.0	
	27	Floor	1	53	9.3	
	28	Floor	1	48	2.7	
	29	Floor	1	50	5.3	
	30	Floor	1	41	-6.7	
	31	Floor	1	50	5.3	
	32	Floor	1	39	-9.3	
	33	Floor	1	45	-1.3	
	34	Floor	1	40	-8.0	
	35	Floor	1	44	-2.7	
	36	Floor	1	52	8.0	
	37	Floor	1	37	-12.0	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 2 of 3

Survey Purpose: Decommissioning PE115

Date: 9/20/2004

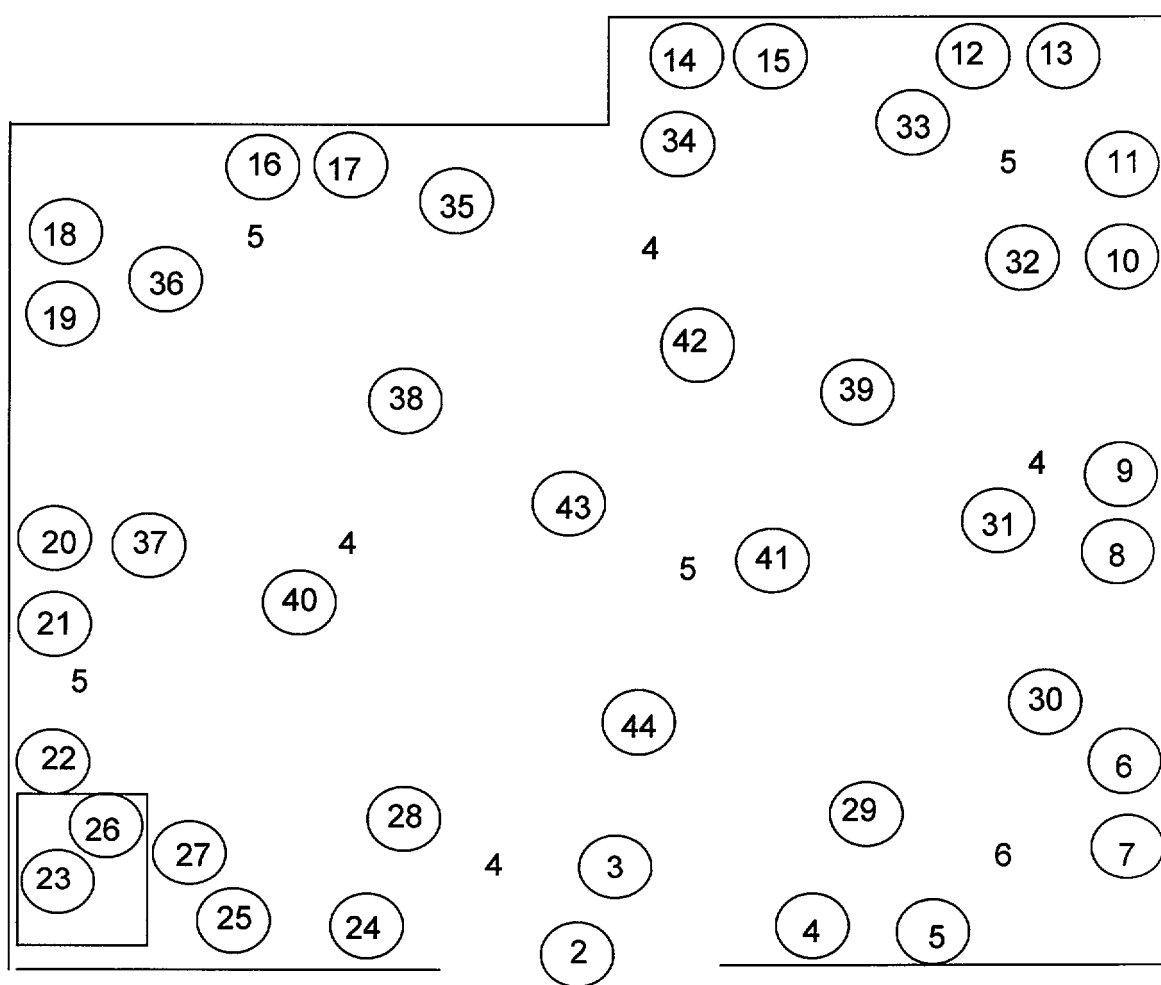
Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0715	38	Floor	1	48	2.7	
	39	Floor	1	47	1.3	
	40	Floor	1	48	2.7	
	41	Floor	1	61	20.0	
	42	Floor	1	43	-4.0	
	43	Floor	1	52	8.0	
	44	Floor	1	53	9.3	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

9/20/04

# PE 115 - Animal Room



○ = wipe location

Radiation readings in units of  $\mu\text{rem/h}$


Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 3

Survey Purpose: Decommissioning PE114

Date: 9/20/2004

Performed By: David Durkee/Ed Gailor



Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 6 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0745	1	Background	1	41	N/A	
	2	Door and handle	1	52	14.7	
	3	Floor	1	48	9.3	
	4	Upper wall	1	48	9.3	
	5	Lower Wall	1	35	-8.0	
	6	Upper wall	1	45	5.3	
	7	Lower Wall	1	49	10.7	
	8	Upper wall	1	49	10.7	
	9	Lower Wall	1	29	-16.0	
	10	Upper wall	1	36	-6.7	
	11	Lower Wall	1	45	5.3	
	12	Upper wall	1	47	8.0	
	13	Lower Wall	1	45	5.3	
	14	Upper wall	1	39	-2.7	
	15	Lower Wall	1	50	12.0	
	16	Upper wall	1	43	2.7	
	17	Lower Wall	1	53	16.0	
	18	Upper wall	1	59	24.0	
	19	Lower Wall	1	65	32.0	
	20	Upper wall	1	37	-5.3	
	21	Lower Wall	1	61	26.7	
	22	Upper wall	1	54	17.3	
	23	Lower Wall	1	46	6.7	
	24	Upper wall	1	50	12.0	
	25	Sink	1	46	6.7	
	26	Floor	1	41	0.0	
	27	Floor	1	53	16.0	
	28	Floor	1	37	-5.3	
	29	Floor	1	41	0.0	
	30	Floor	1	41	0.0	
	31	Floor	1	47	8.0	
	32	Floor	1	59	24.0	
	33	Floor	1	45	5.3	
	34	Floor	1	47	8.0	
	35	Floor	1	61	26.7	
	36	Floor	1	49	10.7	
	37	Floor	1	55	18.7	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 3

Survey Purpose: Decommissioning PE114

Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0745	38	Floor	1	48	9.3	
	39	Floor	1	61	26.7	
	40	Floor	1	57	21.3	
	41	Floor	1	61	26.7	
	42	Floor	1	49	10.7	
	43	Floor	1	42	1.3	
	44	Floor	1	52	14.7	
	45	Floor	1	52	14.7	
	46	Floor	1	46	6.7	
	47	Floor	1	55	18.7	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

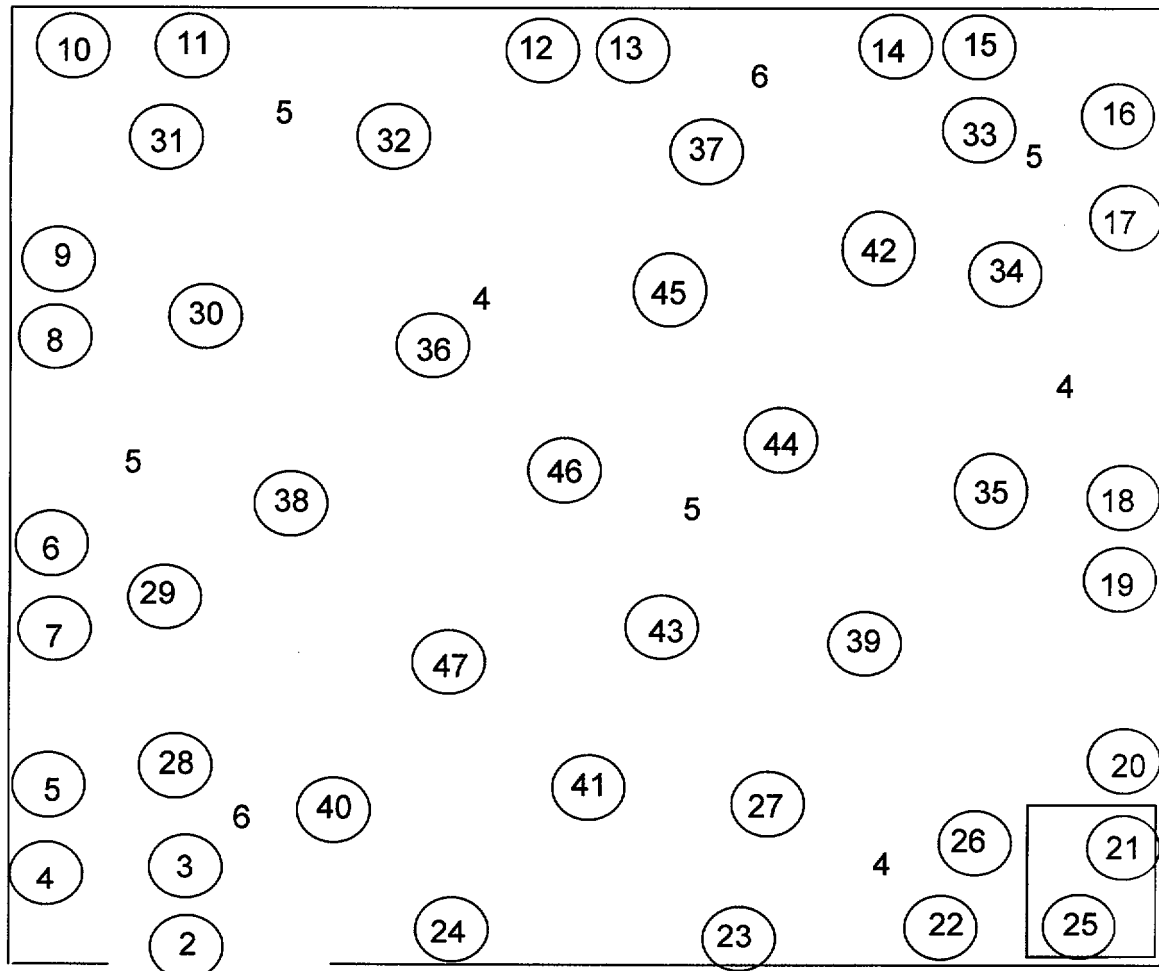
Performed general area surevy using instrument #3. All areas noted to be at normal background levels.



# PE 114 - Animal Room

Page 3 of 3

9/20/04



○ = wipe location

Radiation readings in units of  $\mu\text{rem/h}$

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 3

Survey Purpose: Decommissioning PE113

Date: 9/20/2004

Performed By: David Durkee/Ed Gailor



Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 6 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0835	1	Background	1	56	N/A	
	2	Door and handle	1	42	-18.7	
	3	Floor	1	55	-1.3	
	4	Upper wall	1	48	-10.7	
	5	Lower Wall	1	51	-6.7	
	6	Upper wall	1	42	-18.7	
	7	Lower Wall	1	54	-2.7	
	8	Upper wall	1	40	-21.3	
	9	Lower Wall	1	46	-13.3	
	10	Upper wall	1	39	-22.7	
	11	Lower Wall	1	53	-4.0	
	12	Upper wall	1	49	-9.3	
	13	Lower Wall	1	52	-5.3	
	14	Upper wall	1	69	17.3	
	15	Lower Wall	1	41	-20.0	
	16	Upper wall	1	43	-17.3	
	17	Lower Wall	1	51	-6.7	
	18	Upper wall	1	40	-21.3	
	19	Lower Wall	1	51	-6.7	
	20	Upper wall	1	56	0.0	
	21	Lower Wall	1	53	-4.0	
	22	Upper wall	1	40	-21.3	
	23	Lower Wall	1	36	-26.7	
	24	Upper wall	1	50	-8.0	
	25	Lower Wall	1	50	-8.0	
	26	Upper wall	1	36	-26.7	
	27	Lower Wall	1	43	-17.3	
	28	Upper wall	1	51	-6.7	
	29	Lower Wall	1	43	-17.3	
	30	Hood door and handle	1	47	-12.0	
	31	Inside, back of hood	1	38	-24.0	
	32	Inside, left side of hood	1	46	-13.3	
	33	Inside, right side of hood	1	34	-29.3	
	34	Inside, bottom of hood	1	55	-1.3	
	35	Outside, left side of hood	1	40	-21.3	
	36	Outside, right side of hood	1	36	-26.7	
	37	Outside back of hood	1	48	-10.7	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 2 of 3

Survey Purpose: Decommissioning PE113

Date: 9/20/2004

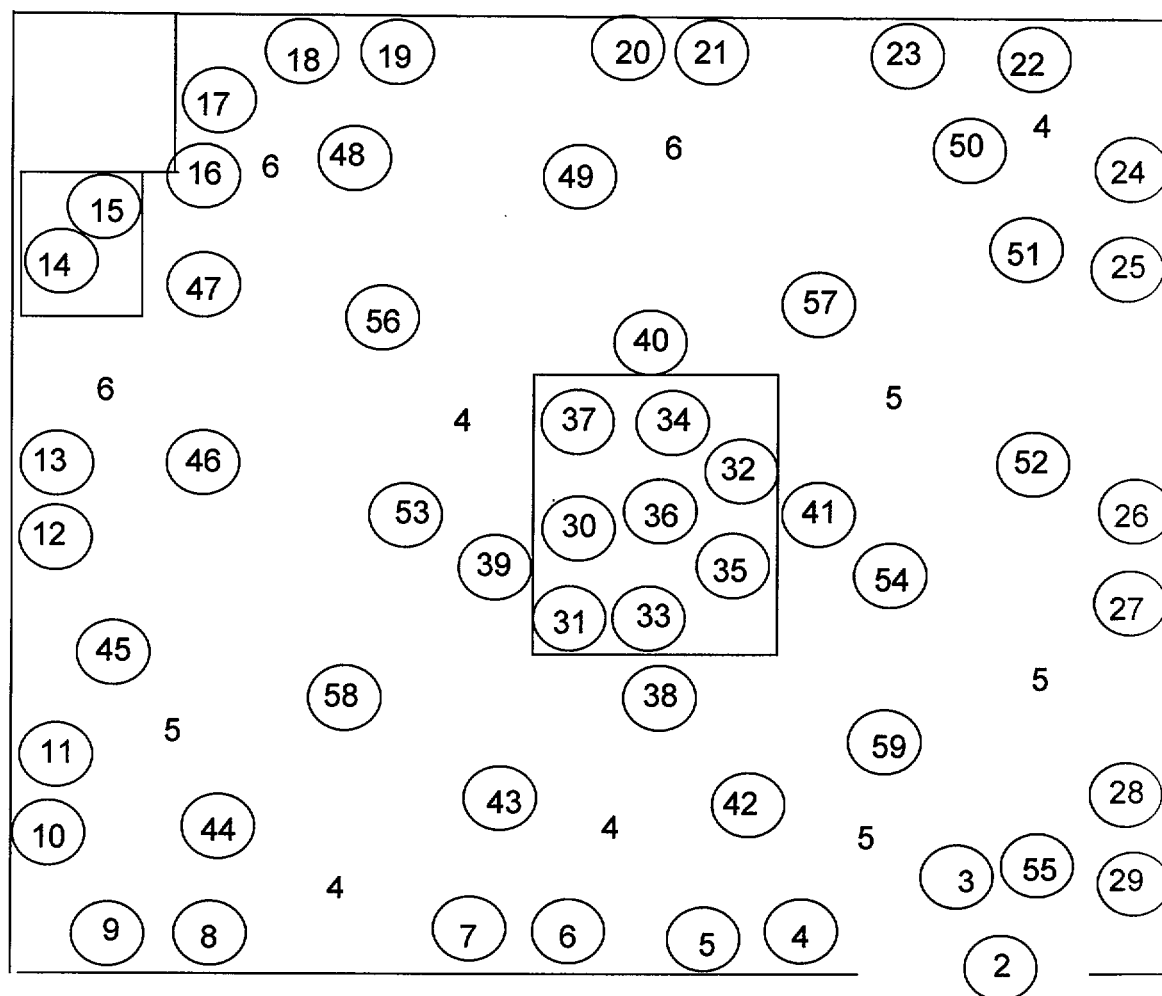
Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0835	38	Floor	1	36	-26.7	
	39	Floor	1	47	-12.0	
	40	Floor	1	40	-21.3	
	41	Floor	1	39	-22.7	
	42	Floor	1	38	-24.0	
	43	Floor	1	43	-17.3	
	44	Floor	1	64	10.7	
	45	Floor	1	51	-6.7	
	46	Floor	1	54	-2.7	
	47	Floor	1	45	-14.7	
	48	Floor	1	58	2.7	
	49	Floor	1	52	-5.3	
	50	Floor	1	46	-13.3	
	51	Floor	1	49	-9.3	
	52	Floor	1	50	-8.0	
	53	Floor	1	46	-13.3	
	54	Floor	1	44	-16.0	
	55	Floor	1	53	-4.0	
	56	Floor	1	56	0.0	
	57	Floor	1	55	-1.3	
	58	Floor	1	40	-21.3	
	59	Floor	1	57	1.3	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

9/20/04

## PE 113- - Animal Room



O = wipe location

Radiation readings in units of  $\mu\text{rem/h}$

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Survey Purpose: Decommissioning PE112

Performed By: David Durkee/Ed Gailor

Page: 1 of 3

Date: 9/20/2004

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 6 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1000	1	Background	1	45	N/A	
	2	Door and handle	1	64	25.3	
	3	Floor	1	56	14.7	
	4	Upper wall	1	40	-6.7	
	5	Lower Wall	1	47	2.7	
	6	Upper wall	1	51	8.0	
	7	Lower Wall	1	35	-13.3	
	8	Upper wall	1	51	8.0	
	9	Lower Wall	1	56	14.7	
	10	Upper wall	1	64	25.3	
	11	Lower Wall	1	50	6.7	
	12	Upper wall	1	64	25.3	
	13	Lower Wall	1	47	2.7	
	14	Upper wall	1	39	-8.0	
	15	Lower Wall	1	60	20.0	
	16	Upper wall	1	49	5.3	
	17	Lower Wall	1	53	10.7	
	18	Sink	1	41	-5.3	
	19	Upper wall	1	47	2.7	
	20	Lower Wall	1	54	12.0	
	21	Upper wall	1	27	-24.0	
	22	Lower Wall	1	47	2.7	
	23	Upper wall	1	47	2.7	
	24	Lower Wall	1	47	2.7	
	25	Upper wall	1	34	-14.7	
	26	Lower Wall	1	46	1.3	
	27	Upper wall	1	52	9.3	
	28	Lower Wall	1	44	-1.3	
	29	Upper wall	1	47	2.7	
	30	Lower Wall	1	40	-6.7	
	31	Hood Doors and Handle	1	50	6.7	
	32	Outside, left side of hood	1	42	-4.0	
	33	Outside back of hood	1	52	9.3	
	34	Outside, right side of hood	1	37	-10.7	
	35	Inside, hood back	1	35	-13.3	
	36	Inside, left side of hood	1	31	-18.7	
	37	Inside, right side of hood	1	44	-1.3	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 2 of 3

Survey Purpose: Decommissioning PE112

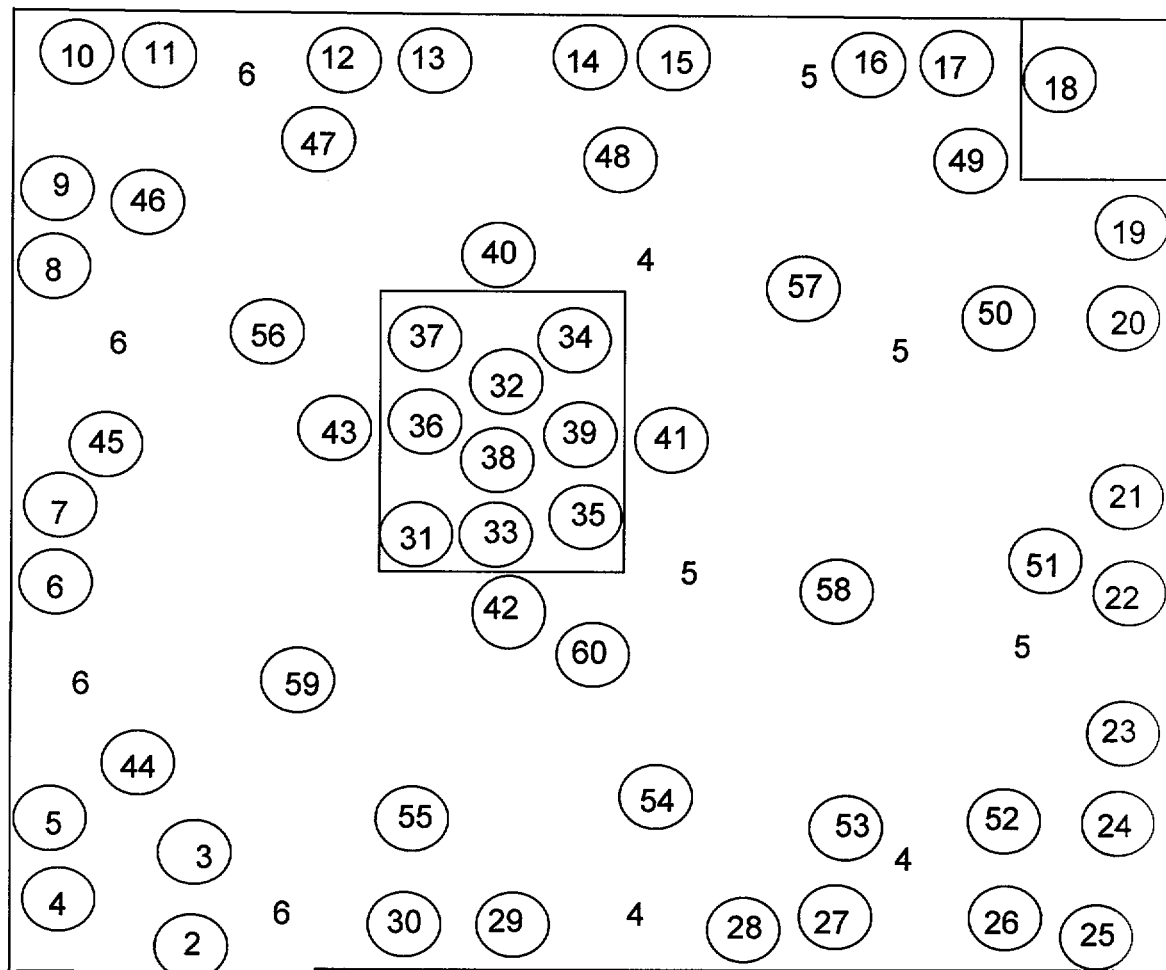
Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1000	38	Inside, hood bottom	1	44	-1.3	
	39	Inside, hood door	1	43	-2.7	
	40	Floor	1	49	5.3	
	41	Floor	1	37	-10.7	
	42	Floor	1	49	5.3	
	43	Floor	1	41	-5.3	
	44	Floor	1	57	16.0	
	45	Floor	1	41	-5.3	
	46	Floor	1	39	-8.0	
	47	Floor	1	46	1.3	
	48	Floor	1	47	2.7	
	49	Floor	1	31	-18.7	
	50	Floor	1	48	4.0	
	51	Floor	1	52	9.3	
	52	Floor	1	44	-1.3	
	53	Floor	1	57	16.0	
	54	Floor	1	44	-1.3	
	55	Floor	1	58	17.3	
	56	Floor	1	38	-9.3	
	57	Floor	1	42	-4.0	
	58	Floor	1	40	-6.7	
	59	Floor	1	42	-4.0	
	60	Floor	1	62	22.7	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

## PE 112 - Animal Room



○ = wipe location

Radiation readings in units of  $\mu\text{rem/h}$

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning PE116

Date: 9/20/2004

Performed By: David Durkee/Ed Gailor

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 7 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1035	1	Background	1	42	N/A	
	2	Door and handle	1	38	-5.3	
	3	Floor	1	45	4.0	
	4	Upper wall	1	47	6.7	
	5	Lower Wall	1	55	17.3	
	6	Floor	1	43	1.3	
	7	Behind sink	1	45	4.0	
	8	Inside sink	1	52	13.3	
	9	Counter	1	37	-6.7	
	10	Counter	1	51	12.0	
	11	Behind sink	1	48	8.0	
	12	Inside sink	1	46	5.3	
	13	Left side of hood	1	46	5.3	
	14	Upper hood back	1	56	18.7	
	15	Middle hood back	1	61	25.3	
	16	Lower hood back	1	46	5.3	
	17	Vents left side	1	44	2.7	
	18	Upper back of hood	1	43	1.3	
	19	Middle hood back	1	45	4.0	
	20	Lower hood back	1	55	17.3	
	21	Vents	1	54	16.0	
	22	Bottom of hood	1	65	30.7	
	23	Bottom of hood	1	47	6.7	
	24	Bottom of hood	1	52	13.3	
	25	Right side of hood	1	48	8.0	
	26	Hood doors	1	47	6.7	
	27	Hood doors	1	39	-4.0	
	28	Hood doors	1	66	32.0	
	29	Cabinet doors	1	76	45.3	
	30	Top shelf	1	54	16.0	
	31	Middle shelf	1	55	17.3	
	32	Bottom shelf	1	50	10.7	
	33	Cabinet doors	1	41	-1.3	
	34	Top shelf	1	58	21.3	
	35	Middle shelf	1	36	-8.0	
	36	Bottom shelf	1	45	4.0	
	37	Cabinet doors	1	46	5.3	



Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning

PE116

Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1035	38	Top shelf	1	46	5.3	
	39	Middle shelf	1	42	0.0	
	40	Bottom shelf	1	58	21.3	
	41	Cabinet doors	1	53	14.7	
	42	Inside cabinet	1	47	6.7	
	43	Drawers	1	51	12.0	
	44	Top drawer	1	62	26.7	
	45	2nd drawer	1	44	2.7	
	46	3rd drawer	1	44	2.7	
	47	4th drawer	1	43	1.3	
	48	Drawers	1	35	-9.3	
	49	Top drawer	1	48	8.0	
	50	2nd drawer	1	30	-16.0	
	51	3rd drawer	1	44	2.7	
	52	4th drawer	1	51	12.0	
	53	Drawers	1	54	16.0	
	54	Drawer	1	42	0.0	
	55	Cabinet doors	1	53	14.7	
	56	Inside cabinet	1	49	9.3	
	57	Floor	1	54	16.0	
	58	Floor	1	30	-16.0	
	59	Floor	1	39	-4.0	
	60	Floor	1	47	6.7	
	61	Floor	1	58	2.7	
	62	Refrig. Doors	1	63	9.3	
	63	Inside freezer	1	41	-20.0	
	64	Inside refrig.	1	56	0.0	
	65	Floor	1	54	-2.7	
	66	Door	1	58	2.7	
	67	Floor	1	47	-12.0	
	68	Counter	1	56	0.0	
	69	Counter	1	50	-8.0	
	70	Inside hood	1	53	-4.0	
	71	Counter	1	51	-6.7	
	72	Inside hood	1	39	-22.7	
	73	Counter	1	40	-21.3	
	74	Counter	1	97	77.3	
	75	Counter	1	37	-2.7	
	76	Inside hood	1	53	18.7	
	77	Counter	1	39	0.0	
	78	Inside hood	1	37	-2.7	
	79	Counter	1	42	4.0	
	80	Upper wall	1	57	24.0	
	81	Cabinet doors	1	33	-8.0	
	82	Top shelf	1	44	6.7	
	83	2nd shelf	1	49	13.3	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning PE116

Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1035	84	Bottom shelf	1	45	8.0	
	85	Cabinet doors	1	44	6.7	
	86	Top shelf	1	51	16.0	
	87	2nd shelf	1	43	1.3	
	88	Bottom shelf	1	42	0.0	
	89	Cabinet doors	1	43	1.3	
	90	Top shelf	1	41	-1.3	
	91	2nd shelf	1	47	6.7	
	92	Middle shelf	1	49	9.3	
	93	Cabinet doors	1	47	6.7	
	94	Top shelf	1	44	2.7	
	95	2nd shelf	1	50	10.7	
	96	Bottom shelf	1	42	0.0	
	97	Cabinet doors	1	51	12.0	
	98	Top shelf	1	39	-4.0	
	99	2nd shelf	1	45	4.0	
	100	Bottom shelf	1	60	24.0	
	101	Drawers	1	49	9.3	
	102	Top drawer	1	52	13.3	
	103	2nd drawer	1	54	16.0	
	104	3rd drawer	1	47	6.7	
	105	4th drawer	1	56	18.7	
	106	Drawers	1	55	17.3	
	107	Top drawer	1	50	10.7	
	108	2nd drawer	1	45	4.0	
	109	3rd drawer	1	53	14.7	
	110	4th drawer	1	47	6.7	
	111	Drawers	1	51	12.0	
	112	Top drawer	1	44	2.7	
	113	2nd drawer	1	47	6.7	
	114	3rd drawer	1	59	22.7	
	115	4th drawer	1	45	4.0	
	116	Drawers	1	46	5.3	
	117	Top drawer	1	47	6.7	
	118	2nd drawer	1	53	14.7	
	119	3rd drawer	1	44	2.7	
	120	4th drawer	1	49	9.3	
	121	Doors	1	53	14.7	
	122	Top drawer	1	46	5.3	
	123	2nd drawer	1	52	13.3	
	124	3rd drawer	1	44	2.7	
	125	4th drawer	1	47	6.7	
	126	Drawers	1	57	20.0	
	127	Top drawer	1	39	-4.0	
	128	2nd drawer	1	45	4.0	
	129	3rd drawer	1	43	1.3	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning PE116

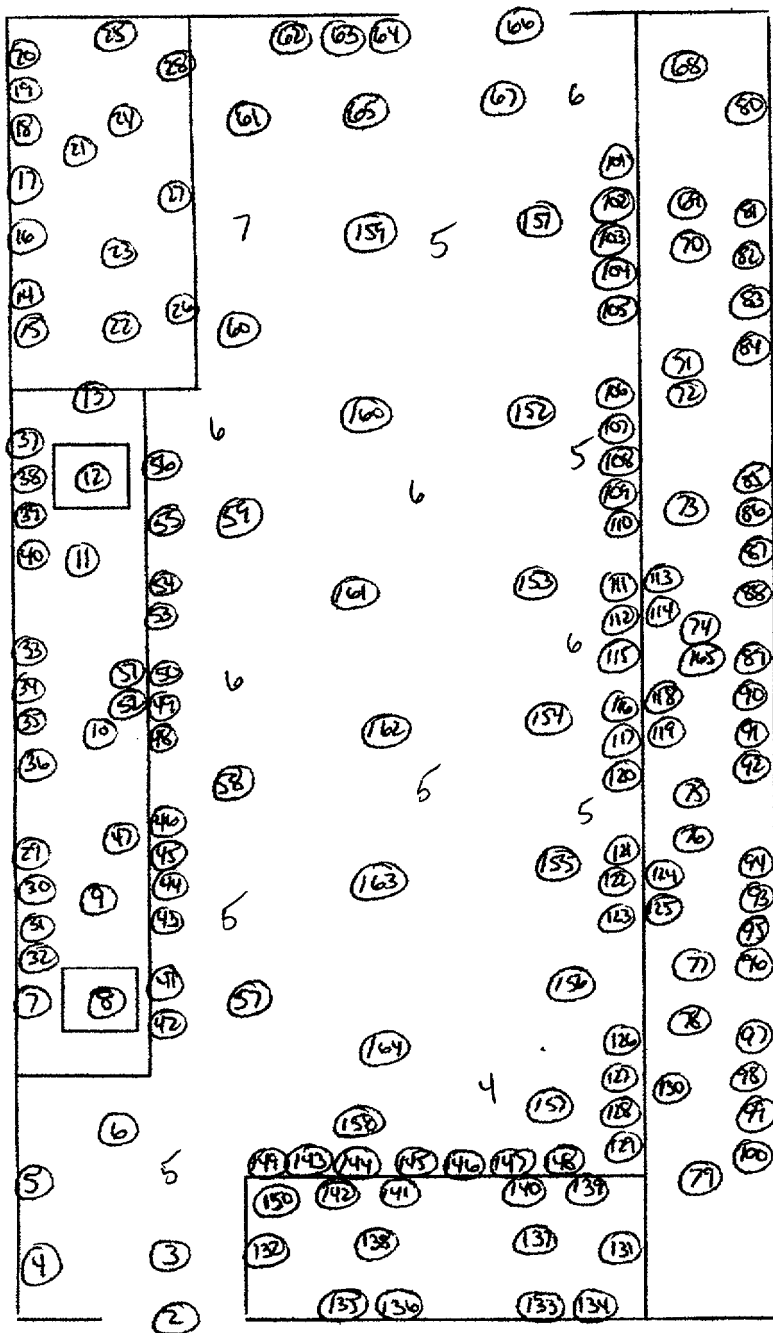
Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1035	130	4th drawer	1	44	2.7	
	131	Left side of hood	1	46	5.3	
	132	Right side of hood	1	42	0.0	
	133	Upper back of hood	1	50	10.7	
	134	Lower back of hood	1	52	13.3	
	135	Upper back of hood	1	41	-1.3	
	136	Lower back of hood	1	51	12.0	
	137	Vents	1	44	2.7	
	138	Vents	1	46	5.3	
	139	Bottom of hood	1	52	13.3	
	140	Hood doors	1	58	21.3	
	141	Bottom of hood	1	53	14.7	
	142	Hood doors	1	52	13.3	
	143	Cabinet doors	1	47	6.7	
	144	Inside cabinet	1	41	-1.3	
	145	Cabinet doors	1	54	16.0	
	146	Inside cabinet	1	47	6.7	
	147	Cabinet doors	1	43	1.3	
	148	Inside cabinet	1	59	22.7	
	149	Cabinet doors	1	42	0.0	
	150	Inside cabinet	1	35	-9.3	
	151	Floor	1	54	16.0	
	152	Floor	1	41	-1.3	
	153	Floor	1	42	0.0	
	154	Floor	1	50	10.7	
	155	Floor	1	54	16.0	
	156	Floor	1	51	12.0	
	157	Floor	1	60	24.0	
	158	Floor	1	39	-4.0	
	159	Floor	1	51	12.0	
	160	Floor	1	39	-4.0	
	161	Floor	1	37	-6.7	
	162	Floor	1	51	12.0	
	163	Floor	1	49	9.3	
	164	Floor	1	42	0.0	
	165	Post Decon #74	1	33	-12.0	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

9/20/04



PE116 – Necropsy Lab

○ = wipe location

Radiation readings in units of  $\mu\text{rem/h}$

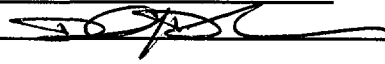
Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning PE101

Date: 9/20/2004

Performed By: David Durkee/Ed Gailor



Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 6 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1350	1	Background	1	44	N/A	
	2	Door and handle	1	44	0.0	
	3	Floor	1	49	6.7	
	4	Upper wall	1	33	-14.7	
	5	Lower Wall	1	41	-4.0	
	6	Upper wall	1	44	0.0	
	7	Lower Wall	1	37	-9.3	
	8	Upper wall	1	49	6.7	
	9	Lower Wall	1	43	-1.3	
	10	Upper wall	1	30	-18.7	
	11	Lower Wall	1	71	36.0	
	12	Upper wall	1	47	4.0	
	13	Lower Wall	1	43	-1.3	
	14	Upper wall	1	46	2.7	
	15	Lower Wall	1	60	21.3	
	16	Upper wall	1	59	20.0	
	17	Lower Wall	1	43	-1.3	
	18	Sink	1	46	2.7	
	19	Upper wall	1	55	14.7	
	20	Lower Wall	1	54	13.3	
	21	Upper wall	1	47	4.0	
	22	Lower Wall	1	44	0.0	
	23	Upper wall	1	56	16.0	
	24	Lower Wall	1	44	0.0	
	25	Upper wall	1	35	-12.0	
	26	Lower Wall	1	53	12.0	
	27	Upper wall	1	52	10.7	
	28	Lower Wall	1	39	-6.7	
	29	Upper wall	1	48	5.3	
	30	Lower Wall	1	55	14.7	
	31	Hood Doors and Handle	1	72	37.3	
	32	Outside, left side of hood	1	51	9.3	
	33	Outside back of hood	1	52	10.7	
	34	Outside, right side of hood	1	58	18.7	
	35	Inside, hood back	1	55	14.7	
	36	Inside, left side of hood	1	68	32.0	
	37	Inside, right side of hood	1	49	6.7	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning PE101

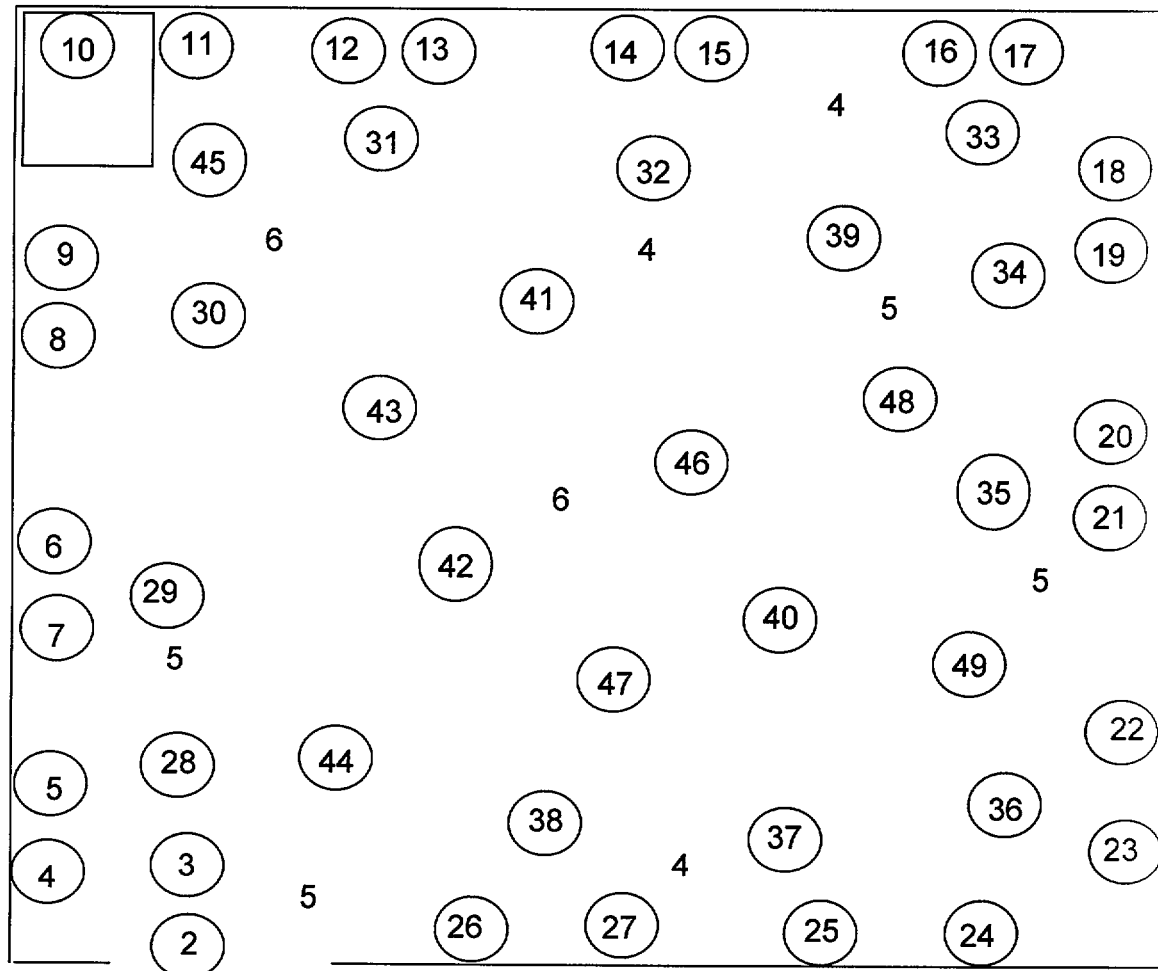
Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1350	38	Inside, hood bottom	1	45	1.3	
	39	Inside, hood door	1	53	12.0	
	40	Floor	1	59	20.0	
	41	Floor	1	39	-6.7	
	42	Floor	1	41	-4.0	
	43	Floor	1	45	1.3	
	44	Floor	1	40	-5.3	
	45	Floor	1	53	12.0	
	46	Floor	1	41	-4.0	
	47	Floor	1	58	18.7	
	48	Floor	1	56	16.0	
	49	Floor	1	39	-6.7	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

## PE 101 - Animal Room



○ = wipe location

Radiation readings in units of  $\mu\text{rem/h}$

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Survey Purpose: Decommissioning PE103

Performed By: David Durkee/Ed Gailor

Page: 1 of 3

Date: 9/20/2004

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 6 $\mu\text{rem/h}$
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1410	1	Background	1	42	N/A	
	2	Door and handle	1	63	28.0	
	3	Floor	1	43	1.3	
	4	Upper wall	1	36	-8.0	
	5	Lower Wall	1	64	29.3	
	6	Upper wall	1	53	14.7	
	7	Lower Wall	1	46	5.3	
	8	Upper wall	1	72	40.0	
	9	Lower Wall	1	56	18.7	
	10	Upper wall	1	54	16.0	
	11	Lower Wall	1	44	2.7	
	12	Upper wall	1	39	-4.0	
	13	Lower Wall	1	38	-5.3	
	14	Upper wall	1	47	6.7	
	15	Lower Wall	1	46	5.3	
	16	Upper wall	1	51	12.0	
	17	Lower Wall	1	57	20.0	
	18	Upper wall	1	46	5.3	
	19	Lower Wall	1	45	4.0	
	20	Sink	1	42	0.0	
	21	Upper wall	1	45	4.0	
	22	Lower Wall	1	42	0.0	
	23	Upper wall	1	60	24.0	
	24	Lower Wall	1	64	29.3	
	25	Upper wall	1	66	32.0	
	26	Lower Wall	1	55	17.3	
	27	Floor	1	48	8.0	
	28	Floor	1	45	4.0	
	29	Floor	1	50	10.7	
	30	Floor	1	47	6.7	
	31	Floor	1	44	2.7	
	32	Floor	1	37	-6.7	
	33	Floor	1	45	4.0	
	34	Floor	1	46	5.3	
	35	Floor	1	40	-2.7	
	36	Floor	1	47	6.7	
	37	Floor	1	54	16.0	



Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning PE103

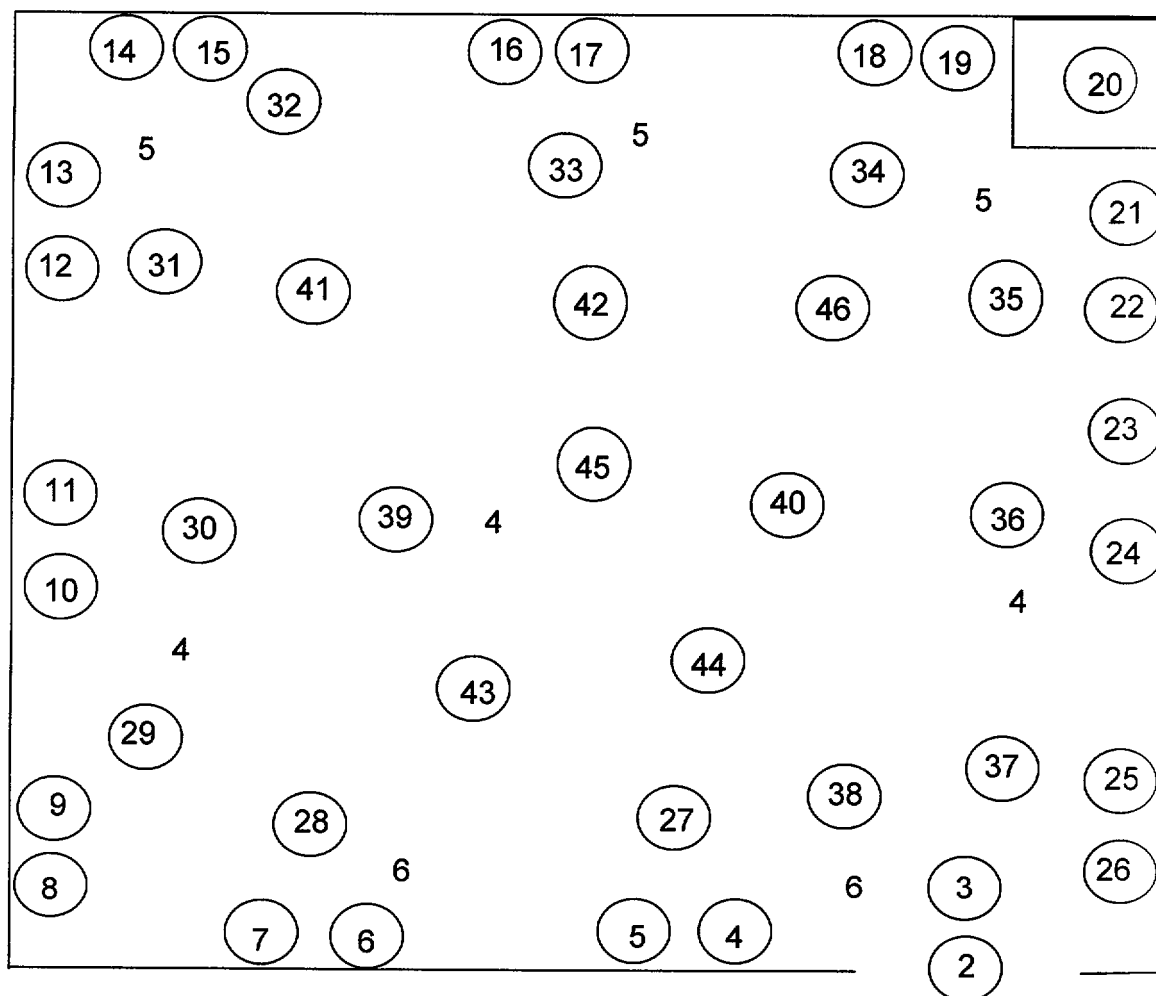
Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1410	38	Floor	1	49	9.3	
	39	Floor	1	42	0.0	
	40	Floor	1	48	8.0	
	41	Floor	1	63	28.0	
	42	Floor	1	47	6.7	
	43	Floor	1	51	12.0	
	44	Floor	1	43	1.3	
	45	Floor	1	50	10.7	
	46	Floor	1	49	9.3	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

## PE 103 - Animal Room



○ = wipe location

Radiation readings in units of  $\mu\text{rem/h}$

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 3

Survey Purpose: Decommissioning 1st Floor Hallway

Date: 9/20/2004

Performed By: David Durkee/Ed Gailor

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 6 $\mu\text{rem/h}$
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1445	1	Background	1	43	N/A	
	2	Platform	1	43	0.0	
	3	Platform	1	46	4.0	
	4	Outside door and handle	1	40	-4.0	
	5	Inside door and handle	1	45	2.7	
	6	Floor	1	64	28.0	
	7	Floor	1	49	8.0	
	8	Door	1	35	-10.7	
	9	Floor	1	40	-4.0	
	10	Door	1	38	-6.7	
	11	Floor	1	45	2.7	
	12	Floor	1	45	2.7	
	13	Floor	1	56	17.3	
	14	Floor	1	55	16.0	
	15	Floor	1	43	0.0	
	16	Door	1	40	-4.0	
	17	Floor	1	50	9.3	
	18	Door	1	50	9.3	
	19	Floor	1	50	9.3	
	20	Door	1	47	5.3	
	21	Floor	1	55	16.0	
	22	Door	1	36	-9.3	
	23	Floor	1	49	8.0	
	24	Floor	1	48	6.7	
	25	Floor	1	39	-5.3	
	26	Door	1	50	9.3	
	27	Floor	1	51	10.7	
	28	Door	1	47	5.3	
	29	Floor	1	41	-2.7	
	30	Door	1	39	-5.3	
	31	Floor	1	38	-6.7	
	32	Door	1	50	9.3	
	33	Floor	1	48	6.7	
	34	Floor	1	57	18.7	
	35	Door	1	44	1.3	
	36	Floor	1	38	-6.7	
	37	Door	1	33	-13.3	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning 1st Floor Hallway

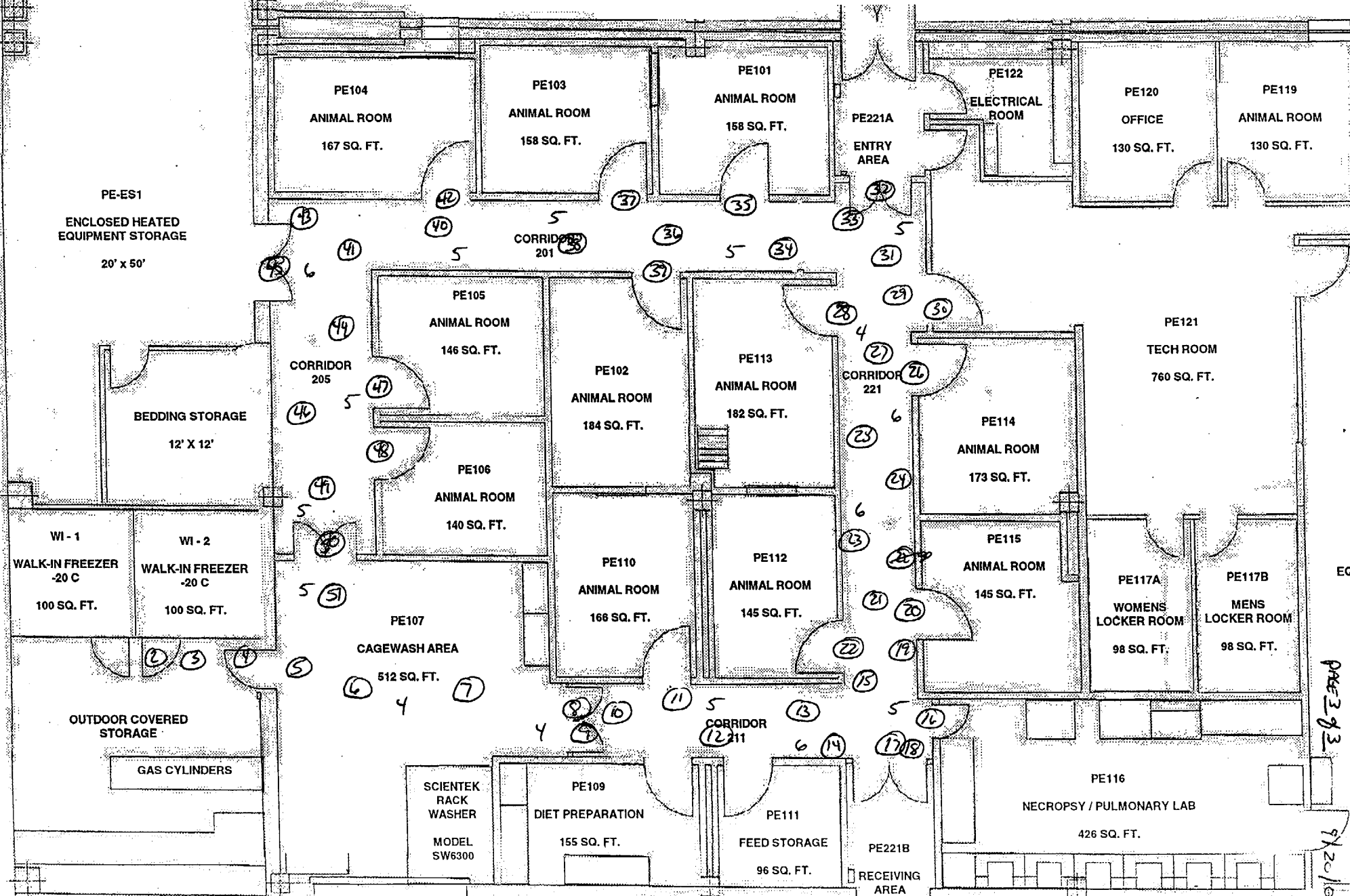
Date: 9/20/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1445	38	Floor	1	38	-6.7	
	39	Door	1	39	-5.3	
	40	Floor	1	49	8.0	
	41	Floor	1	48	6.7	
	42	Door	1	47	5.3	
	43	Floor	1	57	18.7	
	44	Floor	1	45	2.7	
	45	Door	1	41	-2.7	
	46	Floor	1	43	0.0	
	47	Door	1	54	14.7	
	48	Door	1	47	5.3	
	49	Floor	1	48	6.7	
	50	Door	1	55	16.0	
	51	Floor	1	50	9.3	

Spot checked lower surfaces using instrument #2. All surfaces noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

# PILOT PLANT CORRIDOR



O = Wipe Location

RADIATION READINGS IN UNITS

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9/20/04

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 3

Survey Purpose: Decommissioning PE W1-2

Date: 9/20/2004

Performed By: David Durkee/Ed Gailor

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 5 - 7 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1525	1	Background	1	58	N/A	
	2	Door and handle	1	49	-12.0	
	3	Floor	1	47	-14.7	
	4	Upper wall	1	46	-16.0	
	5	Lower Wall	1	55	-4.0	
	6	Upper wall	1	43	-20.0	
	7	Lower Wall	1	32	-34.7	
	8	Upper wall	1	31	-36.0	
	9	Lower Wall	1	52	-8.0	
	10	Upper wall	1	53	-6.7	
	11	Lower Wall	1	53	-6.7	
	12	Upper wall	1	55	-4.0	
	13	Lower Wall	1	52	-8.0	
	14	Upper wall	1	46	-16.0	
	15	Lower Wall	1	52	-8.0	
	16	Upper wall	1	51	-9.3	
	17	Lower Wall	1	41	-22.7	
	18	Sink	1	51	-9.3	
	19	Upper wall	1	46	-16.0	
	20	Lower Wall	1	51	-9.3	
	21	Upper wall	1	63	6.7	
	22	Lower Wall	1	41	-22.7	
	23	Upper wall	1	51	-9.3	
	24	Lower Wall	1	44	-18.7	
	25	Upper wall	1	39	-25.3	
	26	Lower Wall	1	50	-10.7	
	27	Upper wall	1	50	-10.7	
	28	Lower Wall	1	48	-13.3	
	29	Upper wall	1	37	-28.0	
	30	Lower Wall	1	34	-32.0	
	31	Hood Doors and Handle	1	52	-8.0	
	32	Outside, left side of hood	1	58	0.0	
	33	Outside back of hood	1	60	2.7	
	34	Outside, right side of hood	1	45	-17.3	
	35	Inside, hood back	1	48	-13.3	
	36	Inside, left side of hood	1	57	-1.3	
	37	Inside, right side of hood	1	44	-18.7	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning PE W1-2

Date: 9/20/04

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1525	38	Inside, hood bottom	1	42	-21.3	
	39	Inside, hood door	1	48	-13.3	
	40	Floor	1	65	9.3	
	41	Floor	1	39	-25.3	
	42	Floor	1	44	-18.7	
	43	Floor	1	48	-13.3	
	44	Floor	1	38	-26.7	
	45	Floor	1	36	-29.3	
	46	Floor	1	53	-6.7	
	47	Floor	1	43	-20.0	
	48	Floor	1	57	-1.3	

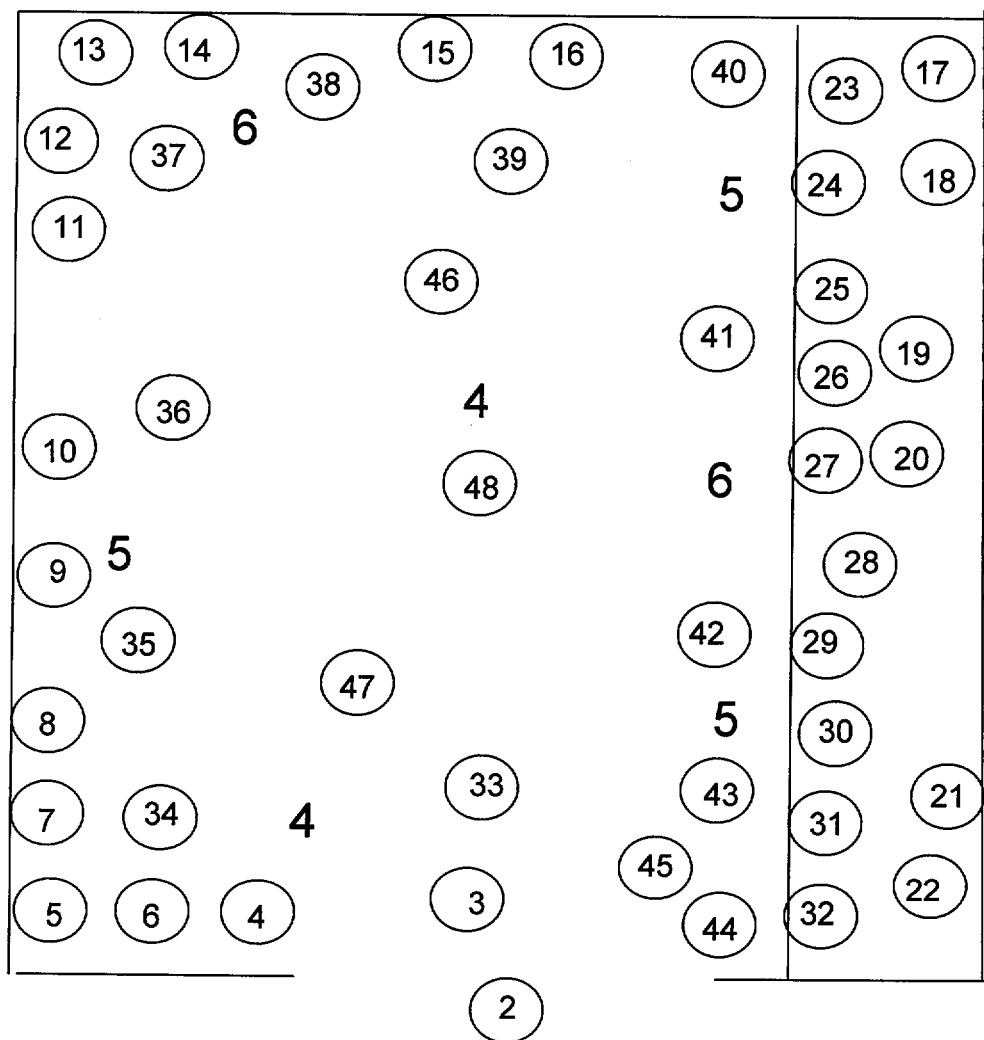
Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

# PE WI-2 - Freezer

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9/20/04



O = wipe location

Radiation readings in units of  $\mu\text{rem/h}$



Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 5

Survey Purpose: Decommissioning LE367

Date: 9/21/2004

Performed By: David Durkee/Ed Gailor



Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 4 - 8 $\mu\text{rem/h}$
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0640	1	Background	1	34	N/A	
	2	Door and handle	1	44	13.3	
	3	Floor	1	42	10.7	
	4	Wall	1	38	5.3	
	5	Wall	1	59	33.3	
	6	Inside sink	1	40	8.0	
	7	Counter	1	51	22.7	
	8	Counter	1	53	25.3	
	9	Counter	1	63	38.7	
	10	Counter	1	58	32.0	
	11	Counter	1	51	22.7	
	12	Counter	1	47	17.3	
	13	Cabinet doors	1	33	-1.3	
	14	Top shelf	1	42	10.7	
	15	2nd shelf	1	53	25.3	
	16	3rd shelf	1	50	21.3	
	17	Cabinet doors	1	55	28.0	
	18	Top shelf	1	46	16.0	
	19	2nd shelf	1	41	9.3	
	20	3rd shelf	1	63	38.7	
	21	Cabinet doors	1	39	6.7	
	22	Top shelf	1	54	26.7	
	23	Bottom shelf	1	54	26.7	
	24	Wall	1	52	24.0	
	25	Wall	1	51	22.7	
	26	Floor	1	53	25.3	
	27	Door and handle	1	41	9.3	
	28	Floor	1	65	41.3	
	29	Cabinet doors	1	34	0.0	
	30	Inside cabinet	1	43	12.0	
	31	Drawers	1	50	21.3	
	32	Top left drawer	1	35	1.3	
	33	Top right drawer	1	53	25.3	
	34	2nd drawer	1	44	13.3	
	35	3rd drawer	1	38	5.3	
	36	4th drawer	1	50	21.3	
	37	Drawers	1	40	8.0	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning LE367

Date: 9/21/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0640	38	Left drawer	1	46	16.0	
	39	Right drawer	1	54	26.7	
	40	Drawers	1	32	-2.7	
	41	Top drawer	1	40	8.0	
	42	2nd drawer	1	42	10.7	
	43	3rd drawer	1	43	12.0	
	44	4th drawer	1	37	4.0	
	45	Drawers	1	40	8.0	
	46	Top drawer	1	37	4.0	
	47	2nd drawer	1	48	18.7	
	48	3rd drawer	1	56	29.3	
	49	4th drawer	1	44	13.3	
	50	Drawers	1	36	2.7	
	51	Top drawer	1	34	0.0	
	52	2nd drawer	1	54	26.7	
	53	3rd drawer	1	44	13.3	
	54	4th drawer	1	47	17.3	
	55	Drawers	1	40	8.0	
	56	Top drawer	1	43	12.0	
	57	2nd drawer	1	32	-2.7	
	58	3rd drawer	1	40	8.0	
	59	4th drawer	1	37	4.0	
	60	Drawers	1	47	17.3	
	61	Left drawer	1	50	10.7	
	62	Right drawer	1	50	10.7	
	63	Book shelf	1	40	-2.7	
	64	Desk	1	45	4.0	
	65	Wall	1	44	2.7	
	66	Desk	1	44	2.7	
	67	Floor	1	41	-1.3	
	68	Refrig. Door	1	48	8.0	
	69	Inside back of refrig.	1	48	8.0	
	70	Inside left side of refrig.	1	33	-12.0	
	71	Inside right side of refrig.	1	52	13.3	
	72	Bottom of refrig.	1	41	-1.3	
	73	Floor	1	44	2.7	
	74	Cabinet doors	1	35	-8.0	
	75	Top shelf	1	42	1.3	
	76	2nd shelf	1	37	-5.3	
	77	3rd shelf	1	67	34.7	
	78	Cabinet doors	1	54	17.3	
	79	Top shelf	1	45	5.3	
	80	2nd shelf	1	48	9.3	
	81	3rd shelf	1	43	2.7	
	82	Cabinet doors	1	51	13.3	
	83	Top shelf	1	38	-4.0	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning LE367

Date: 9/21/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0640	84	2nd shelf	1	45	5.3	
	85	3rd shelf	1	49	10.7	
	86	Counter	1	38	-4.0	
	87	Counter	1	38	5.3	
	88	Counter	1	35	1.3	
	89	Counter	1	48	18.7	
	90	Drawers	1	35	1.3	
	91	Top drawer	1	35	1.3	
	92	2nd drawer	1	52	24.0	
	93	3rd drawer	1	43	12.0	
	94	4th drawer	1	42	10.7	
	95	Drawers	1	48	18.7	
	96	Top drawer	1	41	9.3	
	97	2nd drawer	1	50	21.3	
	98	3rd drawer	1	40	8.0	
	99	4th drawer	1	33	-1.3	
	100	Drawers	1	35	1.3	
	101	Top left drawer	1	51	22.7	
	102	Top right drawer	1	44	13.3	
	103	Inside cabinet	1	50	21.3	
	104	Drawers	1	41	9.3	
	105	Left drawer	1	54	26.7	
	106	Right drawer	1	47	17.3	
	107	Left side of hood	1	42	10.7	
	108	Upper back of hood	1	48	18.7	
	109	Vent	1	40	8.0	
	110	Lower back of hood	1	55	28.0	
	111	Upper back of hood	1	42	10.7	
	112	Vent	1	56	29.3	
	113	Lower back of hood	1	52	24.0	
	114	Upper back of hood	1	59	33.3	
	115	Vent	1	47	17.3	
	116	Lower back of hood	1	43	12.0	
	117	Right side of hood	1	33	-1.3	
	118	Hood bottom	1	42	10.7	
	119	Hood bottom	1	44	13.3	
	120	Hood bottom	1	40	8.0	
	121	Hood glass	1	48	18.7	
	122	Hood glass	1	46	16.0	
	123	Hood glass	1	41	9.3	
	124	Cabinet doors	1	55	28.0	
	125	Inside cabinet	1	55	28.0	
	126	Cabinet doors	1	51	22.7	
	127	Inside cabinet	1	51	22.7	
	128	Cabinet doors	1	47	17.3	
	129	Inside cabinet	1	56	29.3	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning LE367

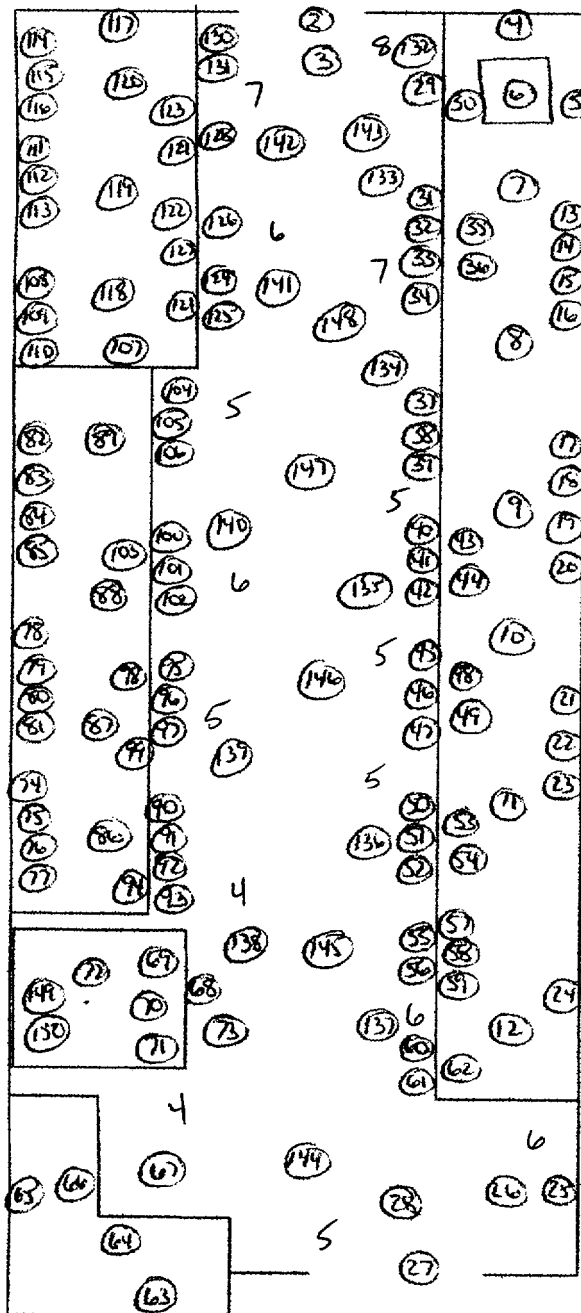
Date: 9/21/2004

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0640	130	Cabinet doors	1	55	28.0	
	131	Inside cabinet	1	51	22.7	
	132	Floor	1	47	17.3	
	133	Floor	1	42	10.7	
	134	Floor	1	46	16.0	
	135	Floor	1	54	26.7	
	136	Floor	1	47	17.3	
	137	Floor	1	53	25.3	
	138	Floor	1	60	34.7	
	139	Floor	1	62	37.3	
	140	Floor	1	46	16.0	
	141	Floor	1	47	17.3	
	142	Floor	1	44	13.3	
	143	Floor	1	55	28.0	
	144	Floor	1	35	1.3	
	145	Floor	1	37	4.0	
	146	Floor	1	39	6.7	
	147	Floor	1	48	18.7	
	148	Floor	1	44	13.3	
	149	Floor	1	857	1097.3	
	150	Post Decon #149	1	35	1.3	

Scanned 100% of lower surfaces using instrument #2. All surfaces scanned were noted to be at normal background levels, with one exception: The floor under the freezer (600 cm<sup>2</sup>) was found to be contaminated to a level of 18,144 dpm/100 cm<sup>2</sup> (C-14). This area was decontaminated to a level indistinguishable from normal background level.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

## LE367 – Radioisotope Lab



○ = wipe location

Radiation readings in units of  $\mu\text{rem/h}$

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 1 of 6

Survey Purpose: Decommissioning LG359/LG335/LE343/LE345

Date: 9/21/04

Performed By: David Durkee/Ed Gailor

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 3 - 5 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1000	1	Background	1	56	N/A	
	2	Door	1	52	-5.3	
	3	Counter	1	54	-2.7	
	4	Counter	1	52	-5.3	
	5	Counter	1	55	-1.3	
	6	Counter	1	48	-10.7	
	7	Counter	1	46	-13.3	
	8	Counter	1	48	-10.7	
	9	Counter	1	46	-13.3	
	10	Door	1	49	-9.3	
	11	Floor	1	51	-6.7	
	12	Counter	1	46	-13.3	
	13	Counter	1	47	-12.0	
	14	Counter	1	61	6.7	
	15	Counter	1	48	-10.7	
	16	Left side of hood	1	38	-24.0	
	17	Upper back of hood	1	56	0.0	
	18	Vent	1	43	-17.3	
	19	Lower back of hood	1	40	-21.3	
	20	Upper back of hood	1	45	-14.7	
	21	Vent	1	54	-2.7	
	22	Lower back of hood	1	42	-18.7	
	23	Right side of hood	1	38	-24.0	
	24	Hood Bottom	1	47	-12.0	
	25	Hood Bottom	1	54	-2.7	
	26	Hood glass	1	48	-10.7	
	27	Hood glass	1	44	-16.0	
	28	Left side of hood	1	35	-28.0	
	29	Upper back of hood	1	34	-29.3	
	30	Vent	1	37	-25.3	
	31	Lower back of hood	1	46	-13.3	
	32	Upper back of hood	1	39	-22.7	
	33	Vent	1	41	-20.0	
	34	Lower back of hood	1	52	-5.3	
	35	Right side of hood	1	44	-16.0	
	36	Bottom	1	48	-10.7	
	37	Bottom	1	47	-12.0	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 2 of 6

Survey Purpose: Decommissioning LG359/LG335/LE343/LE345

Date: 9/21/04

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
1000	38	Hood glass	1	60	5.3	
	39	Hood glass	1	55	-1.3	
	40	Floor	1	49	-9.3	
	41	Floor	1	56	0.0	
	42	Floor	1	54	-2.7	
	43	Floor	1	54	-2.7	
	44	Floor	1	59	4.0	
	45	Floor	1	39	-22.7	
	46	Floor	1	55	-1.3	
	47	Floor	1	30	-34.7	
	48	Floor	1	48	-10.7	
	49	Floor	1	54	-2.7	
	50	Floor	1	57	1.3	
	51	Floor	1	50	-8.0	
	52	Floor	1	50	-8.0	
	53	Floor	1	41	-20.0	
	54	Floor	1	48	-10.7	
	55	Door	1	41	-20.0	
	56	Floor	1	41	-20.0	
	57	Inside sink	1	61	6.7	
	58	Counter	1	60	5.3	
	59	Refrig. Door	1	47	-12.0	
	60	Refrig. Door	1	54	-2.7	
	61	Cold box door	1	40	-21.3	
	62	Door	1	52	-5.3	
	63	Floor	1	54	-2.7	
	64	Counter	1	43	-17.3	
	65	Counter	1	41	-20.0	
	66	Floor	1	40	-21.3	
	67	Table Top	1	48	-10.7	
	68	Floor	1	39	-22.7	
	69	Door Env. Chamber	1	35	-28.0	
	70	Floor	1	57	1.3	
	71	Door Env. Chamber	1	50	-8.0	
	72	Floor	1	56	0.0	
	73	Door Env. Chamber	1	49	-9.3	
	74	Floor	1	60	5.3	
	75	Counter	1	44	-16.0	
	76	Counter	1	44	-16.0	
	77	Floor	1	45	-14.7	
	78	Door	1	52	-5.3	
	79	Floor	1	42	-18.7	
	80	Counter	1	48	-10.7	
	81	Counter	1	47	-12.0	
	82	Floor	1	38	-24.0	
	83	Floor	1	42	-18.7	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

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Survey Purpose: Decommissioning LG359/LG335/LE343/LE345

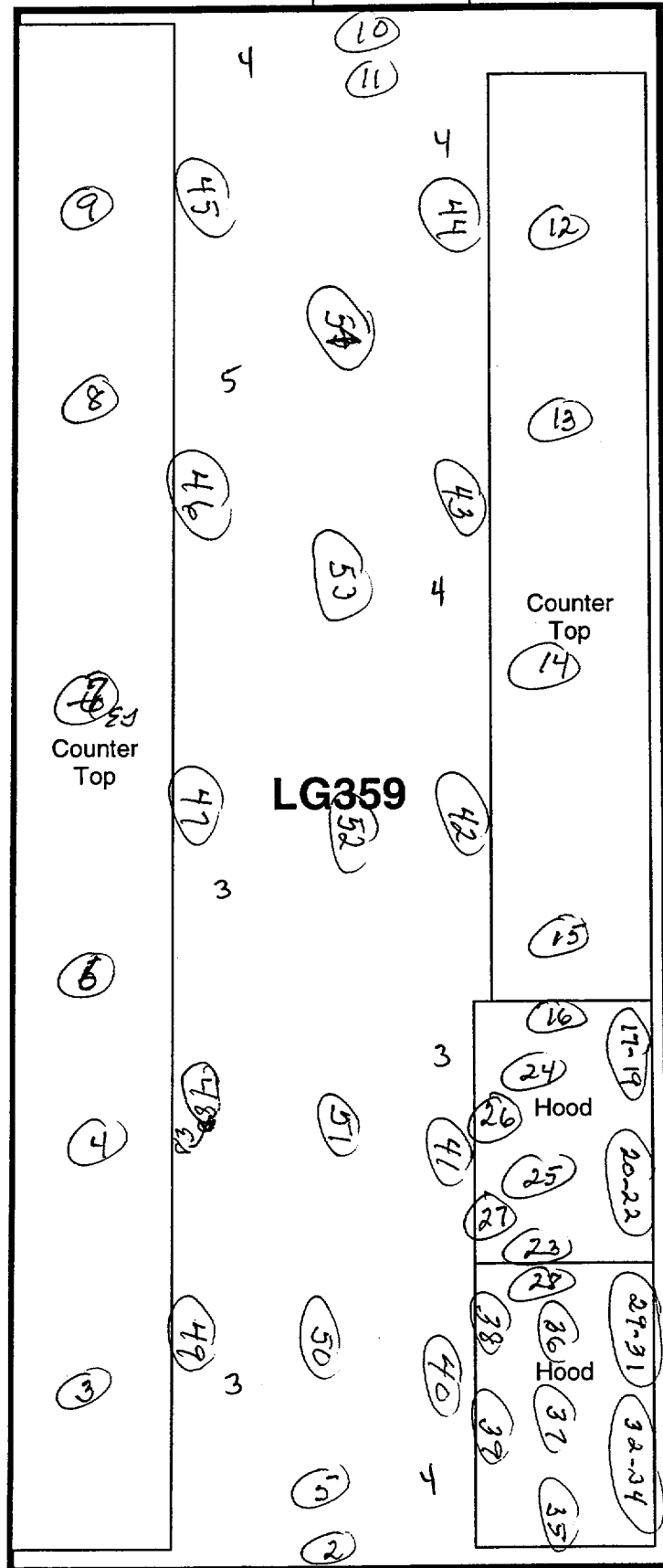
Date: 9/21/04

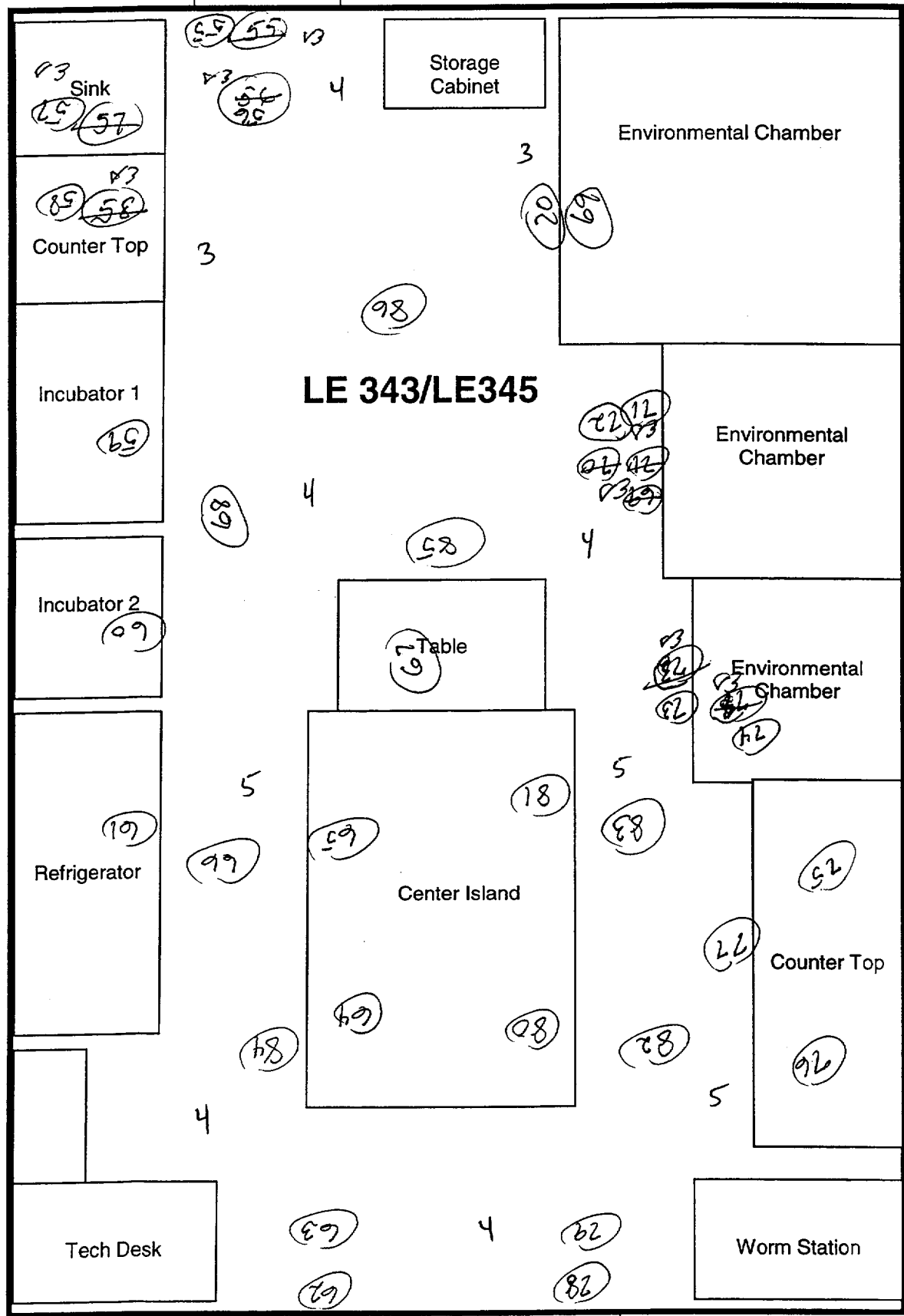
Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
	84	Floor	1	46	-13.3	
	85	Floor	1	50	-8.0	
	86	Floor	1	42	-18.7	
	87	Door	1	58	2.7	
	88	Floor	1	56	0.0	
	89	Hood	1	54	-2.7	
	90	Hood	1	54	-2.7	
	91	Hood	1	49	-9.3	
	92	Counter	1	47	-12.0	
	93	Counter	1	49	-9.3	
	94	Counter	1	46	-13.3	
	95	Table Top	1	44	-16.0	
	96	Desk	1	56	0.0	
	97	Door	1	38	-24.0	
	98	Floor	1	47	-12.0	
	99	Table Top	1	42	-18.7	
	100	Inside sink	1	50	-8.0	
	101	Counter	1	31	-33.3	
	102	Counter	1	43	-17.3	
	103	Counter	1	35	-28.0	
	104	Counter	1	55	-1.3	
	105	Hood	1	47	-12.0	
	106	Hood	1	39	-22.7	
	107	Hood lip	1	44	-16.0	
	108	Hood lip	1	42	-18.7	
	109	Floor	1	37	-25.3	
	110	Floor	1	49	-9.3	
	111	Floor	1	38	-24.0	
	112	Floor	1	33	-30.7	
	113	Floor	1	44	-16.0	
	114	Floor	1	37	-25.3	
	115	Floor	1	37	-25.3	
	116	Floor	1	37	-25.3	
	117	Floor	1	30	-34.7	
	118	Floor	1	36	-26.7	
	119	Floor	1	47	-12.0	
	120	Floor	1	38	-24.0	
	121	Floor	1	37	-25.3	
	122	Floor	1	44	-16.0	
	123	Floor	1	51	-6.7	

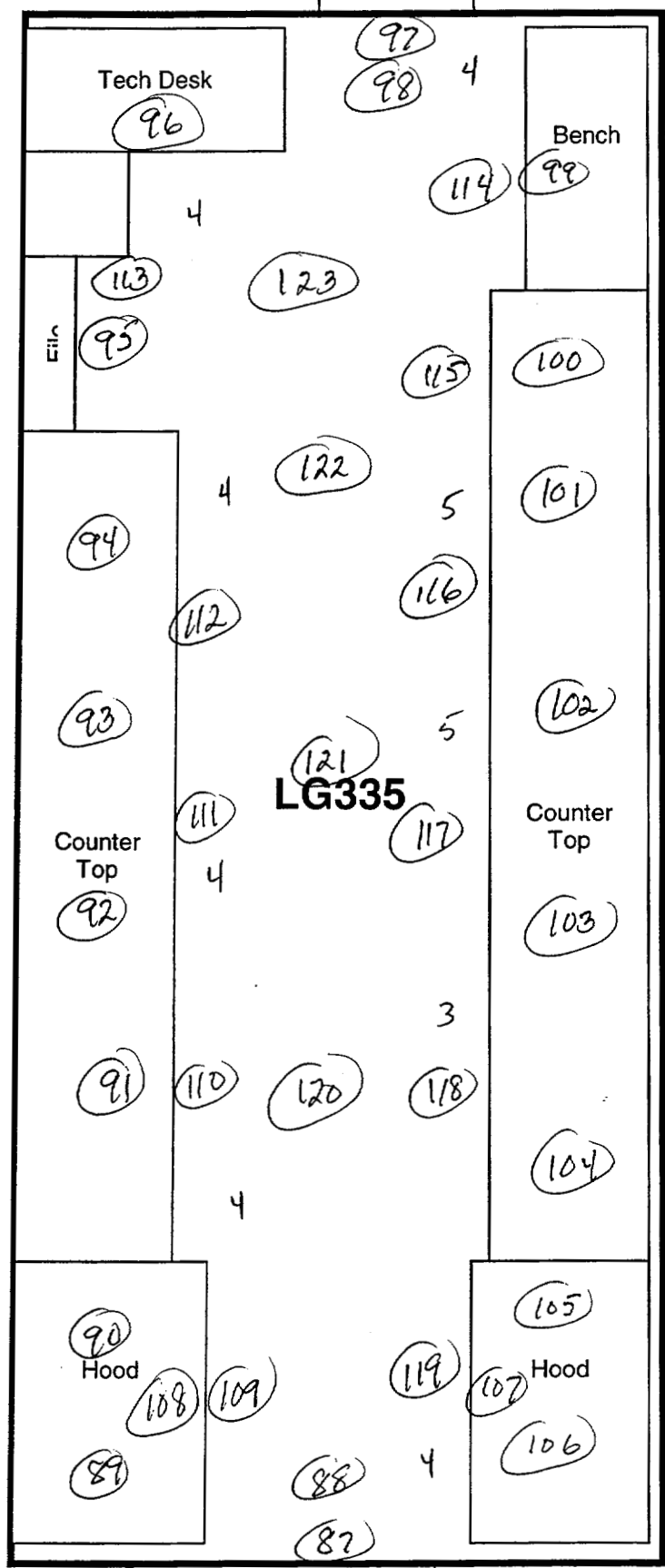
Spot checked lower surfaces using instrument #2. All surfaces noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.









**LG335**

O = WYF SAMPLE  
 RAD READINGS in units of  
 yrem/hr

Job Location: ExxonMobil Research and Eng. Clinton, NJ  
 Survey Purpose: Decommissioning LG337/LG343  
 Performed By: David Durkee

Page: 1 of 3  
 Date: 10/4/04

Instrument No. 1	Instrument No. 2	Instrument No. 3
Beckman LS6500 #7068276	Ludlum Model 2241-2 #137751	Bicron Microrem LE #B466y
	Ludlum Model 43-68 #140899	
Efficiency: 45% H-3/ 75% C-14	Efficiency: 9% C-14	Efficiency: 100 %
Type Rad: $\alpha/\beta/\gamma$	Type Rad: $\beta$	Type Rad: $\gamma$
Background (cpm): See #1 below	Background: 230 cpm	Background: 3 - 6 $\mu$ rem/h
Cal. Due: 5/26/05	Cal. Due: 4/6/05	Cal. Due: 1/5/05

Time	Number	Location	Inst. Used.	cpm	Activity (dpm/100cm <sup>2</sup> )	Comments
0715	1	Background	1	45	N/A	
	2	Door	1	47	2.7	
	3	Floor	1	49	5.3	
	4	Hood ledge	1	46	1.3	
	5	Hood left side	1	45	0.0	
	6	Hood flow path (behind panels)	1	43	-2.7	
	7	Hood right side	1	40	-6.7	
	8	Floor	1	51	8.0	
	9	Front of cabinets	1	43	-2.7	
	10	Counter/equipment	1	46	1.3	
	11	Counter/equipment	1	41	-5.3	
	12	Front of cabinets	1	31	-18.7	
	13	Counter/equipment	1	53	10.7	
	14	Counter/equipment	1	52	9.3	
	15	Floor	1	40	-6.7	
	16	Floor	1	41	-5.3	
	17	Benchtop	1	47	2.7	
	18	Shelves	1	41	-5.3	
	19	Door	1	55	13.3	
	20	Floor	1	55	13.3	
	21	Counter	1	50	6.7	
	22	Floor	1	40	-6.7	
	23	Counter/equipment	1	45	0.0	
	24	Counter/equipment	1	43	-2.7	
	25	Counter/equipment	1	57	16.0	
	26	Counter	1	43	-2.7	
	27	Front of cabinets	1	48	4.0	
	28	Front of cabinets	1	55	13.3	
	29	Floor	1	43	-2.7	
	30	Floor	1	47	2.7	
	31	Hood lip/sash	1	52	9.3	
	32	Hood right side	1	37	-10.7	
	33	Hood flow path (behind panels)	1	56	14.7	
	34	Hood left side	1	49	5.3	
	35	Sink	1	37	-10.7	
	36	Counter	1	49	5.3	
	37	Floor	1	52	9.3	

Job Location: ExxonMobil Research and Eng. Clinton, NJ

Page: 2 of 3

Survey Purpose: Decommissioning **LG337/LG343**

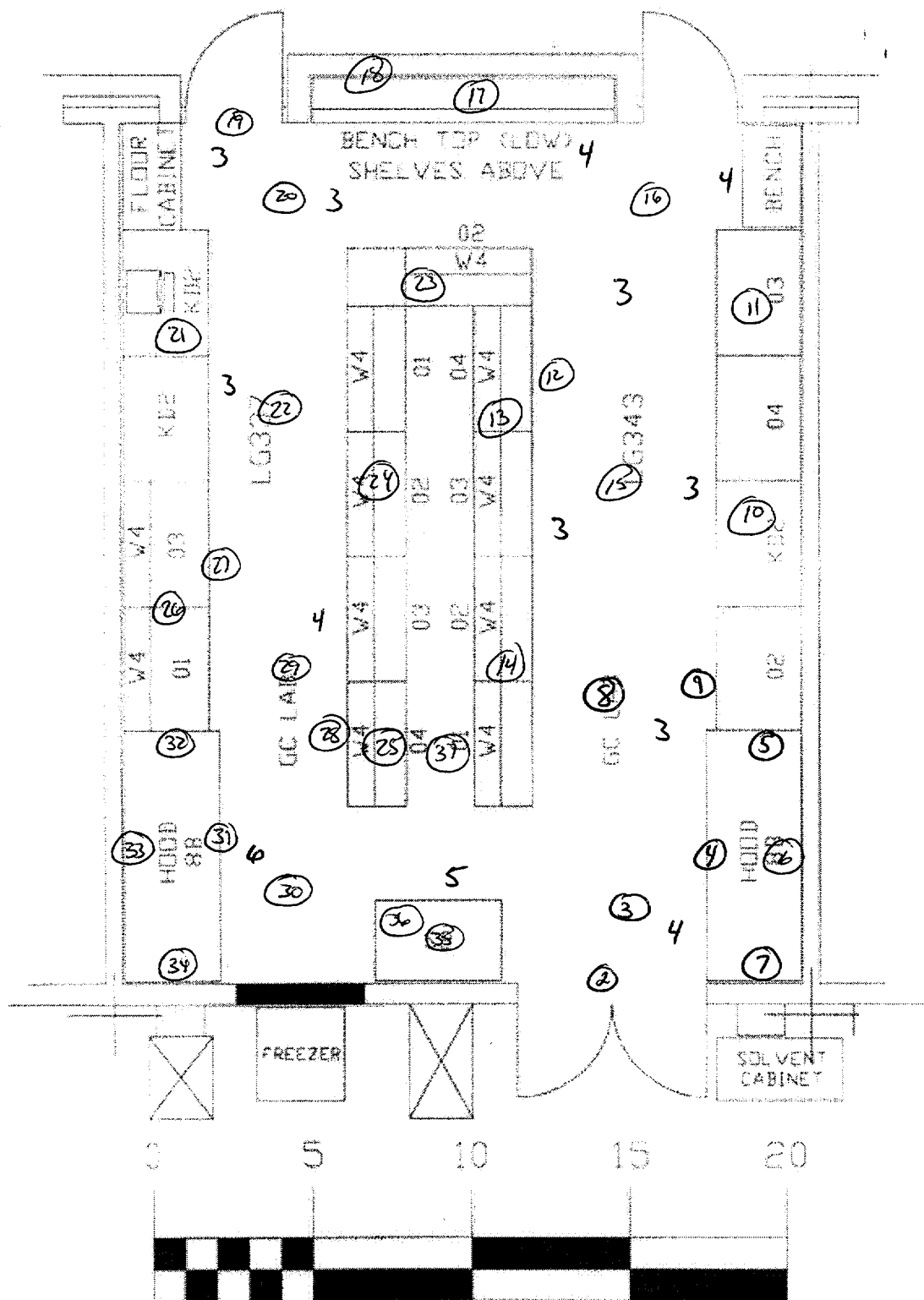
Date: 10/4/04

Spot checked lower surfaces using instrument #2. All surfaces noted to be at normal background levels.

Performed general area surevy using instrument #3. All areas noted to be at normal background levels.

10/4/04

LG 337/343



O = WIPE LOCATION  
 RADIATION READINGS IN UNITS  
 OF  $\mu\text{rem/h}$ .

This is to acknowledge the receipt of your letter/application dated

10/25/2004, and to inform you that the initial processing which includes an administrative review has been performed.

☒ TEAM 29-19396-01  
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

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

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

Your action has been assigned Mail Control Number 135896.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.

BETWEEN: : (FOR LFMS USE)  
: INFORMATION FROM LTS  
: -----  
:   
License Fee Management Branch, ARM : Program Code: 03620  
and : Status Code: 0  
Regional Licensing Sections : Fee Category: 3M  
: Exp. Date: 20111031  
: Fee Comments: 3M EFF 6/12/85  
: Decom Fin Assur Req'd: Y  
: ::::::::::::::::::::::::::::::::::::::

LICENSE FEE TRANSMITTAL

A. REGION *I*

1. APPLICATION ATTACHED

Applicant/Licensee: EXXONMOBIL BIOMEDICAL SCIENCES, INC  
Received Date: 20041027  
Docket No: 3017541  
Control No.: 135896  
License No.: 29-19396-01  
Action Type: Termination

2. FEE ATTACHED

Amount: \_\_\_\_\_  
Check No.: */*

3. COMMENTS

Signed *M. A. Perkins*  
Date *10/28/04*

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /\_\_\_/)

1. Fee Category and Amount: \_\_\_\_\_

2. Correct Fee Paid. Application may be processed for:

Amendment \_\_\_\_\_  
Renewal \_\_\_\_\_  
License \_\_\_\_\_

3. OTHER \_\_\_\_\_  
\_\_\_\_\_

Signed \_\_\_\_\_  
Date \_\_\_\_\_