



# *Parker Hughes Institute*

September 27 2005

Material Licensing Branch  
United States Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road Ste 210  
Lisle, Illinois 60532-4352

Phone: 800-522-3025

Re: Parker Hughes Institute (License Number: 22-26786-01)

Dear Madam/Sir,

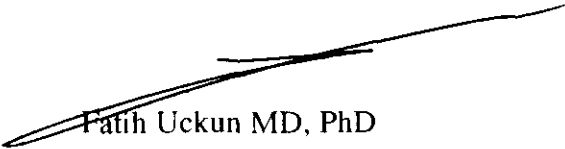
Parker Hughes Institute will be reducing its laboratory research facility space and will not renew leasing agreements for part of the 2657 Patton Road facility. The lease for the space will be expiring in July of 2006.

We realize the Agreement State status of Minnesota has been postponed to the first quarter of 2006. We hope to avoid lease complications by initiating close-out procedures with you at this time. This is a space reduction request and we are not decommissioning our license at this time.

Please review the enclosed report and survey data. You may contact Cathy Knox at (cell: 651-247-1922; fax: 651-628-9891) to address concerns and to provide additional information.

Thank you very much for your kind consideration and assistance in this matter.

With my kindest regards,



Fatih Uckun MD, PhD

OCT 07 2005

**Parker Hughes Institute  
Roseville, Minnesota**

**2657 Laboratory Space  
Reduction Request**

**Close-Out Survey Report  
9/30/05**



# *Parker Hughes Institute*

September 30, 2005

Material Licensing Branch  
United States Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road STE 210  
Lisle, Illinois 60532-4352

Attention: Licensing Administrator

License Number: 22-26786-01

Dear Madam/Sir,

We are closing part of our facility listed as a licensed material use area on our license because of the expiration of a leasing agreement. The reduction of space is within the 2657 address Patton Road, Roseville, Minnesota. Please see facility maps in the attached survey reports.

We have consulted with NUREG/CR-5849 to provide guidance for the process of reducing this space from our materials license.

## **Potential Radionuclide Contaminants**

The major part of the space we wish to eliminate from our site has been used as a life science research laboratory. No isotope contamination is expected to be found in the general lab area. However, spot check smears and GM surveys were performed. Isotope work has always been restricted to a designated room (Radioisotope lab#1, Section J) as shown on the facility map in the attached survey reports. Radioisotope lab#1 has been continually monitored according to license conditions since the materials license was first activated.

## ***Recent Radioisotope Use in Lab#1***

The last isotope use for P-32 in research was approximately 4/11/05 and 1/28/04 for S-35. The last use in research for H-3 was 10/1/02 and 4/21/00 for C-14. Iodine (I-125) was last used on 12/14/99 and Cr -51, 12/6/99. No Ca-45 was ever ordered or used on our license.

## ***Radiochemical Stock Vials***

Long half-life C-14 and H-3 stock vials were shipped through a licensed radioactive waste disposal company (Adco Services) on 4/20/04.

All remaining P-32 and S35 stock vials were placed in the short half-life waste drum on 8/30/05 and moved to Isotope Lab #2.

## ***Management of Equipment and Supplies***

A second radioactive use laboratory will remain in the facility and will not be closed out at this time. All remaining isotope stock vials and waste from lab #1 was collected on 8/30/05. Waste items were placed in appropriately labeled drums and stored in the remaining active radioisotope use area of the 2657 facility. Equipment and supplies used for PAGE, TLC, and kinase procedures were also moved to the remaining isotope use laboratory space. Excess equipment, supplies, or reagents were surveyed for contamination by GM monitoring and scintillation counted smears (see enclosed report) before release to general lab area.

### *Contamination Potential*

Surveys are basically checking for long half-life radioisotope contamination. Very little contamination was detected in the lab#1 area. Areas with trace activity were easily cleaned to background levels. No activity above established background levels was detected in the general laboratory areas.

### **Document History**

Daily GM and monthly smear surveys of radioactive use areas have been documented since the materials license initiated activity. Liquid waste releases were recorded along with waste disposal shipments, decay storage disposal, isotope orders and receiving documents with leak tests, and spill or contamination reports.

All documents are in labeled binders available for review.

### **2657 Close-out Survey Data**

#### *General Lab Area*

The general lab area was surveyed in a spot-check fashion using a 5 ft grid overlay on the floor plan drawn to scale (map sections A-I). Smear samples representing 100 cm<sup>2</sup> were taken with a wet cotton tipped applicator every 5 ft. Floor and bench tops areas were included in this part of the survey.

#### *Radioisotope Lab #1/ Area J*

##### *Floor and Benchtops*

Area J represents the designated radioisotope use area. Smear samples representing 100 cm<sup>2</sup> were taken with a wet cotton tipped applicator every 2 ft. Floor and bench tops areas were included in this part of the survey. Surfaces were cleared of equipment and supplies but were not cleaned prior to smear survey.

##### *Isotope Lab #1/ casework*

All cabinets and shelving in isotope lab #1 were included in this part of the survey of section J. Shelves and cabinets were cleared of equipment and supplies. Surfaces were not cleaned prior to smear survey sampling.

##### *Isotope lab #1/ Drain and Exhaust*

A single sink drain was taken apart and surveyed for radioisotope contamination. A sample of the liquid in the drain trap was also counted and found to be at background.

##### *Isotope Lab #1/ Equipment*

A variety of equipment was used in isotope lab#1. Equipment related to research protocols were moved to isotope lab#2. Larger items and extra supplies were surveyed for release to the general lab area. Surveys of that equipment are included in the close-out reports.

### *Survey Measurements*

Exposure rate is measured in mRem/hr. The Geiger Muller pancake detector remained at background levels for all surfaces that were checked. Surface areas checked corresponded to smear survey surfaces and equipment.

## **Instrumentation and Survey Results**

### *GM Survey*

The GM survey meter model information and specifications have been enclosed in this report. At background, the analog meter readings were observed to be between zero and a maximum of 0.05 mR/hr (0 to 160 CPM). The audible count rate remained at steady background levels for all surfaces and equipment during scanning.

### *GM Survey Results*

Scans were taken of work surfaces and equipment surfaces of the general lab area with no elevated readings found.

The GM scan of the Radioisotope lab#1 was also found at background levels.

### *Liquid Scintillation Analysis*

#### *Smear Sampling*

The scintillation counter, Beckman Instruments LS 6500 was used to count smear samples in liquid scintillation, counting cocktail. Smear samples were taken on cotton tipped applicators moistened with water and counted in 5 ml of counting cocktail.

#### *Scintillation Counting Program*

- Counting time was 1 minute per sample.
- The CPM data has a factor of 2 applied to it for counting efficiency reasons (50% efficiency is assumed for multiple isotope purposes).
- The Background counts were counted on the same program, with 20 samples counted to establish background counting values.

### *Survey Meter Efficiency and MDA*

The minimal detectable activity is a value that could be established and used once an activity for a particular radioisotope was detected. No activity other than background was found. Using efficiencies listed by Ludlum Instruments for the model 3 survey meter with a pancake GM detector, the MDA estimates are listed below.

- The GM meter at 4 pi geometry is 5% efficient for C-14.
- Background meter values in CPM at 100 to 160 at 2 times the background level would give  $200 \text{ to } 320 \text{ CPM} / 0.05 = 4000 \text{ to } 6400 \text{ DPM}$  at a minimum to detect  $^{14}\text{C}$ .
- For P-32, the survey meter is 32% efficient at 4 pi geometry, at 2 times background levels,  $200 \text{ to } 320 \text{ CPM} / 0.32 = 625 \text{ to } 1000 \text{ DPM}$  for MDA.
- S-35 would be very close to C-14 values, and H-3 is not detectable with the GM survey meter.

### *Scintillation Counter Efficiency*

The zero quench standards counted on the scintillation counter were H-3 and C-14. Efficiencies were as follows:

Standard	DPM (certified)	DPM (decay corr)	CPM (LS 6500)	Calculated Efficiency (CPM/Corrected DPM)
H-3	104,000	73,763	42552	58%
C-14	52,300	52261	50,382	96%

It is assumed P-32 would have 100% efficiency because it is a high energy beta emitter and is more easily detected than C-14. The S-35 beta spectrum is very close to C-14 with the efficiencies are essentially the same.

Counting cocktail, residue from a variety of surfaces, and other factors, can effect counting efficiency, therefore a conservative multiplier factor of 2 was used for background and smear sample counting, assuming an overall efficiency of 50% (see program summary information in the scintillation print-out headings).

### *LS6500 Scintillation Counter Background Counts*

The scintillation background levels were established by counting 20 samples for one minute with a 50% efficiency (all counts multiplied by 2).

Average = 49.2

Standard deviation = +/- 11.2

95<sup>th</sup> percentile = 38.0 - 60.4 DPM

Coefficient of variance =  $11.2 / 49.2 = 22.8$

### *Remediation Activity level*

Threshold value =  $2 \times \text{background} = 2 \times 49.2 = 98.4$

Any value exceeding 98 DPM was re-smear. If the sample count remained above 98 DPM, the area or item was cleaned and re-smear until the count value fell below 98 DPM.

### *Scintillation Counter Results*

A small area on the side of the scintillation counter monitor was found to be above 100 DPM. The area was cleaned and re-smear to background levels. Smears from all other areas were found to be below 98 DPM.

Please contact me regarding additional information or additional survey procedures you may feel are necessary. You may reach me at 651-247-1922 (cell) and 651-628-9891 (fax). Thank you very much for you time and consideration.

Sincerely,



Catherine Knox  
Radiation Safety Officer  
Parker Hughes Institute  
Roseville, Minnesota

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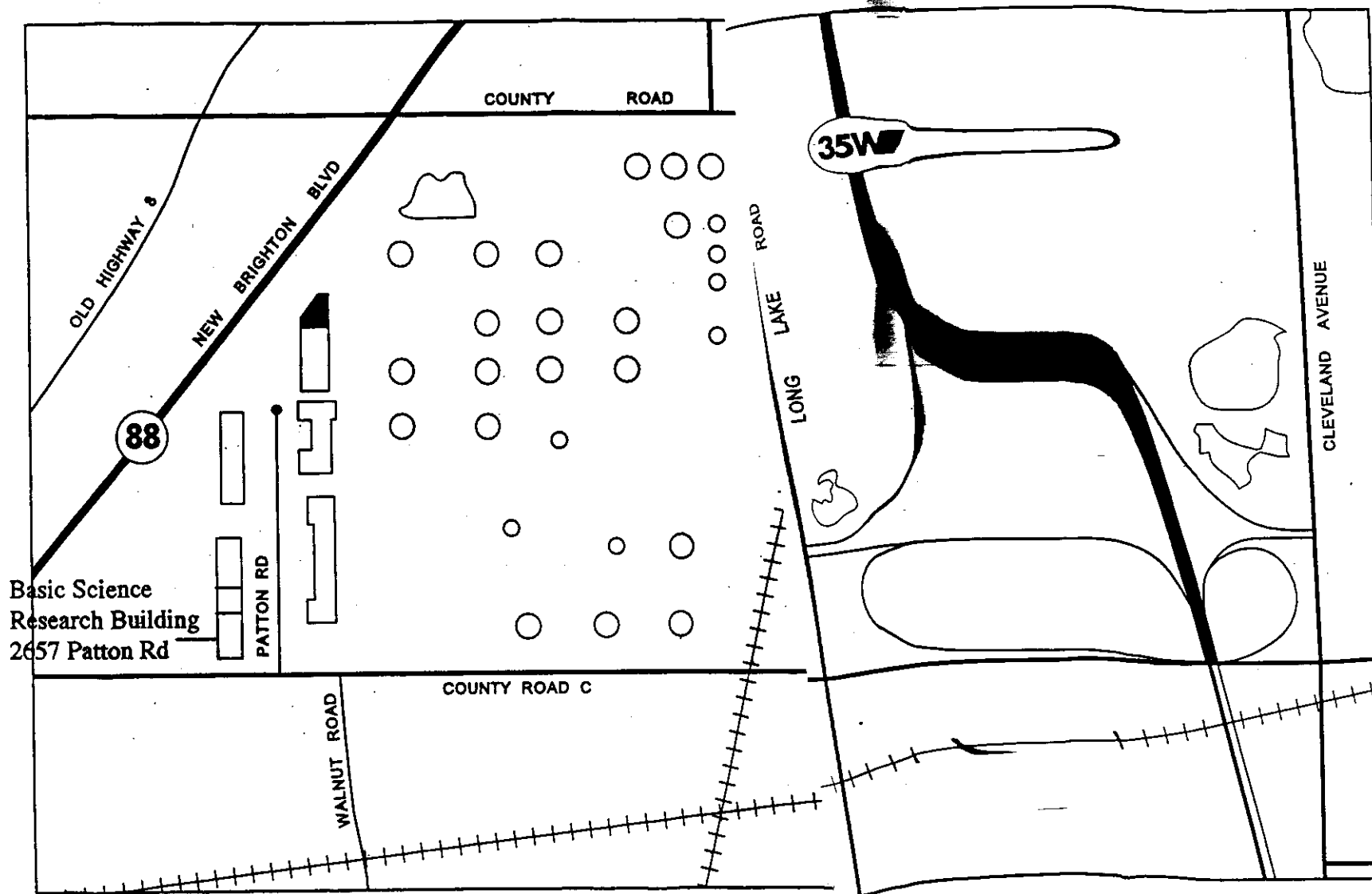
**Facility Maps**

**Parker Hughes Institute**

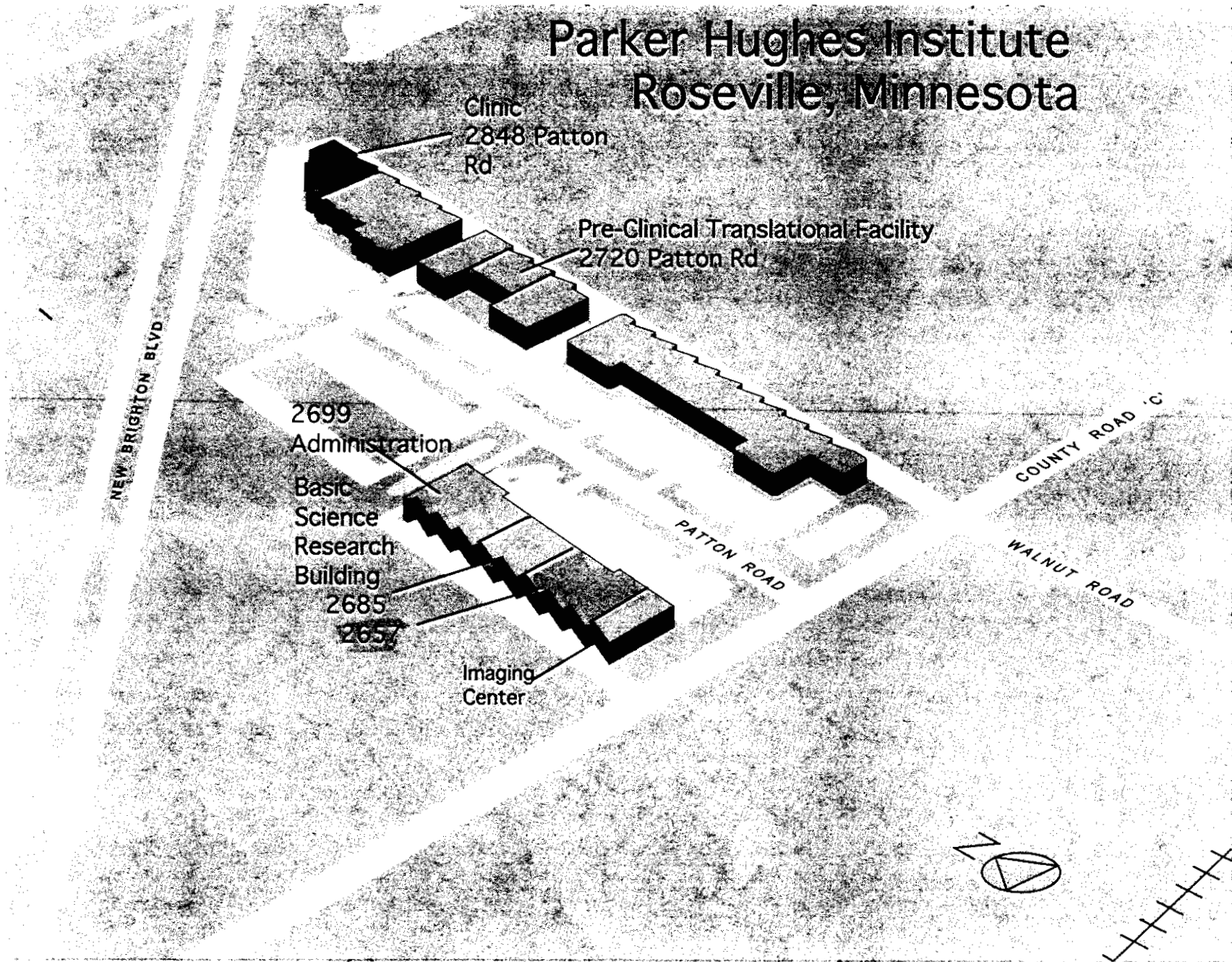
**2657 Patton Rd**

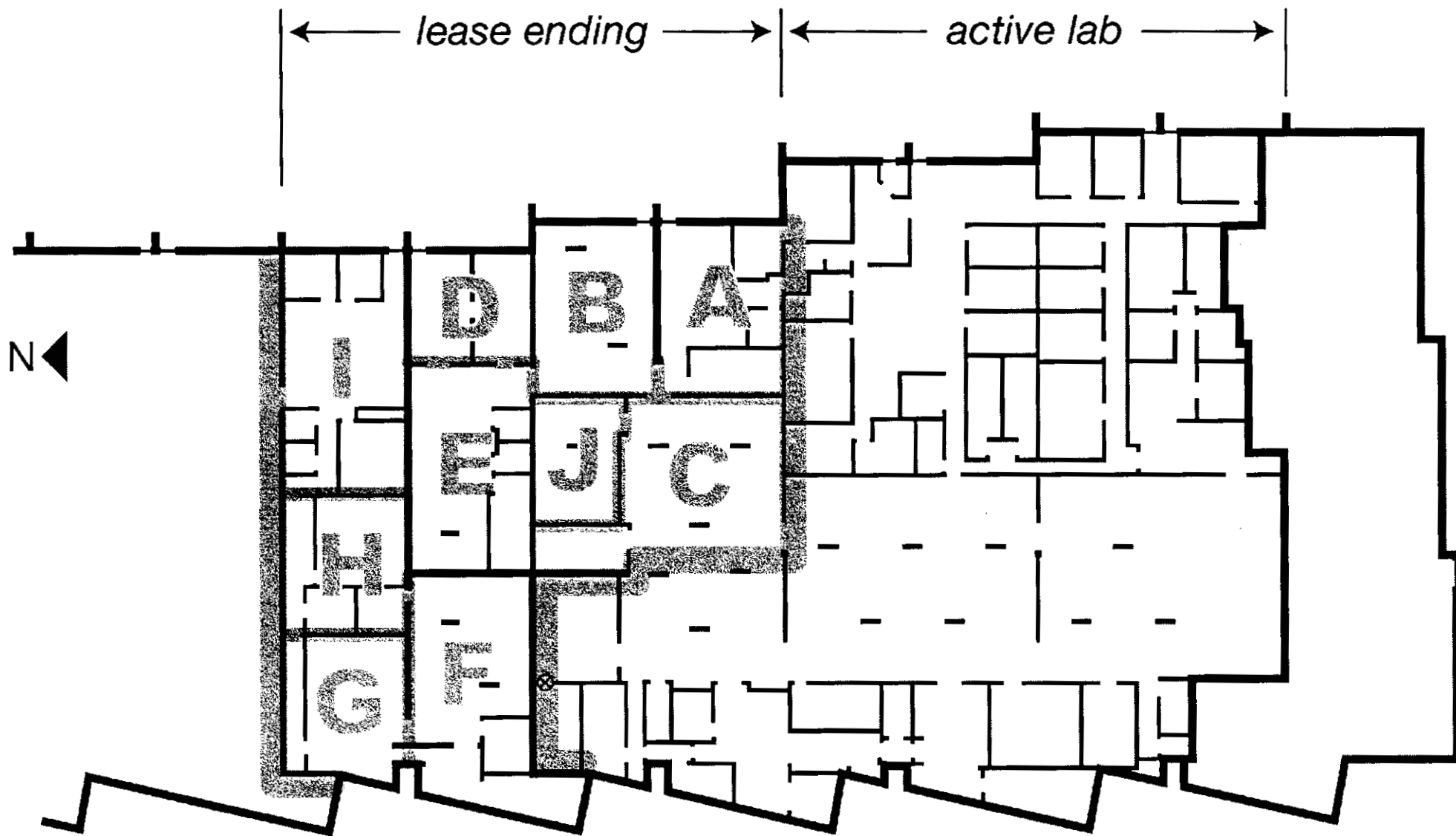


# Parker Hughes Institute Roseota



# Parker Hughes Institute Roseville, Minnesota





**Parker Hughes Institute**  
2657 Patton Road, Roseville MN

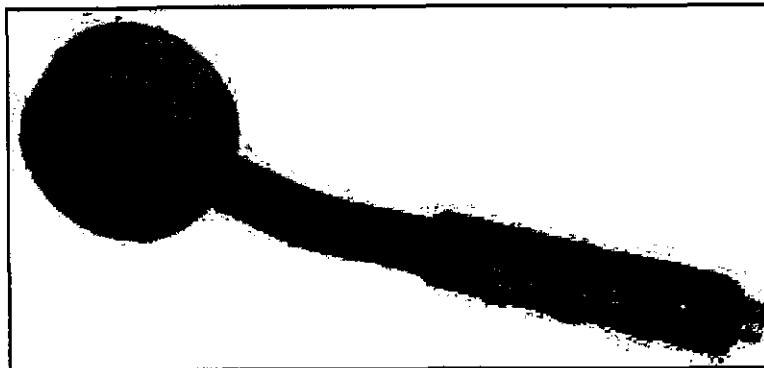
# GM Detector and Survey Meter

Instrument Specifications  
and  
Calibration Information

# MODEL 44-9 PANCAKE GEIGER-MULLER DETECTOR

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PART NUMBER: 47-1539



**INDICATED USE:** Alpha beta gamma survey; Frisking

**DETECTOR:** Pancake type halogen quenched G-M

**WINDOW:** 1.7 plus or minus 0.3 mg/cm squared mica

**WINDOW AREA:**

Active - 15 cm squared

Open - 12 cm squared

**EFFICIENCY(4pi geometry):** Typically 5%-C-14; 22%-Sr-90/Y-90; 19%-Tc-99; 32%-P-32; 15%-Pu-239

**SENSITIVITY:** Typically 3300 cpm/mR/hr (Cs-137 gamma )

**ENERGY RESPONSE:** Energy dependant

**DEAD TIME:** Typically 80 microseconds

**COMPATIBLE INSTRUMENTS:** General purpose survey meters, ratemeters, and scalars

**OPERATING VOLTAGE:** 900 volts

**CONNECTOR:** Series "C" (*others available* )

**CONSTRUCTION:** Aluminum housing with beige polyurethane enamel paint

**TEMPERATURE RANGE:** 5 degrees F(-15 degrees C) to 122 degrees F(50 degrees C)

May be certified to operate from -40 degrees F(-40 degrees C) to 150 degrees F(65 degrees C)

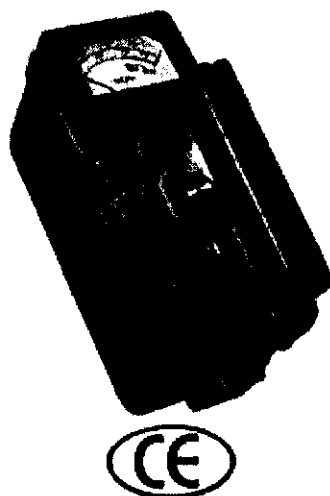
**SIZE:** 1.8" (4.6 cm)H X 2.7" (6.9 cm)W X 10.7" (27.2 cm)L

**WEIGHT:** 1 lb (0.5kg)

# MODEL 3 Survey Meter

PART NUMBER:48-1605

- **4 Ranges**
- **Utilizes G-M, or Scintillation Detectors**
- **Typical Counting Range from 0 - 200 mR/hr, or 0 - 500,000 cpm**
- **Greater Than 2000 Hour Battery Life**



**INDICATED USE:** General purpose survey

**COMPATIBLE DETECTORS:** G-M, scintillation

**METER DIAL:** 0 - 2 mR/hr, or 0 - 5k cpm, BAT TEST (*others available*)

**MULTIPLIERS:** X0.1, X1, X10,X100

**LINEARITY:** Reading within  $\pm 10\%$  of true value with detector connected

**CONNECTOR:** Series "C" (*others available*)

**AUDIO:** Built in unimorph speaker with ON/OFF switch (*greater than 60 dB at 2 feet*)

**CALIBRATION CONTROLS:** Accessible from front of instrument (*protective cover provided*)

**HIGH VOLTAGE:** Adjustable from 200 - 1500 volts

**THRESHOLD:** 30 mV  $\pm$  10 mV

**RESPONSE:** Toggle switch for FAST (4 seconds) or SLOW (22 seconds) from 10% to 90% of final reading  
**RESET:** Push-button to zero meter

**POWER:** 2 each "D" cell batteries (*housed in sealed compartment that is externally accessible*)

**BATTERY LIFE:** Typically greater than 2000 hours with alkaline batteries (*battery condition can be checked on meter*)

**METER:** 2.5" (6.4 cm) arc, 1 mA analog type

**CONSTRUCTION:** Cast and drawn aluminum with beige polyurethane enamel paint

**TEMPERATURE RANGE:** -4°F(-20°C) to 122°F(50°C)

May be certified for operation from -40°F(-40°C) to 150°F(65°C)

**SIZE:** 6.5" (16.5 cm)H X 3.5" (8.9 cm)W X 8.5" (21.6 cm)L

**WEIGHT:** 3.5 lbs. (1.6 kg) including batteries

For Alpha Detection	For Beta Detection	For Gamma Detection	For Alpha/beta/gamma Detection
Model 43-1*	Model 44-1*	Model 44-2	Model 44-7
Model 43-2*	Model 44-6	Model 44-3	Model 44-9
Model 43-5*	Model 44-7	Model 44-6	Model 44-88
Model 43-65*	Model 44-9	Model 44-7	Model 44-89
Model 43-90*	Model 44-21	Model 44-9	Model 44-94

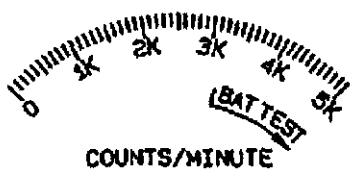
Model 44-7  
Model 44-9  
Model 44-88  
Model 44-89  
Model 44-94

Model 44-38  
Model 44-88  
Model 44-89  
Model 44-94  
Model 44-116\*

Model 44-10  
Model 44-17  
Model 44-20  
Model 44-21  
Model 44-38  
Model 133-2  
Model 133-4  
Model 133-6  
Model 133-7  
Model 133-8

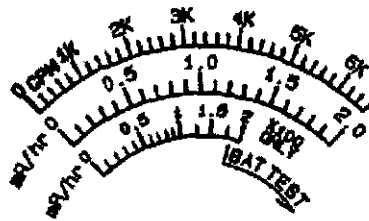
\*For Mylar window scintillators it is strongly suggested that the optional overload indicator be used on the Model 3 Survey Meter to better determine the presence of a light leak.

### Common Meter Dials



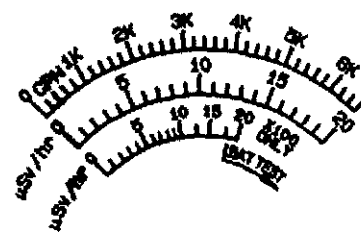
202-002

202-002  
0 - 5k cpm  
For Any Detector



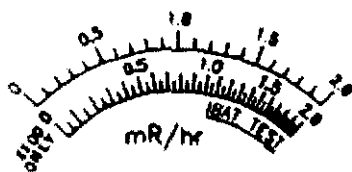
202-608

202-608  
0-6.6k cpm; 0-2 mR/hr  
For Model 44-9; 44-9-18;  
44-40; 44-88; 44-89; 44-94



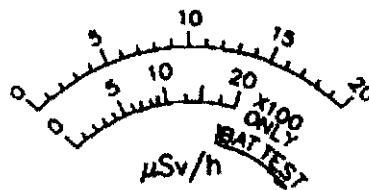
202-664

202-664  
0-6.6k cpm; 0-20 mSv/h  
For Model 44-9; 44-9-18;  
44-40; 44-88; 44-89; 44-94



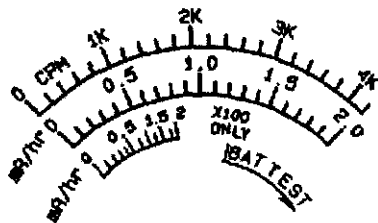
202-627

202-627  
0-2 mR/hr  
For Model 44-9; 44-9-18;  
44-40; 44-88; 44-89; 44-94



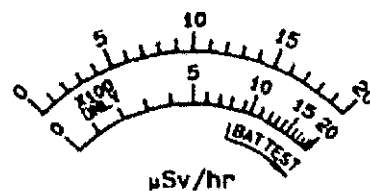
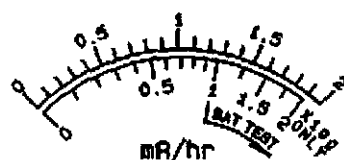
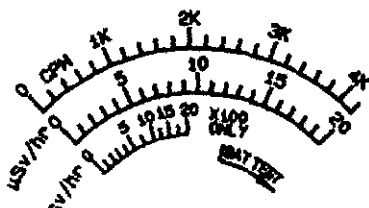
202-889

202-889  
0-20 mSv/h  
For Model 44-9; 44-9-18;  
44-40; 44-88; 44-89; 44-94



202-330

202-330  
0-4k cpm; 0-2 mR/hr  
For Model 44-7





Designer and Manufacturer  
of  
Scientific and Industrial  
Instruments

# CERTIFICATE OF CALIBRATION

**LUDLUM MEASUREMENTS, INC.**  
POST OFFICE BOX 810 PH. 325-235-5494  
501 OAK STREET FAX NO. 325-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER PARKER HUGHES INSTITUTE ORDER NO. 237517/292679

Mfr. Ludlum Measurements, Inc. Model 3 Serial No. 123415

A Ludlum Measurements, Inc. Model 44-9 Serial No. PR 143909

Cal. Date 15-Jun-05 Cal Due Date 15-Jun-06 Cal. Interval 1 Year Meterface 202-608

Check mark ☒ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 48 % Alt 693.8 mm Hg

☐ New Instrument ☐ Instrument Received ☒ Within Toler. +10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☒ Mechanical ck. ☒ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity

☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation ☒ Geotropism

☒ Audio ck. ☐ Alarm Setting ck. ☒ Batt. ck. (Min. Volt) 2.2 VDC

☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☒ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 900 V Input Sens. 34 mV Det. Oper. 900 V at 34 mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst.                      /                      V Ref./Inst.                      /                      V

## COMMENTS:

cs-137 ≈ luci check source sn 1537 reads as follows:  
≈ 1.05 mR/hr at x 10 ( ≈ 10.5 mR/hr) with protective screen of 44-9 detector  
placed against source holder with holder door open.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	150 mR/hr	1.5	1.5
X 100	50 mR/hr	0.5	0.5
X 10	15 mR/hr	1.5	1.5
X 10	5 mR/hr	0.5	0.5
X 1	1.5 mR/hr = 4950 cpm	1.5	1.5
X 1	1.0 mR/hr	1.0	1.0
X 0.1	495 cpm	1.5	1.5
X 0.1	164 cpm	0.5	0.5

\*Uncertainty within ± 10% C.F. within ± 20%

X0.1 Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			Log Scale		

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCCL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

## Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☒ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☒ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N                      ☐ Beta S/N                      ☐ Other                     

☒ m 500 S/N 94940 ☐ Oscilloscope S/N                      ☒ Multimeter S/N 78401031

Calibrated By: Scat S Tron Date 15-Jun-05

Reviewed By: WJL Date 16 Jun 05



# Liquid Scintillation Counter

## Instrument Specifications and Calibration Information

Manual 24

SCINTILLATION SYSTEM

# LS 6500



OPERATING INSTRUCTIONS

---

**BECKMAN**

3.16-3    1.00   -5.7    28.00   37.80    **47.48**   58.73    0.11    5.14

# Scintillation Counter Standards Parameters Obtained From Instrument

\*DATA BUFFER, ZEPPE: 53\*    30 SEP 2005 14:52

## AUTO DPM CALIBRATION MENU

### Parameters for AUTO DPM Calibration

14C STANDARD DPM:    52300.00  
 14C STANDARD DATE: 27 AUG 1999 08:00  
 3H STANDARD DPM:    104000.0  
 3H STANDARD DATE: 27 AUG 1999 08:00

## ACTIVE KEYS

mainC	HelpC	Select		Reset
revC	Print	Cancel		

ENTER STANDARD DPM

# Scintillation Counter Standards

Page: 1

ID: auto dpm rack

30 SEP 2005 11:40

USER: 0 COMMENT:

PRESET TIME : 1.00

DATA CALC : AUTO DPM H# : YES SAMPLE REPEATS: 1 PRINTED : STD

COUNT BLANK : NO IC# : NO REPLICATES : 1 RS032 : OFF

TWO PHASE : NO AD# : NO CYCLE REPEATS : 1 DISK : OFF

SCINTILLATOR: LIQUID LUMEX: NO LOW SAMPLE REQ: 0 RWM LIST : OFF

LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

CHAN: 0.0 - 1000.0 %ERROR: 0.00 FACTOR: 1.0000000 RKG. SUB: 0

SAM NO	POS	TIME MIN	H#	<u>auto</u> CPM %ERROR	auto DPM	auto EFF-1	LUMEX %	ELAPSED TIME
--------	-----	----------	----	---------------------------	-------------	---------------	------------	-----------------

<sup>14</sup> C	1	16-1	1.00	1.1 50382.00 0.89	52062.84	98.77	0.00	1.65
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<sup>1</sup> H	2	16-2	1.00	3.8 42552.00 0.97	72718.14	58.52	0.00	3.38
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### ACTIVITY CALIBRATION AND ERROR ANALYSIS

The  $^{14}\text{C}$  and  $^3\text{H}$  standards have been assayed for activity by comparison with the National Institute of Standards and Technology (NIST) carbon-14 solution standard, Standard Reference Material (SRM) No. 438 tartaric acid in 2M HCl, and tritium solution standard SRM No. 391-B-5, tritiated water in water. The H-Number method of calibration was used with secondary standards prepared from the NIST standards. The estimated activities for the activity standards and the reference dates for all standards are as follows:

H3	DPMs: 104,000	REF DATE: 27AUG99
C14	DPMs: 52,300	REF DATE: 27AUG99
BKG	DPMs: N/A	REF DATE: 27AUG99

THE PRODUCTION LOT NO.s  
FOR THE 3 STANDARDS ARE  
AS FOLLOWS :

H3	-	HJP1103
C14	-	CJPO406
BKG	-	BJP1908

The overall uncertainties associated with the activity values are estimated to be less than  $\pm 3.5\%$  for the  $^3\text{H}$  and  $\pm 3.5\%$  for the  $^{14}\text{C}$ . These estimates are determined in accordance with error analysis procedures recommended by the International Commission on Radiation Units and Measurements (ICRU Report 12). The limits are calculated by arithmetically summing the uncertainty due to random errors at the 99% confidence level with the assessable systematic errors. Random errors arise from production and assay procedures such as dispensing, weighing and counting. Systematic errors consist of uncertainty in the activity of the NIST-based secondary standards, overall uncertainty of the NIST SRM No. 391-B-5 as a function of time (assuming a half-life of 12.43 years and a half-life uncertainty of 0.5%); uncertainties in the standard weights used for calibrating the balances used in gravimetric determinations, losses of activity by evaporation and uncertainties in corrections applied for the effects of impurities on the scintillation process.

### RECOMMENDATIONS FOR USE

Unquenched standards can be used to:

1. Calibrate the instrument. Only one of these standards,  $^{14}\text{C}$  or  $^3\text{H}$ , can be used for calibration of your instrument. Refer to your Operator's Manual for proper calibration standard. *Use of any other standard from this set or another set requires the construction of new quench curves.*
2. Measure day-to-day  $^3\text{H}$  and  $^{14}\text{C}$  counting efficiencies for comparison with original factory specifications and for verifying stable system performance.
3. Measure  $E^2/B$  ratios for low-level activity counting.
4. Measure  $^3\text{H}$  and  $^{14}\text{C}$  "spillover" in dual-label counting channels.

The instrument Operator's Manual should be consulted for specific instructions on use of these standards.

### LIMITATIONS ON USE

*Unquenched* standards should not be used to construct quench correction curves for calibration of *quenched* samples.

### PRECAUTIONS ON STORAGE AND USE

These standards are prepared taking great care to exclude moisture, oxygen, and organic impurities which might affect their long-term stability. The fluors which they contain, however, are susceptible to photochemical degradation, and excessive exposure to sunlight or fluorescent lighting may result in their deterioration.

Samples should be stored in the dark at room temperature and, when in use, exposed only to incandescent lighting. This treatment will improve long-term stability—at least five years—and is highly recommended.

### PRECAUTIONS AND THE SAFE USE OF EXEMPT QUANTITY RADIOACTIVE MATERIALS

1. The low quantity radioactive materials in these standards are exempt from U.S. Nuclear Regulatory Commission and state licensing requirements.
2. These radioactive materials are not for human use. Introduction into foods, beverages, cosmetics, drugs, or medicinals, or into products manufactured for commercial distribution is prohibited—exempt quantities should not be consumed.

3. Radioactive material should be stored in a designated area in its original shipping container or labeled inner package.
4. Do not eat, drink, smoke, apply cosmetics, store, or prepare food in any area where radioactive materials are used.
5. Avoid direct contact with all radioactive materials by use of protective articles, such as disposable gloves and lab coats.
6. Use necessary precautions to prevent contamination of the laboratory and equipment, e.g., absorbent material on work surfaces, disposable lab ware.
7. Do not pipette by mouth.
8. Handle all sealed radioactive sources with care so as not to disturb the physical integrity of the capsule or ampoule.
9. This product may be disposed of without regard to its radioactive content provided all radioactive symbols and labels have been removed or de-faced. However, state, federal, or institutional requirements regarding any hazardous component(s) of this product must be addressed.
10. **These precautions are applicable to the handling and disposal of exempt quantity radioactive materials and may not be adequate for other kinds, quantities, or uses of radioactive material.**

**BECKMAN**  
MADE IN U.S.A.



#### PRODUCT DESCRIPTION

The 594946 Liquid Scintillation Standards Set consists of three calibrated, sealed, unquenched samples of: (1) carbon-14, (2) hydrogen-3, and (3) unlabeled (blank) toluene in a scintillation solution. The scintillation solution used contains 4 grams of PPO (2,5-diphenyloxazole) and 0.05 gram of bis-MSB (p-bis[o-methylstyryl] benzene) per liter of scintillation-grade toluene. Both the PPO and bis-MSB are scintillation-grade fluors. All standards are furnished in 7-milliliter, low-potassium glass ampoules and sealed under nitrogen, with special precautions taken to exclude oxygen and moisture, which cause quenching. The radioactive standards are prepared by dispensing 4 milliliters of a  $^{14}\text{C}$  or  $^3\text{H}$  master solution into a 7-milliliter ampoule and flame-sealing it immediately. After leak-testing, a white paint is applied to the top of the ampoule, and a cap is attached. The blank standard is prepared in a similar way.

Decay Corection and Efficiency Calculation for Scintillation Standards			
Beginning Date C-14 std	8/27/99	Counting Efficiency for C-14	
Beginning Activity	52300		
Half Life (days)	2091450		
	ehs=code		
Current Date	9/29/05		
Elapsed Days	2225	Counted Ad	Counted /decay corrected x 100
Calculated Current Activity	52261.45	50421	96.48
Beginning Date H-3 std	8/27/99	Counting Efficiency for H-3	
Beginning Activity	104000		
Half Life (days)	4489.5		
	ehs=code		
Current Date	9/29/05		
Elapsed Days	2225	Counted Ad	Counted /decay corrected x 100
Calculated Current Activity	73763.69	42810	58.04

INSTRUMENT CALIBRATION: Mini 1 SEP 2005 15:55  
Calibration successful

Calibrating Auto DPM  
Counting Standard for 14C  
Calibration Complete: 14C  
Counting Standard for 3H  
Calibration Complete: 3H  
Calibration Successful

# Appendix A

## Instrument Specifications

### A.1 Efficiency

<sup>3</sup> H:	≥ 60% in a wide open window
<sup>14</sup> C:	≥ 95% in a wide open window

These specifications are applicable only for Beckman calibrated standards traceable to the National Bureau of Standards. The LS counter must be properly calibrated.

### A.2 H# Plus

**Reproducibility:** ±1% Counting Efficiency

H# Plus reproducibility is measured relative to a <sup>3</sup>H quench curve set up with a wide open window

### A.3 Maximum Count Rate For Reproducible H#

Isotope	Standard Vials (18-5 mL)	Miniature Vials (6-1 mL)	Microfuge Tubes (1.5-0.2 mL)
<sup>3</sup> H:	10 x 10 <sup>6</sup> dpm	4 x 10 <sup>6</sup> dpm	4 x 10 <sup>6</sup> dpm
<sup>14</sup> C:	6 x 10 <sup>6</sup> dpm	2 x 10 <sup>6</sup> dpm	10 x 10 <sup>4</sup> dpm
<sup>32</sup> P:	2.8 x 10 <sup>6</sup> dpm	18 x 10 <sup>4</sup> dpm	3 x 10 <sup>4</sup> dpm

These values are for the minimum allowable volume for each of the three ranges.

### A.4 Maximum Count Rates

The hot sample reject will not allow the counting of samples that are so radioactive ("hot") that they will give incorrect CPM. The hot sample reject criteria are:

<b>Total singles:</b>	26 x 10 <sup>6</sup> CPM
<b>Coincident counts (in <sup>3</sup>H window):</b>	10 x 10 <sup>6</sup> CPM
<b>Coincident counts (in <sup>14</sup>C window):</b>	13 x 10 <sup>6</sup> CPM
<b>Coincident counts (in window above <sup>14</sup>C):</b>	5 x 10 <sup>6</sup> CPM

### A.5 Power Requirements

Electrical Requirements:	120V	240V	BTU/HR
(50/60 Hz)			

<b>Instrument</b>	3A	1.5A	1230
<b>Temperature</b>	7.5A	3.8A	3060
<b>Control Accy</b>			

<b>Inrush Current:</b>	5A at 120V
	2.5A at 240V

<b>Power Failure Recovery</b>	With a fully charged battery, the system returns to a disrupted Automatic Count for several weeks.
-------------------------------	--

### A.6 Dimensions

	Width cm(in.)	Height cm (in.)	Depth cm(in.)	Weight kg(lbs.)
<b>Instrument:</b>	91.5(36)	66(26)	80(31.5)	210(460)
<b>CRT:</b>	33(13)	34.3(13.5)	35.6(12)	8.2(18)
<b>Printer:</b>	39(15.5)	10(4)	30.5(12)	5(11)
<b>Temperature Control Accy.*</b>	35.5(14)	56(22)	73.7(29)	45.4(100)

\*Temperature Control Accessory attaches to right side of instrument



## A.7 Ambient Temperature Range

15°C to 35°C. Calibration must be performed within 5°C of operating temperature.

## A.8 Temperature Control Accessory

**Maximum Relative Humidity:** 85%

**Ambient Temperature Range:** 15° to 30°

**Maximum Pull Down Time:** 8 Hours

**Set Point 1:** 12°C +3°C

**Set Point 2:** 15°C +3°C

**Set Point 3:** 18°C +3°C

Set Point must be within 10°C of the operating ambient temperature.



# Customer Technical Support

"Service...the way service should be"

www.beckmancoulter.com  
Phone 1-800-742-2345

<b>ACCOUNT</b> PARKER HUGHES INSTITUTE SUITE 300 SUITE 300 2665 LONG LAKE RD ROSEVILLE MN 55113		<b>MODEL</b> LS6500 <b>ID NUMBER</b> 296185 <b>MODEL DESCRIPTION</b> LIQUID SCINTILLATION COUNTER 6500 <b>AGREEMENT TYPE</b> BT+ <b>PURCHASE ORDER NUMBER</b>		<b>SERIAL NUMBER</b> 7068525 <b>PROPERTY NUMBER</b>  <b>AGREEMENT NUMBER</b> 1031922		
<b>SERVICE ORDER NUMBER</b> 4844907		<b>REQUEST DATE</b> 08/05/2005		<b>CALL COMPLETE DATE</b> 08/05/2005		
<b>DESCRIPTION OF WORK PERFORMED</b>						
<b>PROBLEM:</b> Routine servicer due						
<b>SOLUTION:</b> Performed PM per checklist. Installed part(s) listed. ***						
<b>END DATE</b>	<b>DESCRIPTION</b>	<b>TYPE</b>	<b>HOURS</b>	<b>RATE</b>	<b>EXTENDED AMOUNT</b>	<b>CUSTOMER CHARGE</b>
08/05/2005	PM	Travel	1.00	\$275.00	\$275.00	\$0.00
		Labor	3.00	\$275.00	\$825.00	\$0.00
<b>LABOR/TRAVEL TOTAL</b>					<b>\$1,100.00</b>	<b>\$0.00</b>
<b>PART NUMBER</b>	<b>PART DESCRIPTION</b>	<b>QTY</b>	<b>PRICE</b>	<b>EXTENDED AMOUNT</b>	<b>CUSTOMER CHARGE</b>	
<b>PARTS TOTAL</b>					<b>\$0.00</b>	<b>\$0.00</b>
<b>TOTAL CHARGE</b>					<b>\$1,100.00</b>	<b>\$0.00</b>
DEAN P WILLIAMS SR FIELD SVC ENGR		Cathy Knox RSO				
BECKMAN COULTER, INC.		08/05/2005 DATE		08/05/2005 DATE		
		PARKER HUGHES INSTITUTE				

Total is an estimate only and does not include applicable sales tax and shipping charges.

BECKMAN INSTRUMENTS, INC.  
LS ANALYZER

5 AUG 2005 13:45

\*DATA BUFFER, %FREE: 91\*

5 AUG 2005 14:05

A U T O M A T I C   C O U N T I N G

Load samples.  
Press [START] to begin Automatic  
Counting

A C T I V E   K E Y S

ainC	HelpC		Start	Reset
revC	Print			

BECKMAN INSTRUMENTS, INC.  
LS ANALYZER

5 AUG 2005 14:33

INSTRUMENT CALIBRATION: Mini   5 AUG 2005 15:00  
Calibration successful



# Customer Technical Support

Service the way service should be

www.beckmancoulter.com  
Phone 1-800-742-2345

<b>ACCOUNT</b> PARKER HUGHES INSTITUTE SUITE 300 SUITE 300 2665 LONG LAKE RD ROSEVILLE MN 55113 (651)247-1922 Ext: Cell	<b>MODEL</b> LS6500 <b>ID NUMBER</b> 296185 <b>MODEL DESCRIPTION</b> LIQUID SCINTILLATION COUNTER 6500 <b>AGREEMENT TYPE</b> BT+ <b>PURCHASE ORDER NUMBER</b>	<b>SERIAL NUMBER</b> 7068525 <b>PROPERTY NUMBER</b>  <b>AGREEMENT NUMBER</b> 1031922
---	---	---

<b>SERVICE ORDER NUMBER</b> 4292505	<b>REQUEST DATE</b> 11/04/2004	<b>CALL COMPLETE DATE</b> 11/03/2004
--	-----------------------------------	---

## DESCRIPTION OF WORK PERFORMED

**PROBLEM:** Possible card reader; survey card 3 was read as program 12./mods

**SOLUTION:** Repaired rack reader board. Replaced C137 source. Calibrated and checks OK.  
\*\*\*

DATE	DESCRIPTION	TIME	RATE	AMOUNT	TOTAL
11/03/2004	NON-BILLABLE SERVICE	Travel	1.00	\$230.00	\$230.00
		Labor	1.50	\$230.00	\$345.00
	REPAIR	Labor	1.00	\$230.00	\$230.00
LABOR/TRAVEL TOTAL				\$805.00	\$0.00
DATE	DESCRIPTION	TIME	RATE	AMOUNT	TOTAL
598860	**HM**SOURCE(RGA RQD)SHIP W/599764	1.00	\$710.00	\$710.00	\$0.00
PARTS TOTAL				\$710.00	\$0.00

PETER HANSON  
SR FIELD SVC ENGR

Cathy Knox  
Safety

BECKMAN COULTER, INC. 11/03/2004  
DATE

PARKER HUGHES INSTITUTE 11/03/2004  
DATE

Total is an estimate only and does not include applicable sales tax and shipping charges.

# Background Scintillation Data

Establishment of Background Counts  
Beckman LS6500

Counting		
sample #	Time(min)	Counts
1	1:00	36
2	1:00	19
3	1:00	23
4	1:00	31
5	1:00	39
6	1:00	21
7	1:00	27
8	1:00	21
9	1:00	26
10	1:00	26
11	1:00	21
12	1:00	24
13	1:00	29
14	1:00	25
15	1:00	21
16	1:00	20
17	1:00	25
18	1:00	17
19	1:00	23
20	1:00	19
	Ave	24.65
	Stdev	5.65
	Range	19-30.3

Background counts at 50% efficiency (factor = 2)

Counting		
sample #	Time(min)	Counts
1	1:00	42
2	1:00	48
3	1:00	38
4	1:00	46
5	1:00	40
6	1:00	54
7	1:00	48
8	1:00	50
9	1:00	72
10	1:00	34
11	1:00	42
12	1:00	54
13	1:00	48
14	1:00	64
15	1:00	48
16	1:00	68
17	1:00	34
18	1:00	34
19	1:00	62
20	1:00	58
	Ave	49.2
	Stdev	11.2
	Range	38-60.4

# ID : SMEAR SURVEY

7 SEP 2005 17:55

USER: 3

COMMENT:

PRESET TIME : 1.00

DATA CALC :	CPM	H# :	NO	SAMPLE REPEATS :	1	PRINTER :	EDIT
COUNT BLANK :	NO	ID# :	NO	REPLICATES :	1	R5232 :	OFF
TWO PHASE :	NO	ACC :	NO	CYCLE REPEATS :	1	DISK :	EDIT
SCINTILLATOR :	LIQUID	LUMEX :	YES	LOW SAMPLE REJ :	0	RWM LIST :	OFF
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE :	none				

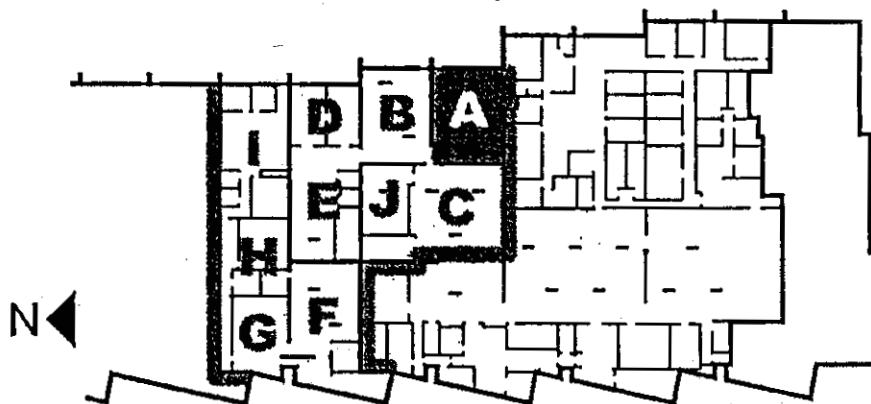
WIDE OPEN WINDOW      %ERROR: 2.00      FACTOR: 2.000000      BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	57-1	1.00	42.00	43.64	5.23	1.34
2	57-2	1.00	48.00	40.82	1.85	2.69
3	57-3	1.00	38.00	45.88	2.12	4.05
4	57-4	1.00	46.00	41.70	1.82	5.42
5	57-5	1.00	40.00	44.72	2.10	6.77
6	57-6	1.00	54.00	38.49	1.30	8.13
7	57-7	1.00	48.00	40.82	2.26	9.52
8	57-8	1.00	50.00	40.00	1.87	10.97
9	57-9	1.00	72.00	33.33	1.21	12.24
10	57-10	1.00	34.00	48.51	3.01	13.60
11	57-11	1.00	42.00	43.64	3.65	14.97
12	57-12	1.00	54.00	38.49	1.22	16.33
13	57-13	1.00	48.00	40.82	1.83	17.72
14	57-14	1.00	64.00	35.36	1.25	19.07
15	57-15	1.00	48.00	40.82	2.44	20.44
16	57-16	1.00	68.00	34.30	1.10	21.82
17	57-17	1.00	34.00	48.51	1.75	23.17
18	57-18	1.00	34.00	48.51	1.88	24.53
19	31-1	1.00	62.00	35.92	1.81	26.02
20	31-2	1.00	58.00	37.14	1.88	27.39

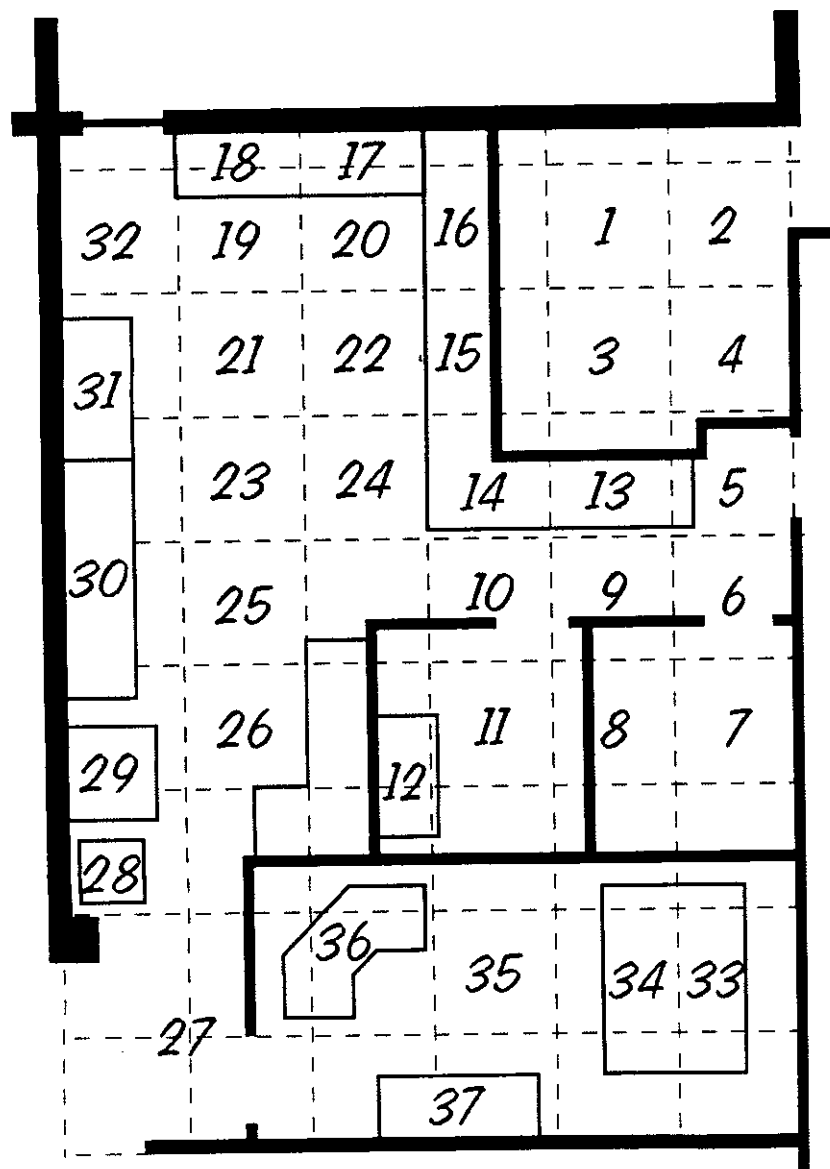
# General Laboratory Area

## Smear and GM Data

*Parker Hughes Institute*  
2657 Patton Road, Roseville MN



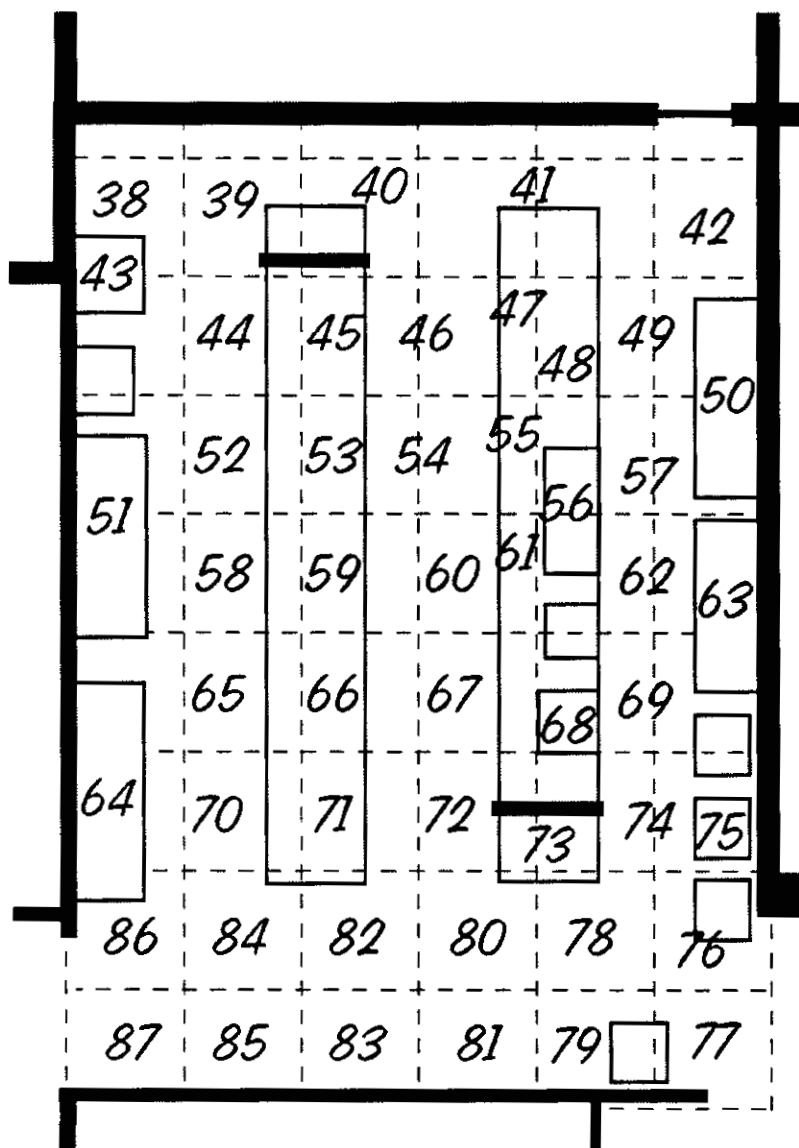




## General Lab Area Section A

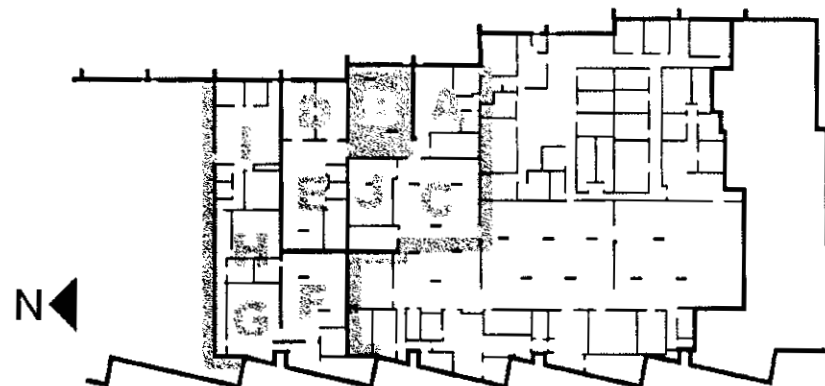
**Parker Hughes Institute**  
2657 Patton Road, Roseville MN

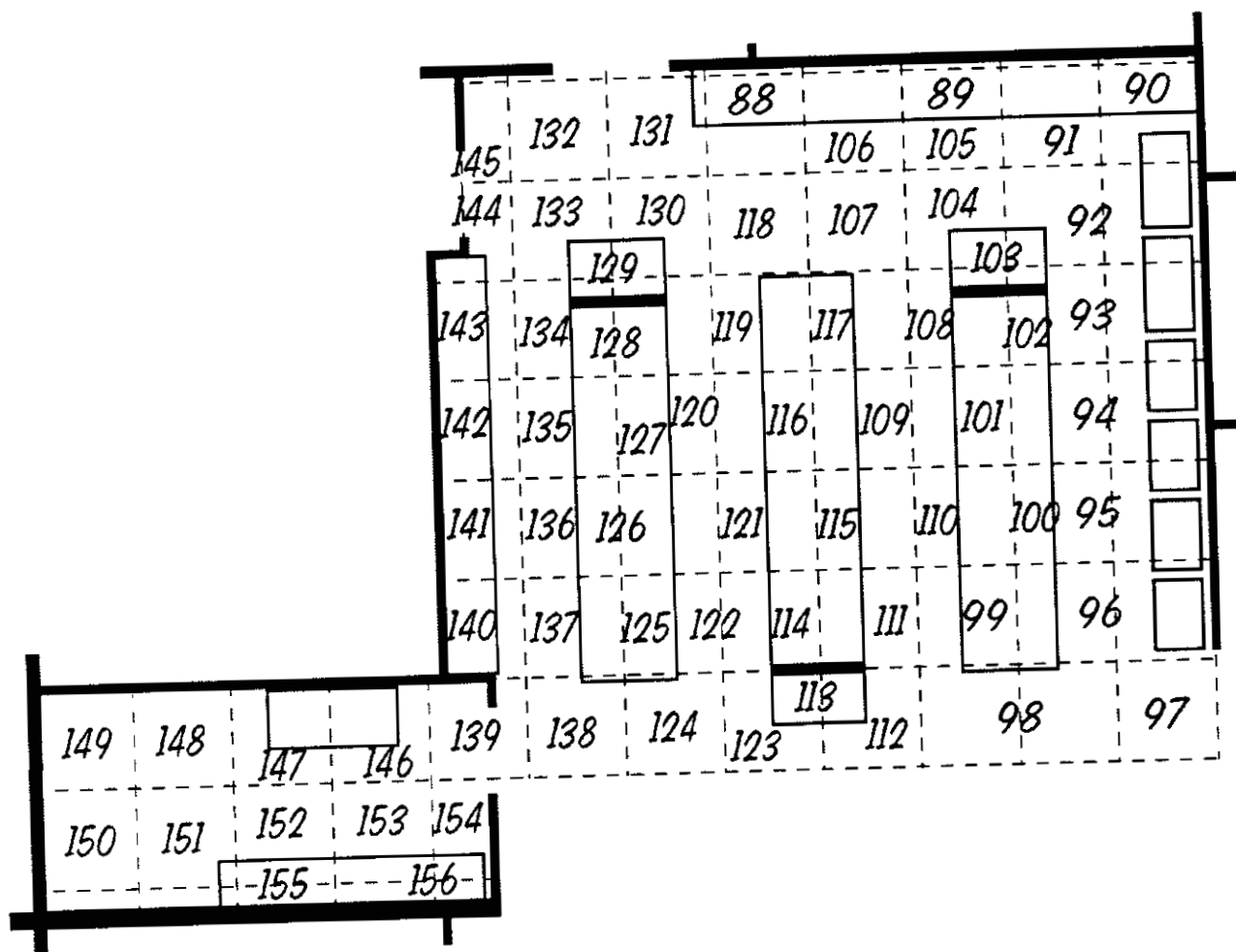




## General Lab Area Section B

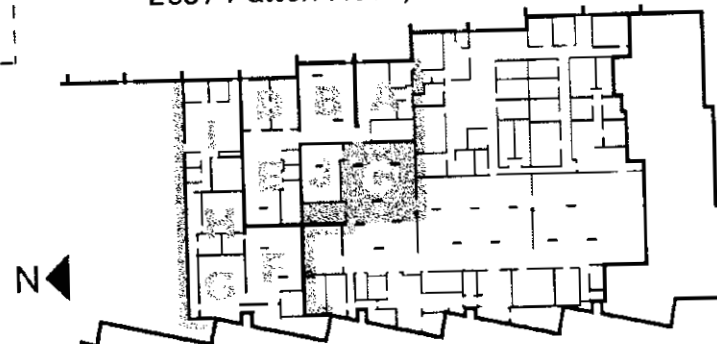
**Parker Hughes Institute**  
2657 Patton Road, Roseville MN





**General Lab Area**  
**Section C**

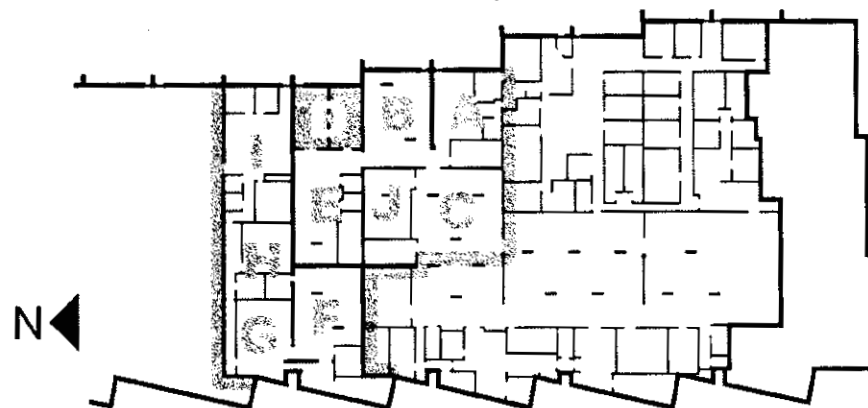
**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



# General Lab Area Section D

157	158	159	172	173	174
160	161	162	177	176	175
163	164	165	178	179	180
166	167	168	183	182	181
169	170	171	184	185	186

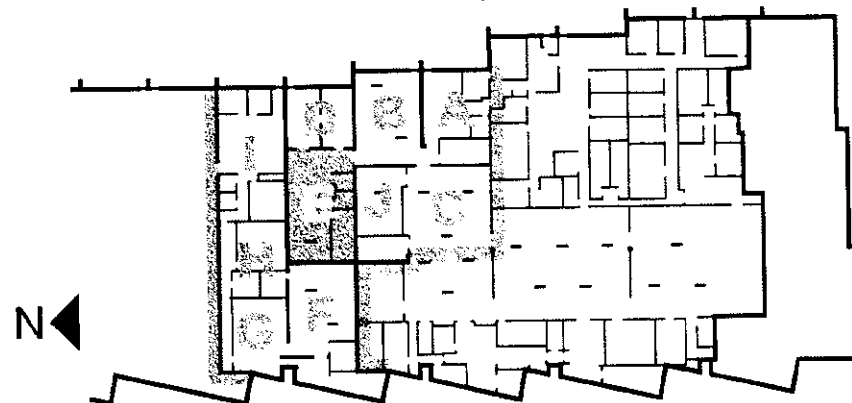
**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



197	195	193	191	189	187
198	196	194	192	190	188
204	203	202	201	200	199
212	211	210	209	208	207
217	216	215	214	213	212
222	221	220	219	218	217
235	234	233	232	231	230
242	241	240	239	238	237
249	248	247	246	245	244
255	254	253	252	251	250

## General Lab Area Section E

**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



Survey Date:	9/2/2005	Surveyed by:	Cathy Knox
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>	
Radioisotopes:	All (wide window)	Instrument:	Ludlum GM ser#123415
Efficiency (%)	50%	Background:	< 0.05 mR/Hr
Instrument:	LS6500	Calibration date:	6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
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**Section A**

1	Office (carpet)	44	BKD		
2	Office (carpet)	46	BKD		
3	Office (carpet)	62	BKD		
4	Office (carpet)	46	BKD		
5	Floor (Lab)	60	BKD		
6	Floor (Lab)	46	BKD		
7	Floor (Lab)	28	BKD		
8	Table	46	BKD		
9	Floor (Lab)	58	BKD		
10	Floor (Lab)	58	BKD		
11	Floor (Lab)	78	BKD		
12	FAC's Analyzer/table	64	BKD		
13	Lab bench / Centrifuge	46	BKD		
14	Lab Bench	54	BKD		
15	Lab bench / Centrifuge	72	BKD		
16	Lab Bench	54	BKD		
17	Lab Bench	64	BKD		
18	Lab Bench	50	BKD		
19	Floor (Lab)	54	BKD		
20	Floor (Lab)	44	BKD		
21	Floor (Lab)	46	BKD		
22	Floor (Lab)	36	BKD		
23	Floor (Lab)	40	BKD		
24	Floor (Lab)	32	BKD		
25	Floor (Lab)	72	BKD		
26	Floor (Lab)	58	BKD		
27	Floor (Lab)	54	BKD		
28	CO2 Incubator	56	BKD		
29	Cold Box	52	BKD		
30	Safety Cabinet	64	BKD		
31	Safety Cabinet	38	BKD		
32	Floor	52	BKD		
33	Microscope table	46	BKD		
34	Microscope table	58	BKD		
35	Floor	66	BKD		
36	FAC Analyzer	66	BKD		
37	Microscope table	54	BKD		

**Section B**

38	Floor	44	BKD		
39	Floor	70	BKD		
40	Floor	62	BKD		
41	Floor	44	BKD		
42	Floor	42	BKD		
43	Cold box	44	BKD		

Survey Date:	9/2/2005	Surveyed by:	Cathy Knox
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>	
Radioisotopes:	All (wide window)	Instrument:	Ludlum GM ser#123415
Efficiency (%)	50%	Background:	< 0.05 mR/Hr
Instrument:	LS6500	Calibration date:	6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
<b>Section B (continued)</b>					
44	Floor	48	BKD		
45	Bench	56	BKD		
46	Floor	48	BKD		
47	Bench	42	BKD		
48	Bench	48	BKD		
49	Floor	60	BKD		
50	Safety Cabinet	68	BKD		
51	Fume hood	62	BKD		
52	Floor	38	BKD		
53	Bench / Microfuge	54	BKD		
54	Floor	56	BKD		
55	Bench	52	BKD		
56	Cold Box	68	BKD		
57	Floor	64	BKD		
58	Floor	42	BKD		
59	Weigh station	56	BKD		
60	Floor	64	BKD		
61	Bench	54	BKD		
62	Floor	56	BKD		
63	Table	66	BKD		
64	Hood	50	BKD		
65	Floor	50	BKD		
66	Bench	54	BKD		
67	Floor	48	BKD		
68	CO2 Incubator	58	BKD		
69	Floor	44	BKD		
70	Floor	56	BKD		
71	Bench	48	BKD		
72	Floor	56	BKD		
73	Sink	48	BKD		
74	Floor	42	BKD		
75	Freezer	56	BKD		
76	Freezer	46	BKD		
77	Floor	52	BKD		
78	Floor	52	BKD		
79	Floor	68	BKD		
80	Floor	44	BKD		
81	Floor	58	BKD		
82	Floor	42	BKD		
83	Floor	42	BKD		
84	Floor	54	BKD		
85	Floor	46	BKD		
86	Floor	38	BKD		
87	Floor	76	BKD		

2657 Lab Space *DATA*

Survey Date:	9/2/2005	Surveyed by:	Cathy Knox
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>	
Radioisotopes:	All (wide window)	Instrument:	Ludlum GM ser#123415
Efficiency (%)	50%	Background:	< 0.05 mR/Hr
Instrument:	LS6500	Calibration date:	6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
<b>Section C</b>					
88	Bench	66	BKD		
89	Bench	62	BKD		
90	Bench	68	BKD		
91	Floor	70	BKD		
92	Floor	38	BKD		
93	Floor	30	BKD		
94	Floor	76	BKD		
95	Floor	40	BKD		
96	Floor	38	BKD		
97	Floor	58	BKD		
98	Floor	62	BKD		
99	Bench	48	BKD		
100	Bench	58	BKD		
101	Bench	56	BKD		
102	Bench	58	BKD		
103	Bench	40	BKD		
104	Floor	60	BKD		
105	Floor	48	BKD		
106	Floor	58	BKD		
107	Floor	56	BKD		
108	Floor	56	BKD		
109	Floor	60	BKD		
110	Floor	52	BKD		
111	Floor	56	BKD		
112	Floor	56	BKD		
113	Sink	64	BKD		
114	Bench	54	BKD		
115	Bench	60	BKD		
116	Bench	48	BKD		
117	Bench	34	BKD		
118	Floor	40	BKD		
119	Floor	42	BKD		
120	Floor	58	BKD		
121	Floor	58	BKD		
122	Floor	40	BKD		
123	Floor	82	BKD		
124	Floor	58	BKD		
125	Bench	40	BKD		
126	Bench	56	BKD		
127	Bench	52	BKD		
128	Bench	62	BKD		
129	Sink	62	BKD		
130	Floor	62	BKD		
131	Floor	54	BKD		



Survey Date:	9/2/2005	Surveyed by:	Cathy Knox
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>	
Radioisotopes:	All (wide window)	Instrument:	Ludlum GM ser#123415
Efficiency (%)	50%	Background:	< 0.05 mR/Hr
Instrument:	LS6500	Calibration date:	6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
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**Section C (continued)**

132	Floor	52	BKD		
133	Floor	42	BKD		
134	Floor	62	BKD		
135	Floor	52	BKD		
136	Floor	54	BKD		
137	Floor	52	BKD		
138	Floor	56	BKD		
139	Floor	66	BKD		
140	Bench	32	BKD		
141	Bench	54	BKD		
142	Bench	52	BKD		
143	Bench	42	BKD		
144	Floor	56	BKD		
145	Floor	44	BKD		
146	Floor (Hydrobroma room)	46	BKD		
147	Floor (Hydrobroma room)	62	BKD		
148	Floor	52	BKD		
149	Floor	38	BKD		
150	Floor	52	BKD		
151	Floor	50	BKD		
152	Floor	60	BKD		
153	Floor	48	BKD		
154	Floor	70	BKD		
155	Floor/bench	54	BKD		
156	Floor/bench	64	BKD		

**Section D**

157	Floor	52	BKD		
158	Floor	52	BKD		
159	Floor	54	BKD		
160	Floor	52	BKD		
161	Floor/Analytical X-ray machine	42	BKD		
162	Floor	36	BKD		
163	Floor	60	BKD		
164	Floor	38	BKD		
165	Floor	46	BKD		
166	Walk-in cooler	52	BKD		
167	Floor	66	BKD		
168	Floor	52	BKD		
169	Walk-in cooler	50	BKD		
170	Floor	66	BKD		
171	Floor	56	BKD		
172	Floor/desk	46	BKD		
173	Floor	50	BKD		
174	Bench	78	BKD		

Survey Date:	9/2/2005	Surveyed by:	Cathy Knox
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>	
Radioisotopes:	All (wide window)	Instrument:	Ludlum GM ser#123415
Efficiency (%)	50%	Background:	< 0.05 mR/Hr
Instrument:	LS6500	Calibration date:	6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
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**Section D (continued)**

175	Bench	82	BKD		
176	Floor	48	BKD		
177	Floor/desk	56	BKD		
178	Floor	58	BKD		
179	Floor	60	BKD		
180	Bench	48	BKD		
181	Bench	46	BKD		
182	Floor	36	BKD		
183	Floor	52	BKD		
184	Floor/refrigerator	70	BKD		
185	Floor	42	BKD		
186	Floor	54	BKD		

**Section E**

187	Floor	58	BKD		
188	Floor/freezer	56	BKD		
189	Floor	48	BKD		
190	Floor/centrifuge	48	BKD		
191	Floor	62	BKD		
192	Floor	50	BKD		
193	Floor/refrigerator	32	BKD		
194	Floor	66	BKD		
195	Floor	52	BKD		
196	Floor	58	BKD		
197	Floor/refrigerator	72	BKD		
198	Floor/centrifuge	46	BKD		
199	Floor/water softener	52	BKD		
200	Floor	48	BKD		
201	Floor	58	BKD		
202	Floor	40	BKD		
203	Floor	52	BKD		
204	Floor	62	BKD		
205	Bench	74	BKD		
206	Floor	88	BKD		
207	Floor	36	BKD		
208	Floor/refrigerator	58	BKD		
209	Floor	64	BKD		
210	Bench	48	BKD		
211	Floor	40	BKD		
212	Floor/cold box	54	BKD		
213	Floor/refrigerator	50	BKD		
214	Floor	40	BKD		
215	Bench	52	BKD		
216	Floor	52	BKD		
217	Floor	64	BKD		

Survey Date:	9/2/2005	Surveyed by:	Cathy Knox	
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>		
Radioisotopes:	All (wide window)	Instrument:	Ludlum GM ser#123415	
Efficiency (%)	50%	Background:	< 0.05 mR/Hr	
Instrument:	LS6500	Calibration date:	6/15/05	

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
<b>Section E (continued)</b>					
218	Floor	62	BKD		
219	Floor	58	BKD		
220	Bench	54	BKD		
221	Floor	60	BKD		
222	Floor	52	BKD		
223	Floor	48	BKD		
224	Floor	42	BKD		
225	Floor	36	BKD		
226	Floor	66	BKD		
227	Floor	52	BKD		
228	Floor	44	BKD		
229	Floor/VAC system	54	BKD		
230	Floor	60	BKD		
231	Incubator	44	BKD		
232	Floor	46	BKD		
233	Bench	44	BKD		
234	Floor	46	BKD		
235	Floor	56	BKD		
236	Floor/VAC system	60	BKD		
237	Table	64	BKD		
238	Captair Hood	56	BKD		
239	Floor	52	BKD		
240	Bench	64	BKD		
241	Floor	62	BKD		
242	Hood	48	BKD		
243	Floor/VAC system	56	BKD		
244	Floor	54	BKD		
245	Floor	46	BKD		
246	Floor	68	BKD		
247	Sink	72	BKD		
248	Floor	64	BKD		
249	Hood	52	BKD		
250	Caron Incubator	62	BKD		
251	Caron Incubator	52	BKD		
252	Floor	44	BKD		
253	Floor	54	BKD		
254	Floor	50	BKD		
255	Floor	72	BKD		

1000 REPUBLICAN

THE NEW YORK

General Lab Sections A to E

1 SEP 2005 10:11

USER: J

CONVERT

PRESET CHANNEL

1.00

DATA CALL

CPM

HI

NO

SAMPLE REPEATS

1

PRINTER

:EDIT

COUNT BLANK

NO

100

NO

REPLICATES

1

RS232

: OFF

TWO PHASE

NO

ADD

NO

CYCLE REPEATS

1

DISK

:EDIT

SCINTILLATOR

LIQUID

LUMEX:YES

LOW SAMPLE BEJ

0

RWM LIST

: OFF

LOW LEVEL

NO

HALF LIFE

CORRECTION DATE

none

WIDE OPEN WINDOW

WERROR: 2.00

FACTOR:

2.000000

BKG. SUB:

0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	61-1	1.00	44.00	42.64	2.42	1.32
2	61-2	1.00	46.00	41.70	2.63	2.65
3	61-3	1.00	62.00	35.97	2.25	4.04
4	61-4	1.00	46.00	41.70	2.74	5.40
5	61-5	1.00	60.00	33.33	1.34	6.77
6	61-6	1.00	46.00	41.70	2.52	8.07
7	61-7	1.00	28.00	53.57	3.10	9.30
8	61-8	1.00	46.00	41.70	1.74	10.65
9	61-9	1.00	58.00	37.14	1.22	12.00
10	61-10	1.00	58.00	37.14	1.30	13.59
11	61-11	1.00	78.00	32.05	2.80	14.94
12	61-12	1.00	64.00	35.36	1.37	16.30
13	61-13	1.00	46.00	41.70	1.94	17.59
14	61-14	1.00	54.00	38.49	1.70	19.05
15	61-15	1.00	72.00	33.33	2.66	20.42
16	61-16	1.00	54.00	38.49	1.76	21.80
17	61-17	1.00	64.00	35.36	2.20	23.15
18	61-18	1.00	50.00	40.00	3.53	24.52
19	13-1	1.00	54.00	38.49	1.15	26.02
20	13-2	1.00	44.00	42.64	1.33	27.37
21	13-3	1.00	46.00	41.70	1.53	28.73
22	13-4	1.00	36.00	47.14	2.55	30.12
23	13-5	1.00	40.00	50.00	3.77	31.49
24	13-6	1.00	32.00	50.00	3.34	32.85
25	13-7	1.00	72.00	33.33	1.50	34.24
26	13-8	1.00	58.00	37.14	1.31	35.58
27	13-9	1.00	54.00	38.49	1.62	37.95
28	13-10	1.00	56.00	37.80	1.51	38.33
29	13-11	1.00	52.00	39.22	1.78	39.70
30	13-12	1.00	64.00	35.36	1.40	41.07
31	13-13	1.00	38.00	45.80	2.83	42.45
32	13-14	1.00	52.00	39.22	1.82	43.82
33	13-15	1.00	46.00	41.70	1.80	45.17
34	13-16	1.00	58.00	37.14	1.27	46.50
35	13-17	1.00	66.00	34.82	1.30	47.82
36	13-18	1.00	66.00	34.82	1.96	49.29
37	28-1	1.00	54.00	38.49	1.40	50.77
38	28-2	1.00	44.00	42.64	2.15	52.14
39	28-3	1.00	70.00	33.81	0.91	53.48
40	28-4	1.00	62.00	35.92	1.34	54.87
41	28-5	1.00	44.00	42.64	2.46	56.24
42	28-6	1.00	42.00	43.64	2.40	57.59
43	28-7	1.00	44.00	42.64	2.19	58.99
44	28-8	1.00	48.00	40.82	2.02	60.35
45	28-9	1.00	56.00	37.80	4.58	61.71
46	28-10	1.00	48.00	40.82	4.44	63.10

SAM NO	PDS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
47	28-11	1.00	42.00	43.64	2.23	64.47
48	28-12	1.00	48.00	49.83	2.34	65.64
49	28-13	1.00	60.00	38.51	1.57	67.22
50	28-14	1.00	68.00	34.30	1.36	68.59
51	28-15	1.00	62.00	35.97	1.21	69.94
52	28-16	1.00	38.00	45.54	4.10	71.37
53	28-17	1.00	54.00	38.49	1.56	72.69
54	30-1	1.00	56.00	37.60	2.47	74.05
55	30-2	1.00	52.00	39.22	3.57	75.54
56	30-3	1.00	68.00	34.30	1.34	76.90
57	30-4	1.00	64.00	35.36	1.75	78.26
58	30-5	1.00	42.00	41.64	1.49	79.64
59	30-6	1.00	56.00	37.80	2.36	81.00
60	30-7	1.00	64.00	35.36	2.18	82.35
61	30-8	1.00	54.00	38.49	2.34	83.74
62	30-9	1.00	56.00	37.80	2.09	85.10
63	30-10	1.00	66.00	34.82	2.63	86.47
64	30-11	1.00	50.00	40.00	2.05	87.85
65	30-12	1.00	50.00	40.00	2.10	89.22
66	30-13	1.00	54.00	38.49	2.57	90.59
67	30-14	1.00	48.00	40.82	3.41	91.97
68	30-15	1.00	58.00	37.14	2.33	93.34
69	30-16	1.00	44.00	42.64	2.44	94.69
70	30-17	1.00	56.00	37.80	2.21	96.07
71	30-18	1.00	48.00	40.82	2.70	97.44
72	30-19	1.00	56.00	37.80	2.01	98.79
73	12-1	1.00	48.00	40.82	1.33	100.27
74	12-2	1.00	42.00	43.64	1.64	101.63
75	12-3	1.00	56.00	37.80	1.65	103.00
76	12-4	1.00	46.00	41.70	2.22	104.39
77	12-5	1.00	52.00	39.22	1.63	105.75
78	12-6	1.00	52.00	39.22	1.81	107.12
79	12-7	1.00	68.00	34.30	1.30	108.52
80	12-8	1.00	44.00	42.64	2.78	109.89
81	12-9	1.00	58.00	37.14	1.80	111.26
82	12-10	1.00	42.00	43.64	4.17	112.64
83	12-11	1.00	42.00	43.64	1.06	114.00
84	12-12	1.00	54.00	38.49	2.53	115.37
85	12-13	1.00	46.00	41.70	3.15	116.75
86	12-14	1.00	38.00	45.54	3.14	118.12
87	12-15	1.00	76.00	31.44	1.83	119.49
88	12-16	1.00	66.00	34.82	1.30	120.87
89	12-17	1.00	62.00	35.72	2.36	122.24
90	12-18	1.00	68.00	34.30	1.71	123.60
91	12-19	1.00	70.00	33.21	1.63	124.97
92	12-20	1.00	38.00	45.54	1.21	126.34
93	12-21	1.00	30.00	50.00	1.01	127.70
94	12-22	1.00	76.00	31.44	1.69	129.07
95	12-23	1.00	40.00	44.72	2.39	130.44
96	12-24	1.00	38.00	45.54	2.56	131.82
97	12-25	1.00	58.00	37.14	1.93	133.19
98	12-26	1.00	62.00	35.72	1.07	134.57
99	12-27	1.00	48.00	40.82	1.65	135.92
100	60-10	1.00	58.00	37.14	3.07	137.40
101	60-11	1.00	56.00	37.80	1.55	138.77
102	60-12	1.00	58.00	37.14	1.95	140.14
103	60-13	1.00	40.00	44.72	2.68	141.52
104	60-14	1.00	60.00	36.51	1.79	142.89

7/5/11

General Lab Sections A to E

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
105	5-1	1.00	48.00	40.62	2.63	144.23
106	5-2	1.00	58.00	37.14	2.73	145.64
107	5-3	1.00	56.00	37.80	2.19	147.00
108	5-4	1.00	56.00	37.80	1.97	148.17
109	5-5	1.00	60.00	36.51	1.00	149.19
110	5-6	1.00	52.00	37.14	1.71	150.50
111	5-7	1.00	56.00	37.14	2.63	151.84
112	5-8	1.00	56.00	37.80	2.54	153.15
113	5-9	1.00	64.00	35.71	2.14	154.50
114	5-10	1.00	54.00	37.14	1.66	155.86
115	5-11	1.00	60.00	37.51	1.37	157.20
116	5-12	1.00	48.00	42.86	2.37	158.64
117	5-13	1.00	34.00	47.06	2.84	160.00
118	5-14	1.00	40.00	44.12	2.57	161.37
119	5-15	1.00	42.00	42.86	1.73	162.74
120	5-16	1.00	58.00	37.14	1.66	164.10
121	5-17	1.00	58.00	37.14	1.66	165.46
122	5-18	1.00	40.00	50.00	2.54	166.84
123	5-19	1.00	42.00	47.06	2.54	168.20
124	5-20	1.00	58.00	37.14	1.66	169.56
125	5-21	1.00	40.00	47.06	1.66	170.92
126	5-22	1.00	56.00	37.80	1.66	172.28
127	5-23	1.00	52.00	37.14	1.28	173.64
128	5-24	1.00	52.00	37.14	1.66	175.00
129	5-25	1.00	52.00	37.14	1.66	176.36
130	5-26	1.00	54.00	37.14	1.66	177.72
131	5-27	1.00	52.00	37.14	2.05	179.08
132	5-28	1.00	42.00	43.64	2.22	180.44
133	5-29	1.00	62.00	35.92	1.32	181.80
134	5-30	1.00	52.00	39.22	1.59	183.16
135	5-31	1.00	52.00	39.22	1.59	184.52
136	5-32	1.00	54.00	38.49	1.82	185.88
137	5-33	1.00	52.00	39.22	1.67	187.24
138	5-34	1.00	56.00	37.80	1.29	188.60
139	5-35	1.00	66.00	34.82	1.09	189.96
140	5-36	1.00	32.00	50.00	3.10	191.32
141	5-37	1.00	54.00	38.49	1.66	192.68
142	5-38	1.00	52.00	39.22	1.67	194.04
143	5-39	1.00	42.00	43.64	2.59	195.40
144	5-40	1.00	56.00	37.80	3.14	196.76
145	62-1	1.00	44.00	42.64	2.69	198.12
146	62-2	1.00	46.00	41.70	2.67	199.48
147	62-3	1.00	62.00	35.92	1.63	200.84
148	62-4	1.00	52.00	39.22	3.15	202.20
149	62-5	1.00	38.00	45.88	2.59	203.56
150	62-6	1.00	52.00	39.22	1.84	204.92
151	62-7	1.00	50.00	40.00	2.84	206.28
152	62-8	1.00	60.00	36.51	1.87	207.64
153	62-9	1.00	48.00	40.82	1.94	209.00
154	62-10	1.00	70.00	33.81	1.71	210.36
155	62-11	1.00	54.00	38.49	2.26	211.72
156	62-12	1.00	64.00	35.34	1.70	213.08
157	62-13	1.00	52.00	39.22	2.08	214.44
158	62-14	1.00	52.00	39.22	3.45	215.80
159	62-15	1.00	54.00	38.49	2.53	217.16
160	62-16	1.00	52.00	39.22	3.73	218.52
161	62-17	1.00	42.00	43.64	4.37	219.88
162	62-18	1.00	36.00	47.14	3.12	221.24

9/2/61

General Lab Sections A to E

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
163	48-1	1.00	60.00	36.51	5.20	224.11
164	48-2	1.00	38.00	45.88	4.97	205.47
165	48-3	1.00	46.00	41.70	5.21	228.84
166	48-4	1.00	52.00	39.22	3.16	228.24
167	48-5	1.00	66.00	34.82	1.54	229.60
168	48-6	1.00	52.00	39.22	2.18	230.95
169	48-7	1.00	50.00	40.00	2.47	232.35
170	48-8	1.00	66.00	34.82	2.47	233.72
171	48-9	1.00	56.00	37.80	2.01	235.07
172	48-10	1.00	46.00	41.70	3.45	236.45
173	48-11	1.00	50.00	40.00	3.54	237.82
174	48-12	1.00	78.00	31.03	1.30	239.19
175	48-13	1.00	82.00	31.23	2.08	240.56
176	48-14	1.00	48.00	40.80	2.50	241.95
177	48-15	1.00	56.00	37.80	2.15	243.31
178	48-16	1.00	58.00	37.14	1.72	244.70
179	48-17	1.00	60.00	36.51	1.74	246.08
180	48-18	1.00	48.00	40.80	2.64	247.42
181	38-1	1.00	46.00	41.70	2.52	248.80
182	38-2	1.00	36.00	47.14	2.78	250.27
183	38-3	1.00	52.00	39.22	2.71	251.64
184	38-4	1.00	70.00	33.81	5.86	253.02
185	38-5	1.00	42.00	43.64	3.28	254.39
186	38-6	1.00	54.00	38.49	2.11	255.75
187	38-7	1.00	58.00	37.14	1.59	257.15
188	38-8	1.00	56.00	37.80	2.21	258.50
189	38-9	1.00	48.00	40.80	5.57	259.87
190	38-10	1.00	48.00	40.80	2.41	261.23
191	38-11	1.00	62.00	35.92	2.44	262.60
192	38-12	1.00	50.00	40.00	2.46	263.99
193	38-13	1.00	32.00	50.00	3.31	265.37
194	38-14	1.00	66.00	34.82	1.73	266.74
195	38-15	1.00	52.00	39.22	1.98	268.10
196	38-16	1.00	58.00	37.14	2.38	269.48
197	38-17	1.00	72.00	30.33	1.54	270.84
198	38-18	1.00	46.00	41.70	3.95	272.20
199	55-1	1.00	52.00	39.22	3.51	273.69
200	55-2	1.00	48.00	40.80	2.60	275.05
201	55-3	1.00	58.00	37.14	2.47	276.42
202	55-4	1.00	40.00	44.72	3.67	277.80
203	55-5	1.00	52.00	39.22	4.17	279.17
204	55-6	1.00	62.00	35.92	3.44	280.54
205	55-7	1.00	74.00	30.80	2.58	281.92
206	55-8	1.00	88.00	26.15	1.10	283.29
207	55-9	1.00	36.00	47.14	3.54	284.64
208	55-10	1.00	58.00	37.14	1.75	286.00
209	55-11	1.00	64.00	35.38	3.68	287.39
210	55-12	1.00	48.00	40.80	3.07	288.75
211	55-13	1.00	40.00	44.72	2.07	290.13
212	55-14	1.00	54.00	38.49	3.31	291.50
213	55-15	1.00	50.00	40.00	1.75	292.87
214	55-16	1.00	40.00	44.72	2.10	294.25
215	55-17	1.00	52.00	39.22	2.89	295.60
216	55-18	1.00	52.00	39.22	1.74	296.97
217	**-1	1.00	64.00	35.38	1.30	298.44
218	**-2	1.00	62.00	35.92	5.44	299.81
219	**-3	1.00	58.00	37.14	1.81	301.17
220	**-4	1.00	54.00	38.49	3.03	302.55

9:51

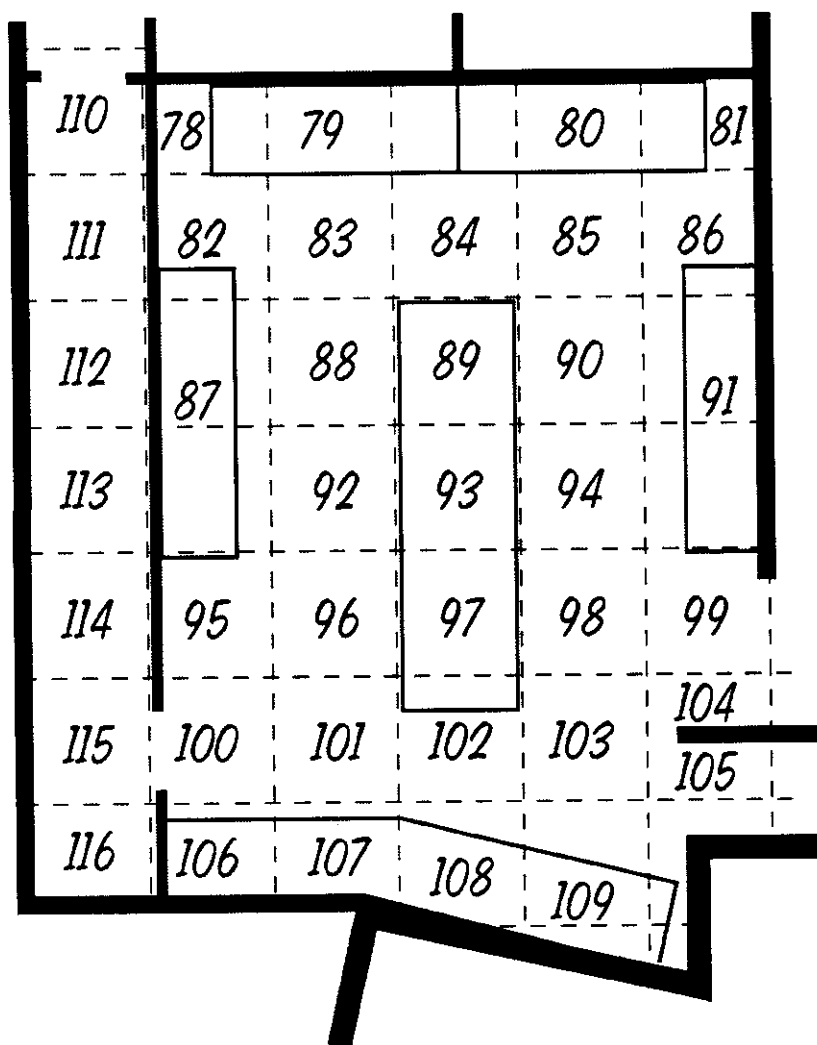
General Lab Sections A to E

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
221	*4-5	1.00	60.00	36.51	1.66	303.94
222	*4-6	1.00	52.00	39.22	4.59	305.29
223	*4-7	1.00	48.00	40.32	2.45	306.67
224	*4-8	1.00	42.00	43.64	1.93	308.04
225	*4-9	1.00	36.00	47.17	2.64	309.41
226	*4-10	1.00	66.00	34.82	1.48	310.79
227	*4-11	1.00	52.00	39.22	1.70	312.15
228	*4-12	1.00	44.00	42.64	1.10	313.51
229	*4-13	1.00	54.00	38.49	2.95	314.90
230	*4-14	1.00	60.00	36.51	1.62	316.25
231	*4-15	1.00	44.00	42.64	1.96	317.62
232	*4-16	1.00	46.00	41.70	1.49	318.99
233	*4-17	1.00	44.00	42.64	1.98	320.36
234	*4-18	1.00	46.00	41.70	2.91	321.72
235	52-1	1.00	56.00	37.80	2.16	323.09
236	52-2	1.00	60.00	36.51	1.31	324.47
237	52-3	1.00	64.00	35.36	1.97	325.82
238	52-4	1.00	56.00	37.80	1.97	327.19
239	52-5	1.00	52.00	39.22	2.04	328.59
240	52-6	1.00	64.00	35.36	1.64	330.05
241	52-7	1.00	62.00	35.92	1.47	331.44
242	52-8	1.00	48.00	40.82	3.04	332.80
243	52-9	1.00	56.00	37.80	2.13	334.17
244	52-10	1.00	54.00	38.49	1.92	335.55
245	52-11	1.00	46.00	41.70	2.55	336.92
246	52-12	1.00	68.00	34.30	1.98	338.27
247	52-13	1.00	72.00	33.33	2.19	339.67
248	52-14	1.00	64.00	35.36	1.86	341.02
249	52-15	1.00	52.00	39.22	2.76	342.38
250	52-16	1.00	62.00	35.92	1.47	343.77
251	52-17	1.00	52.00	39.22	3.53	345.14
252	52-18	1.00	44.00	42.64	3.11	346.50
253	*4-1	1.00	54.00	38.49	1.85	347.99
254	*4-2	1.00	50.00	40.00	2.33	349.35
255	*4-3	1.00	72.00	33.33	1.72	350.70

9/1/57  
General Lab Sections A to E

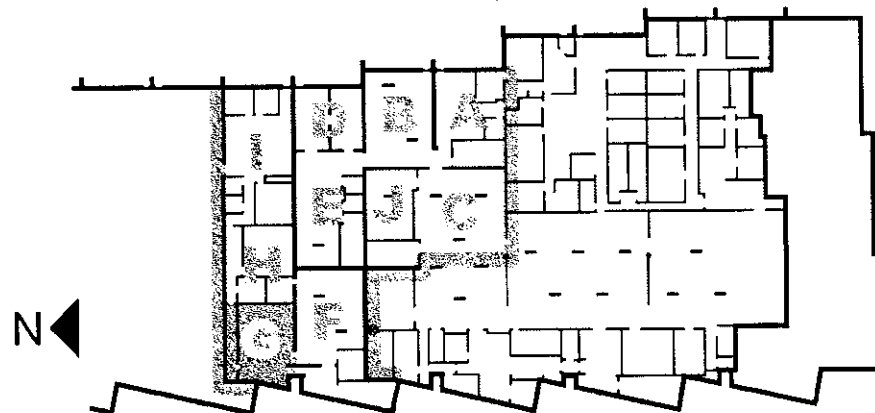


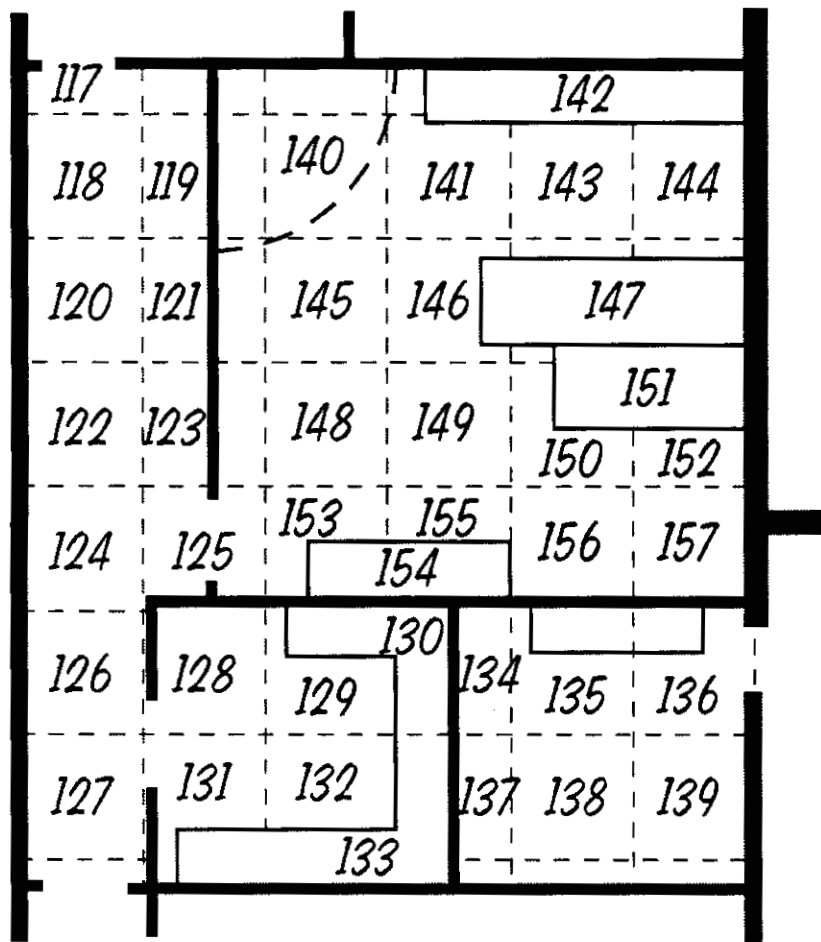




## General Lab Area Section G

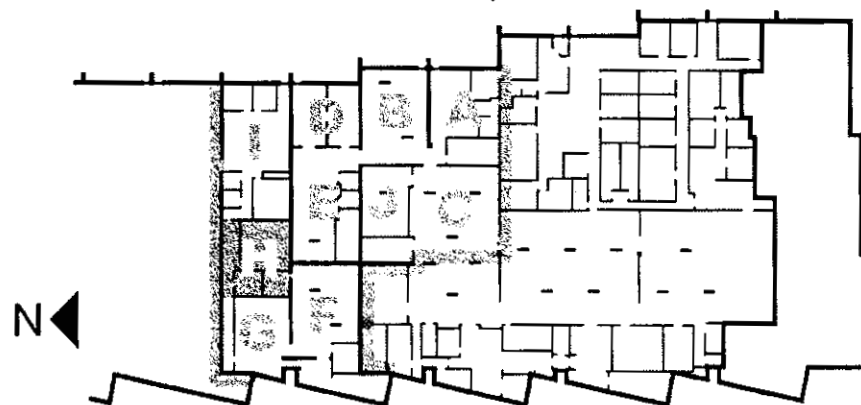
**Parker Hughes Institute**  
2657 Patton Road, Roseville MN





## General Lab Area Section H

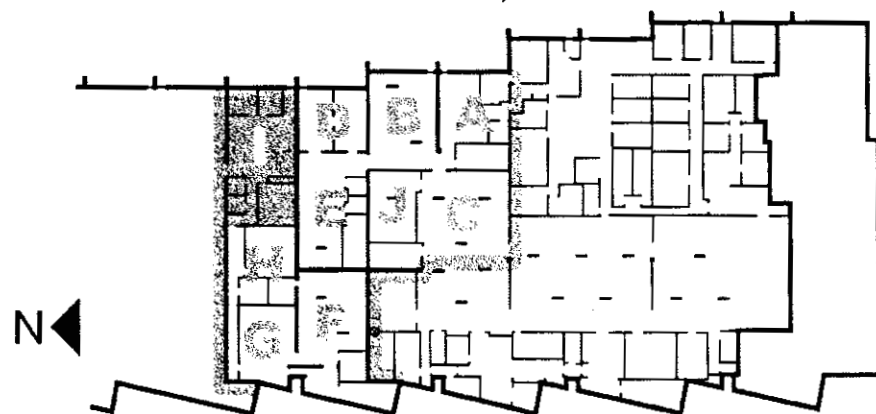
**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



224	225	226	230	231	223
227	228	229	232	233	222
216	217	218	219	220	221
210	211	212	213	214	215
204	205	206	207	208	209
198	199	200	201	202	203
192	193	194	195	196	197
184	185	186	187	188	189
170	171	186	190	191	
167	168	169	172	173	174
164	165	166	175	176	177
161	162	163	178	179	180
158	159	160	181	182	183

## General Lab Area Section I

**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



2657 General Lab Space					
Sections F-I					
Survey Date:	9/15/05	Surveyed by:	Cathy Knox		
Smear Survey Data		Exposure Rate (GM Survey Data)			
Radioisotopes:	All (wide window)	Instrument: Ludlum GM ser#123415			
Efficiency (%)	50%	Background: < 0.05 mR/Hr			
Instrument:	LS6500	Calibration date: 6/15/05			
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
Section F					
1	Fire safety cabinets	40	BKD		
2	Fire safety cabinets	60	BKD		
3	Floor/freezer	40	BKD		
4	Floor/freezer	58	BKD		
5	Floor/freezer	56	BKD		
6	Hood	50	BKD		
7	Floor/ice maker	62	BKD		
8	Floor	56	BKD		
9	Floor	68	BKD		
10	Floor	32	BKD		
11	Floor	44	BKD		
12	Floor	52	BKD		
13	Floor	40	BKD		
14	Bench/sink	52	BKD		
15	Floor	42	BKD		
16	Bench/Misonix hood	54	BKD		
17	Floor	44	BKD		
18	Hood	38	BKD		
19	Floor	56	BKD		
20	Bench	52	BKD		
21	Floor	48	BKD		
22	Bench	42	BKD		
23	Floor	54	BKD		
24	Hood	56	BKD		
25	Floor	36	BKD		
26	Bench	56	BKD		
27	Floor	34	BKD		
28	Bench	74	BKD		
29	Floor	42	BKD		
30	Hood	50	BKD		
31	Floor	56	BKD		
32	Bench	52	BKD		
33	Floor	48	BKD		
34	Bench	52	BKD		
35	Floor	74	BKD		
36	Hood	46	BKD		
37	Floor	50	BKD		
38	Bench	64	BKD		
39	Floor	62	BKD		
40	Bench/sink	48	BKD		
41	Floor	46	BKD		
42	Floor	52	BKD		
43	Floor	44	BKD		
44	Floor	42	BKD		

2657 General Lab Space					
Sections F-I					
Survey Date:	9/15/05	Surveyed by:	Cathy Knox		
Smear Survey Data		Exposure Rate (GM Survey Data)			
Radioisotopes:	All (wide window)	Instrument: Ludlum GM ser#123415			
Efficiency (%)	50%	Background: < 0.05 mR/Hr			
Instrument:	LS6500	Calibration date: 6/15/05			
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
45	Floor	66	BKD		
46	Floor	52	BKD		
47	Floor/fire safety cabinets	60	BKD		
48	Floor/fire safety cabinets	52	BKD		
Section F (continued)					
49	Floor/upright storage cabinets	48	BKD		
50	Floor/upright storage cabinets	64	BKD		
51	Floor (1/2 lab:1/2 loading dock)	52	BKD		
52	Floor (1/2 lab:1/2 loading dock)	60	BKD		
53	Floor/waste chemical storage	36	BKD		
54	Floor	62	BKD		
55	Floor	54	BKD		
56	Loading dock floor	34	BKD		
57	Loading dock floor	46	BKD		
58	Loading dock floor	62	BKD		
59	Loading dock floor	50	BKD		
60	Loading dock floor	46	BKD		
61	Loading dock floor	74	BKD		
62	Floor/waste chemical storage	52	BKD		
63	Hood	48	BKD		
64	Hood	70	BKD		
65	Loading dock floor/water pump	46	BKD		
66	Loading dock floor/water pump	54	BKD		
67	Loading dock floor	42	BKD		
68	Loading dock floor	54	BKD		
69	Loading dock floor	58	BKD		
70	Loading dock floor	58	BKD		
71	Loading dock floor	62	BKD		
72	Cage for full gas cylinders	56	BKD		
73	Loading dock floor	66	BKD		
74	Loading dock floor/fridge	46	BKD		
75	Cage for empty gas cylinders	46	BKD		
76	Loading dock floor/AC unit	62	BKD		
77	Loading dock floor/AC unit	60	BKD		
Section G					
78	Floor	58	BKD		
79	Hood	64	BKD		
80	Hood	56	BKD		
81	Floor	44	BKD		
82	Freeze dry unit	46	BKD		
83	Floor	58	BKD		
84	Floor	40	BKD		
85	Floor	42	BKD		
86	Floor	56	BKD		
87	Hood	68	BKD		

2657 General Lab Space						
Sections F-I						
Survey Date:		9/15/05	Surveyed by:		Cathy Knox	
Smear Survey Data				Exposure Rate (GM Survey Data)		
Radioisotopes:		All (wide window)	Instrument: Ludlum GM ser#123415			
Efficiency (%)		50%	Background: < 0.05 mR/Hr			
Instrument:		LS6500	Calibration date: 6/15/05			
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr			
88	Floor	34	BKD			
89	Bench/corrosive acid storage	36	BKD			
90	Floor	56	BKD			
91	Hood	52	BKD			
92	Floor	42	BKD			
93	Bench	52	BKD			
94	Floor	48	BKD			
95	Floor/freezer	68	BKD			
	Section G (continued)					
96	Floor	54	BKD			
97	Bench/drying oven/Misonix hood	52	BKD			
98	Floor	60	BKD			
99	Floor	54	BKD			
100	Floor	54	BKD			
101	Floor	62	BKD			
102	Floor	50	BKD			
103	Floor	74	BKD			
104	Floor	46	BKD			
105	Floor	40	BKD			
106	Bench	72	BKD			
107	Bench	48	BKD			
108	Bench/sink	72	BKD			
109	Bench/sink	40	BKD			
110	Floor	66	BKD			
111	Floor	60	BKD			
112	Floor	64	BKD			
113	Floor	36	BKD			
114	Floor	72	BKD			
115	Floor	44	BKD			
116	Floor	48	BKD			
	Section H					
117	Floor	46	BKD			
118	Floor	30	BKD			
119	Floor	48	BKD			
120	Floor	52	BKD			
121	Floor/fire cabinet	54	BKD			
122	Floor	82	BKD			
123	Floor/fire cabinet/storage cabinet	40	BKD			
124	Floor	66	BKD			
125	Floor	48	BKD			
126	Floor	54	BKD			
127	Floor	56	BKD			
128	Floor	62	BKD			
129	Floor	48	BKD			
130	Bench/equipment	60	BKD			

2657 General Lab Space					
Sections F-I					
Survey Date:	9/15/05	Surveyed by:	Cathy Knox		
Smear Survey Data		Exposure Rate (GM Survey Data)			
Radioisotopes:	All (wide window)	Instrument: Ludlum GM ser#123415			
Efficiency (%)	50%	Background: < 0.05 mR/Hr			
Instrument:	LS6500	Calibration date: 6/15/05			
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
131	Floor	48	BKD		
132	Floor	62	BKD		
133	Bench/equipment	48	BKD		
134	Floor	38	BKD		
135	Floor/bench/sink	58	BKD		
136	Floor/bench	58	BKD		
137	Floor	34	BKD		
138	Floor/bench/drying ovens	56	BKD		
139	Floor/bench/drying ovens	72	BKD		
140	Floor/magnet	48	BKD		
141	Floor	56	BKD		
142	Bench	36	BKD		
	Section H (continued)				
143	Floor	54	BKD		
144	Floor	68	BKD		
145	Floor	56	BKD		
146	Floor	44	BKD		
147	Bench	46	BKD		
148	Floor	56	BKD		
149	Floor	54	BKD		
150	Floor	52	BKD		
151	Bench	62	BKD		
152	Floor	58	BKD		
153	Floor	58	BKD		
154	Bench/computers	30	BKD		
155	Floor	42	BKD		
156	Floor	46	BKD		
157	Floor	36	BKD		
	Section I (office)				
158	Office (carpet)	44	BKD		
159	Office (carpet)	50	BKD		
160	Office (carpet)	56	BKD		
161	Floor	42	BKD		
162	Floor	68	BKD		
163	Office (carpet)	28	BKD		
164	Floor	64	BKD		
165	Floor	66	BKD		
166	Office (carpet)	46	BKD		
167	Floor	66	BKD		
168	Floor	36	BKD		
169	Office (carpet)	50	BKD		
170	Floor	42	BKD		
171	Floor	64	BKD		
172	Office (carpet)	70	BKD		
173	Office (carpet)/table	42	BKD		



2657 General Lab Space					
Sections F-I					
Survey Date:	9/15/05	Surveyed by:	Cathy Knox		
Smear Survey Data		Exposure Rate (GM Survey Data)			
Radioisotopes:	All (wide window)	Instrument: Ludlum GM ser#123415			
Efficiency (%)	50%	Background: < 0.05 mR/Hr			
Instrument:	LS6500	Calibration date: 6/15/05			
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
174	Office (carpet)/table	50	BKD		
175	Office (carpet)	60	BKD		
176	Office (carpet)/table	52	BKD		
177	Office (carpet)/table	44	BKD		
178	Office (carpet)	44	BKD		
179	Office (carpet)/table	36	BKD		
180	Office (carpet)/table	60	BKD		
181	Office (carpet)	60	BKD		
182	Office (carpet)/table	40	BKD		
183	Office (carpet)/table	36	BKD		
184	Office (carpet)	54	BKD		
185	Office (carpet)	48	BKD		
186	Office (carpet)	38	BKD		
187	Office (carpet)	40	BKD		
188	Office (carpet)	66	BKD		
189	Office (carpet)	44	BKD		
	Section I (continued)				
190	Closet floor (carpet)	50	BKD		
191	Closet floor (carpet)	54	BKD		
192	Office (carpet)	48	BKD		
193	Office (carpet)	60	BKD		
194	Office (carpet)	62	BKD		
195	Office (carpet)	62	BKD		
196	Office (carpet)	52	BKD		
197	Office (carpet)	54	BKD		
198	Office (carpet)	62	BKD		
199	Office (carpet)	58	BKD		
200	Office (carpet)	86	BKD		
201	Office (carpet)	64	BKD		
202	Office (carpet)	66	BKD		
203	Office (carpet)	46	BKD		
204	Office (carpet)	44	BKD		
205	Office (carpet)	38	BKD		
206	Office (carpet)	50	BKD		
207	Office (carpet)	34	BKD		
208	Office (carpet)	64	BKD		
209	Office (carpet)	44	BKD		
210	Office (carpet)	60	BKD		
211	Office (carpet)	56	BKD		
212	Office (carpet)	62	BKD		
213	Office (carpet)	48	BKD		
214	Office (carpet)	68	BKD		
215	Office (carpet)	56	BKD		
216	Office (carpet)	64	BKD		
217	Office (carpet)	46	BKD		

2657 General Lab Space					
Sections F-I					
Survey Date:	9/15/05	Surveyed by:	Cathy Knox		
Smear Survey Data		Exposure Rate (GM Survey Data)			
Radioisotopes:	All (wide window)	Instrument: Ludlum GM ser#123415			
Efficiency (%)	50%	Background: < 0.05 mR/Hr			
Instrument:	LS6500	Calibration date: 6/15/05			
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr		
218	Office (carpet)	52	BKD		
219	Office (carpet)	42	BKD		
220	Office (carpet)	54	BKD		
221	Office (carpet)	40	BKD		
222	Floor (tile)	50	BKD		
223	Floor (tile)	58	BKD		
224	Office (carpet)/desk	68	BKD		
225	Office (carpet)/desk	58	BKD		
226	Office (carpet)/desk	50	BKD		
227	Office (carpet)/file cabinet	44	BKD		
228	Office (carpet)	64	BKD		
229	Office (carpet)	36	BKD		
230	Office (carpet)	32	BKD		
231	Office (carpet)	48	BKD		
232	Office (carpet)	50	BKD		
233	Office (carpet)	40	BKD		

## ID: SMEAR SURVEY

15 SEP 2005 17:59

USER: 3

COMMENT:

PRESET TIME : 1.00  
 DATA CALC : CPM H# : NO SAMPLE REPEATS: 1 PRINTER : EDIT  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RWS32 : OFF  
 TWO PHASE : NO AQC : NO CYCLE REPEATS : 1 DISK : EDIT  
 SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RWM LIST : OFF  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BLE. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	30-1	1.00	40.00	44.72	1.85	1.31
2	30-2	1.00	60.00	36.51	1.01	2.61
3	30-3	1.00	40.00	44.72	2.12	4.04
4	30-4	1.00	58.00	37.14	1.52	5.40
5	30-5	1.00	56.00	37.50	1.92	6.15
6	30-6	1.00	50.00	40.00	2.12	6.10
7	30-7	1.00	62.00	35.97	2.61	6.40
8	30-8	1.00	56.00	37.50	3.75	10.84
9	30-9	1.00	68.00	34.26	1.36	12.20
10	30-10	1.00	32.00	60.00	2.06	12.58
11	30-11	1.00	44.00	42.64	1.63	14.95
12	30-12	1.00	52.00	39.22	1.95	16.32
13	30-13	1.00	40.00	44.72	1.25	17.68
14	30-14	1.00	52.00	39.22	1.41	19.03
15	30-15	1.00	42.00	43.64	2.37	20.40
16	30-16	1.00	54.00	38.49	1.47	21.80
17	30-17	1.00	44.00	42.64	2.20	23.15
18	30-18	1.00	38.00	45.88	2.20	24.50
19	9-1	1.00	56.00	37.50	2.11	26.00
20	9-2	1.00	52.00	39.22	1.64	27.35
21	9-3	1.00	48.00	40.82	1.38	28.72
22	9-4	1.00	42.00	43.64	2.32	30.10
23	9-5	1.00	54.00	38.49	1.77	31.47
24	9-6	1.00	56.00	37.50	1.45	32.82
25	9-7	1.00	36.00	47.14	3.12	34.22
26	9-8	1.00	56.00	37.50	1.42	35.58
27	9-9	1.00	34.00	48.51	3.41	36.95
28	9-10	1.00	74.00	32.88	1.31	38.34
29	9-11	1.00	42.00	43.64	2.15	39.70
30	9-12	1.00	50.00	40.00	1.65	41.07
31	9-13	1.00	56.00	37.50	1.95	42.45
32	9-14	1.00	52.00	39.22	1.78	43.82
33	9-15	1.00	48.00	40.82	3.75	45.19
34	9-16	1.00	52.00	39.22	2.14	46.59
35	9-17	1.00	74.00	32.88	1.03	47.95
36	9-18	1.00	46.00	41.70	4.28	49.30
37	60-1	1.00	50.00	40.00	1.52	50.78
38	60-2	1.00	64.00	35.36	1.37	52.15
39	60-3	1.00	62.00	35.92	1.12	53.50
40	60-4	1.00	48.00	40.82	1.46	54.88
41	60-5	1.00	46.00	41.70	1.71	56.24
42	60-6	1.00	52.00	39.22	1.50	57.62
43	60-7	1.00	44.00	42.64	2.36	59.00
44	60-8	1.00	42.00	43.64	1.98	60.37
45	60-9	1.00	66.00	34.82	1.46	61.74
46	60-10	1.00	52.00	39.22	1.80	63.12

01/18/2017

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
47	60-11	1.00	60.00	34.58	1.41	64.50
48	60-12	1.00	52.00	29.20	3.20	65.85
49	60-13	1.00	48.00	30.80	1.99	67.24
50	60-14	1.00	64.00	37.35	1.50	68.60
51	60-15	1.00	52.00	35.12	1.73	69.97
52	60-16	1.00	60.00	36.51	1.04	71.35
53	60-17	1.00	36.00	47.13	2.30	72.70
54	60-18	1.00	62.00	35.77	1.07	74.07
55	61-1	1.00	54.00	33.18	4.77	75.56
56	61-2	1.00	34.00	51.28	21.07	76.93
57	61-3	1.00	46.00	41.70	5.96	78.31
58	62-4	1.00	62.00	35.92	4.09	79.69
59	62-5	1.00	50.00	40.00	5.91	81.06
60	62-6	1.00	46.00	41.70	2.12	82.47
61	62-7	1.00	74.00	22.12	5.77	83.81
62	62-8	1.00	52.00	29.22	4.03	85.17
63	62-9	1.00	48.00	40.62	2.45	86.54
64	62-10	1.00	70.00	17.87	1.12	87.91
65	62-11	1.00	46.00	43.18	11.91	89.28
66	62-12	1.00	54.00	34.28	1.04	90.65
67	62-13	1.00	42.00	43.29	3.75	92.05
68	62-14	1.00	54.00	33.18	4.63	93.42
69	62-15	1.00	58.00	37.13	5.52	94.79
70	62-16	1.00	58.00	37.14	4.15	96.16
71	62-17	1.00	62.00	35.92	6.23	97.54
72	62-18	1.00	56.00	37.60	7.05	98.91
73	28-1	1.00	66.00	34.82	7.62	100.39
74	28-2	1.00	46.00	41.70	7.70	101.76
75	28-3	1.00	46.00	43.48	11.64	103.13
76	28-4	1.00	62.00	35.92	4.82	104.51
77	28-5	1.00	60.00	36.51	3.16	105.87
78	28-6	1.00	58.00	37.14	1.11	107.25
79	28-7	1.00	64.00	35.36	1.59	108.62
80	28-8	1.00	56.00	37.80	1.32	109.97
81	28-9	1.00	44.00	42.64	1.19	111.33
82	28-10	1.00	46.00	41.70	1.77	112.72
83	28-11	1.00	58.00	37.14	1.39	114.09
84	28-12	1.00	40.00	44.70	1.96	115.43
85	28-13	1.00	42.00	43.64	3.64	116.82
86	28-14	1.00	56.00	37.80	1.04	118.18
87	28-15	1.00	68.00	34.30	0.93	119.55
88	28-16	1.00	34.00	48.51	2.09	120.94
89	28-17	1.00	36.00	47.14	2.42	122.30
90	28-18	1.00	56.00	37.80	2.39	123.67
91	38-1	1.00	52.00	39.12	1.24	125.05
92	38-2	1.00	42.00	43.64	1.54	126.42
93	38-3	1.00	52.00	39.12	1.00	127.80
94	38-4	1.00	48.00	40.80	1.88	129.17
95	38-5	1.00	68.00	34.30	0.86	130.53
96	38-6	1.00	54.00	38.49	2.13	131.90
97	38-7	1.00	52.00	39.12	1.39	133.27
98	38-8	1.00	60.00	36.51	1.39	134.62
99	38-9	1.00	54.00	38.49	1.53	136.09
100	38-10	1.00	54.00	38.49	1.90	137.47
101	38-11	1.00	62.00	35.92	1.60	138.84
102	38-12	1.00	50.00	40.00	1.50	140.21
103	38-13	1.00	74.00	17.86	2.05	141.58
104	38-14	1.00	46.00	41.70	1.46	142.95

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
101	78-17	1.00	40.00	44.17	0.87	144.31
102	78-17	1.00	72.00	31.03	1.53	145.37
103	78-17	1.00	48.00	40.17	1.91	147.00
108	78-18	1.00	72.00	37.33	1.25	148.00
109	48-7	1.00	40.00	44.72	1.04	148.8
110	48-7	1.00	66.00	34.67	1.76	151.14
111	48-7	1.00	60.00	21.51	0.88	151.59
112	48-7	1.00	64.00	29.76	1.11	154.96
113	48-8	1.00	36.00	41.14	2.15	155.20
114	48-8	1.00	72.00	23.17	1.87	156.1
115	48-8	1.00	44.00	41.14	1.57	156.61
116	48-8	1.00	48.00	21.27	2.70	159.45
117	48-9	1.00	46.00	41.70	1.70	160.81
118	48-10	1.00	30.00	51.64	2.10	162.20
119	48-11	1.00	48.00	40.62	1.67	163.55
120	48-12	1.00	52.00	39.72	0.93	164.80
121	48-13	1.00	54.00	38.49	1.10	165.15
122	48-14	1.00	82.00	21.17	1.86	166.74
123	48-15	1.00	40.00	41.17	1.11	166.7
124	48-15	1.00	66.00	21.17	1.17	167.08
125	48-15	1.00	48.00	41.17	0.91	171.72
126	48-15	1.00	54.00	21.17	1.16	172.08
127	48-15	1.00	56.00	37.22	0.89	172.57
128	78-17	1.00	62.00	21.17	1.11	175.70
129	78-17	1.00	48.00	40.22	1.51	176.30
130	78-14	1.00	60.00	21.17	0.87	176.70
131	78-15	1.00	48.00	37.80	1.11	176.70
132	78-15	1.00	62.00	21.17	0.87	176.70
133	78-15	1.00	46.00	41.17	1.27	176.70
134	78-15	1.00	38.00	43.17	1.17	176.71
135	78-15	1.00	58.00	21.17	1.11	176.70
136	78-15	1.00	58.00	21.17	1.11	176.70
137	78-15	1.00	34.00	43.17	1.27	176.71
138	78-15	1.00	56.00	21.17	1.11	176.70
139	78-15	1.00	72.00	21.17	0.88	176.70
140	78-14	1.00	48.00	21.17	1.17	176.71
141	78-15	1.00	56.00	21.17	0.87	180.72
142	78-15	1.00	36.00	41.17	3.84	195.14
143	78-15	1.00	54.00	38.49	1.72	196.50
144	78-15	1.00	68.00	34.30	1.41	197.85
145	2-1	1.00	56.00	37.80	1.33	199.33
146	2-2	1.00	44.00	42.64	1.60	200.70
147	2-3	1.00	46.00	41.70	2.14	202.07
148	2-4	1.00	56.00	37.80	1.20	203.45
149	2-5	1.00	54.00	38.49	1.73	204.82
150	2-6	1.00	52.00	39.22	2.26	206.17
151	2-7	1.00	62.00	35.92	1.36	207.57
152	2-8	1.00	58.00	37.14	1.39	208.93
153	2-9	1.00	58.00	37.14	1.55	210.30
154	2-10	1.00	30.00	51.64	1.99	211.68
155	2-11	1.00	42.00	43.64	1.60	213.05
156	2-12	1.00	46.00	41.70	1.60	214.40
157	2-13	1.00	36.00	47.14	2.10	215.78
158	2-14	1.00	44.00	42.64	1.40	217.15
159	2-15	1.00	50.00	40.00	1.02	218.52
160	2-16	1.00	56.00	37.80	2.15	219.92
161	2-17	1.00	42.00	43.64	1.76	221.27
162	2-18	1.00	68.00	34.30	1.01	222.63

General Lab Sections F to I

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CHM	%ERROR		
161	52-1	1.00	28.00	53.45	1.94	214.11
164	52-	1.00	64.00	35.14	1.35	215.48
165	52-1	1.00	66.00	34.81	1.31	216.63
166	52-2	1.00	46.00	41.70	1.24	219.33
167	52-3	1.00	66.00	34.82	0.93	222.60
168	52-4	1.00	36.00	47.14	1.75	230.95
169	52-7	1.00	50.00	40.00	1.36	232.33
170	52-8	1.00	42.00	43.64	1.32	233.70
171	52-9	1.00	64.00	35.36	0.62	235.05
172	52-10	1.00	70.00	33.81	0.76	236.43
173	52-11	1.00	42.00	43.64	1.90	237.80
174	52-12	1.00	50.00	40.00	1.08	239.17
175	52-13	1.00	60.00	36.51	0.92	240.55
176	52-14	1.00	52.00	39.22	0.78	241.92
177	52-15	1.00	44.00	42.64	1.27	243.28
178	52-16	1.00	44.00	42.64	1.09	244.67
179	52-17	1.00	36.00	47.14	2.08	246.03
180	52-18	1.00	60.00	36.51	0.72	247.38
181	17-1	1.00	60.00	36.51	0.81	248.81
182	17-2	1.00	40.00	44.72	1.43	250.23
183	17-3	1.00	36.00	47.14	1.94	251.58
184	17-4	1.00	54.00	38.49	1.26	252.97
185	17-5	1.00	48.00	40.82	1.15	254.33
186	17-6	1.00	38.00	45.88	1.20	255.70
187	17-7	1.00	40.00	44.72	1.63	257.07
188	17-8	1.00	66.00	34.82	0.65	258.43
189	17-9	1.00	44.00	42.64	1.65	259.80
190	17-10	1.00	50.00	40.00	1.15	261.18
191	17-11	1.00	54.00	38.49	1.19	262.55
192	17-12	1.00	48.00	40.82	1.05	263.92
193	17-13	1.00	60.00	36.51	1.17	265.28
194	17-14	1.00	62.00	35.92	1.16	266.65
195	17-15	1.00	62.00	35.92	0.83	268.02
196	17-16	1.00	52.00	39.22	1.06	269.40
197	17-17	1.00	54.00	38.49	1.54	270.77
198	17-18	1.00	62.00	35.92	1.08	272.13
199	55-1	1.00	58.00	37.14	1.59	273.50
200	55-2	1.00	86.00	30.59	1.33	274.87
201	55-3	1.00	64.00	35.36	1.58	276.24
202	55-4	1.00	66.00	34.82	0.94	277.61
203	55-5	1.00	46.00	41.70	1.84	278.99
204	55-6	1.00	44.00	42.64	1.41	280.36
205	55-7	1.00	38.00	45.88	1.38	281.73
206	55-8	1.00	50.00	40.00	1.22	283.10
207	55-9	1.00	34.00	48.51	1.57	284.45
208	55-10	1.00	64.00	35.36	1.04	285.83
209	55-11	1.00	44.00	42.64	1.51	287.20
210	55-12	1.00	60.00	36.51	0.93	288.57
211	55-13	1.00	56.00	37.86	1.80	290.05
212	55-14	1.00	62.00	35.92	1.13	291.41
213	55-15	1.00	48.00	40.82	1.47	292.78
214	55-16	1.00	68.00	34.60	0.75	294.17
215	55-17	1.00	56.00	37.86	1.14	295.53
216	55-18	1.00	64.00	35.36	0.95	296.90
217	5-1	1.00	46.00	41.70	1.02	298.37
218	5-2	1.00	52.00	39.22	0.99	299.72
219	5-3	1.00	42.00	43.64	1.64	301.09
220	5-4	1.00	54.00	38.49	1.37	302.47

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
221	5-5	1.00	40.00	44.72	1.52	303.83
222	5-6	1.00	50.00	40.00	1.59	305.20
223	5-7	1.00	58.00	37.14	1.27	306.57
224	5-8	1.00	68.00	34.30	1.06	307.93
225	5-9	1.00	58.00	37.14	1.09	309.30
226	5-10	1.00	50.00	40.00	2.10	310.67
227	5-11	1.00	44.00	42.64	2.48	312.04
228	5-12	1.00	64.00	35.35	0.82	313.42
229	5-13	1.00	36.00	47.14	1.64	314.80
230	5-14	1.00	32.00	50.00	1.70	316.17
231	5-15	1.00	48.00	40.82	3.65	317.54
232	5-16	1.00	50.00	40.00	1.11	318.91
233	5-17	1.00	40.00	44.72	2.84	320.29

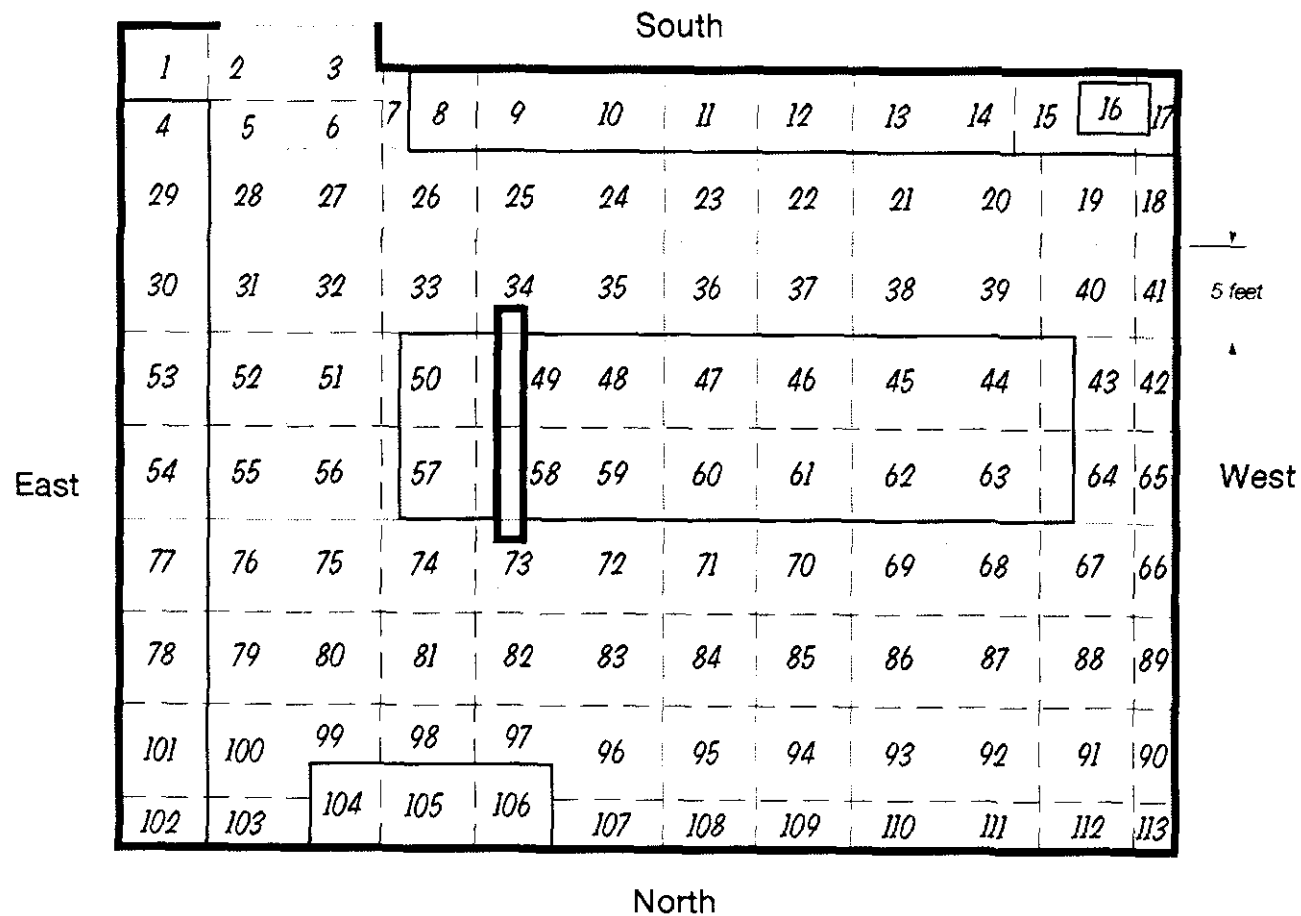
General Lab Sections F to I

# **Radioisotope Lab #1**

## **Area J**

**Smear and GM Data**





## Radio Isotope Lab #1 Section J

**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



**Close out survey****Floor and Bench Surfaces**

2657 Lab Space

Facility Map Section J Isotope Lab #1

Survey Date: 9/1/2005	Surveyed by: Cathy Knox	
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415	
Efficiency (%) 50%	Background: < 0.05 mR/Hr	
Instrument: LS6500	Calibration date: 6/15/05	

Sample #	Description	DPM/100 cm2	Description	mR/hr
1	Floor	42	Floor	BKD
2	Floor	74	Floor	BKD
3	Floor	58	Floor	BKD
4	Bench	28	Bench	BKD
5	Floor	38	Floor	BKD
6	Floor	62	Floor	BKD
7	Floor	46	Floor	BKD
8	Bench	46	Bench	BKD
9	Bench	46	Bench	BKD
10	Bench	76	Bench	BKD
11	Bench	72	Bench	BKD
12	Bench	62	Bench	BKD
13	Bench	48	Bench	BKD
14	Bench	50	Bench	BKD
15	Sink (apron)	54	Sink (apron)	BKD
16	Sink basin	42	Sink basin	BKD
17	Sink (apron)	50	Sink (apron)	BKD
18	Floor	50	Floor	BKD
19	Floor	52	Floor	BKD
20	Floor	38	Floor	BKD
21	Floor	58	Floor	BKD
22	Floor	46	Floor	BKD
23	Floor	58	Floor	BKD
24	Floor	36	Floor	BKD
25	Floor	54	Floor	BKD
26	Floor	44	Floor	BKD
27	Floor	32	Floor	BKD
28	Floor	36	Floor	BKD
29	Bench	62	Bench	BKD
30	Bench	64	Bench	BKD
31	Floor	64	Floor	BKD
32	Floor	50	Floor	BKD
33	Floor	58	Floor	BKD
34	Floor	60	Floor	BKD
35	Floor	62	Floor	BKD
36	Floor	60	Floor	BKD
37	Floor	58	Floor	BKD
38	Floor	30	Floor	BKD
39	Floor	44	Floor	BKD

**Close out survey****Floor and Bench Surfaces**

2657 Lab Space

Facility Map Section J Isotope Lab #1

Survey Date: 9/1/2005	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%) 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

Sample #	Description	DPM/100 cm2	Description	mR/hr
40	Floor	76	Floor	BKD
41	Floor	50	Floor	BKD
42	Floor	58	Floor	BKD
43	Floor	64	Floor	BKD
44	Bench	50	Bench	BKD
45	Bench	30	Bench	BKD
46	Bench	52	Bench	BKD
47	Bench	50	Bench	BKD
48	Bench	68	Bench	BKD
49	Bench	50	Bench	BKD
50	Bench	52	Bench	BKD
51	Floor	50	Floor	BKD
52	Floor	62	Floor	BKD
53	Bench	68	Bench	BKD
54	Bench	32	Bench	BKD
55	Floor	48	Floor	BKD
56	Floor	60	Floor	BKD
57	Bench	46	Bench	BKD
58	Bench	20	Bench	BKD
59	Bench	40	Bench	BKD
60	Bench	52	Bench	BKD
61	Bench	54	Bench	BKD
62	Bench	44	Bench	BKD
63	Bench	66	Bench	BKD
64	Floor	76	Floor	BKD
65	Floor	46	Floor	BKD
66	Floor	52	Floor	BKD
67	Floor	44	Floor	BKD
68	Floor	48	Floor	BKD
69	Floor	62	Floor	BKD
70	Floor	42	Floor	BKD
71	Floor	38	Floor	BKD
72	Floor	60	Floor	BKD
73	Floor	46	Floor	BKD
74	Floor	52	Floor	BKD
75	Floor	42	Floor	BKD
76	Floor	54	Floor	BKD
77	Bench	52	Bench	BKD
78	Bench	46	Bench	BKD

**Close out survey****Floor and Bench Surfaces**

2657 Lab Space

Facility Map Section J Isotope Lab #1

Survey Date: 9/1/2005	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%) 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

Sample #	Description	DPM/100 cm2	Description	mR/hr
79	Floor	70	Floor	BKD
80	Floor	66	Floor	BKD
81	Floor	52	Floor	BKD
82	Floor	48	Floor	BKD
83	Floor	42	Floor	BKD
84	Floor	58	Floor	BKD
85	Floor	34	Floor	BKD
86	Floor	40	Floor	BKD
87	Floor	66	Floor	BKD
88	Floor	50	Floor	BKD
89	Floor	60	Floor	BKD
90	Floor	66	Floor	BKD
91	Floor	50	Floor	BKD
92	Floor	70	Floor	BKD
93	Floor	50	Floor	BKD
94	Floor	56	Floor	BKD
95	Floor	54	Floor	BKD
96	Floor	44	Floor	BKD
97	Floor	60	Floor	BKD
98	Floor	66	Floor	BKD
99	Floor	66	Floor	BKD
100	Floor	44	Floor	BKD
101	Bench	50	Bench	BKD
102	Bench	46	Bench	BKD
103	Floor	54	Floor	BKD
104	Fume hood (bench surface)	44	Fume hood (bench surface)	BKD
105	Fume hood (bench surface)	44	Fume hood (bench surface)	BKD
106	Fume hood (bench surface)	44	Fume hood (bench surface)	BKD
107	Floor	48	Floor	BKD
108	Floor	34	Floor	BKD
109	Floor	62	Floor	BKD
110	Floor	60	Floor	BKD
111	Floor	48	Floor	BKD
112	Floor	62	Floor	BKD
113	Floor	46	Floor	BKD

## Radioisotope Lab #1 Section J (bench, floors)

ID: SMEAR SURVEY

1 SEP 2005 19:12

USER: 3

COMMENT:

PRESET TIME : 1.00

DATA CALC :	CPM	H# :	NO	SAMPLE REPEATS :	1	PRINTER :	EDIT
COUNT BLANK :	NO	IC# :	NO	REPLICATES :	1	R5232 :	OFF
TWO PHASE :	NO	AQC :	NO	CYCLE REPEATS :	1	DISK :	EDIT
SCINTILLATOR :	LIQUID	LUMEX :	YES	LOW SAMPLE REJ :	0	RWM LIST :	OFF
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE :	none				

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	**1	1.00	42.00	43.64	1.81	1.32
2	**2	1.00	74.00	32.88	1.63	2.67
3	**3	1.00	58.00	37.14	1.29	4.02
4	**4	1.00	28.00	53.45	4.73	5.39
5	**5	1.00	38.00	45.88	7.37	6.76
6	**6	1.00	62.00	35.92	1.72	8.10
7	**7	1.00	46.00	41.70	2.52	9.49
8	**8	1.00	46.00	41.70	1.96	10.84
9	**9	1.00	46.00	41.70	1.95	12.19
10	**10	1.00	76.00	32.44	1.89	13.57
11	**11	1.00	72.00	33.33	1.41	14.94
12	**12	1.00	62.00	35.92	3.01	16.29
13	**13	1.00	48.00	40.82	2.41	17.67
14	**14	1.00	50.00	40.00	3.05	19.04
15	**15	1.00	54.00	38.49	4.39	20.40
16	**16	1.00	42.00	43.64	2.80	21.79
17	**17	1.00	50.00	40.00	2.48	23.15
18	**18	1.00	50.00	40.00	3.80	24.52
19	38-1	1.00	52.00	39.22	1.95	26.00
20	38-2	1.00	38.00	45.88	3.67	27.37
21	38-3	1.00	58.00	37.14	3.56	28.74
22	38-4	1.00	46.00	41.70	3.08	30.12
23	38-5	1.00	58.00	37.14	2.14	31.49
24	38-6	1.00	36.00	47.14	3.58	32.85
25	38-7	1.00	54.00	38.49	2.87	34.22
26	38-8	1.00	44.00	42.64	3.29	35.59
27	38-9	1.00	32.00	50.00	4.75	36.95
28	38-10	1.00	36.00	47.14	1.58	38.33
29	38-11	1.00	62.00	35.92	1.52	39.70
30	38-12	1.00	64.00	35.36	2.19	41.05
31	38-13	1.00	64.00	35.36	1.92	42.44
32	38-14	1.00	50.00	40.00	1.36	43.80
33	38-15	1.00	58.00	37.14	2.06	45.15
34	38-16	1.00	60.00	37.71	10.66	46.56
35	38-17	1.00	62.00	35.92	3.10	47.92
36	38-18	1.00	60.00	36.51	2.78	49.29
37	2-1	1.00	58.00	37.14	1.55	50.77
38	2-2	1.00	30.00	51.64	4.38	52.12
39	2-3	1.00	44.00	42.64	2.73	53.49
40	2-4	1.00	76.00	32.44	1.16	54.89
41	2-5	1.00	50.00	40.00	1.55	56.23
42	2-6	1.00	58.00	37.14	1.08	57.60
43	2-7	1.00	64.00	35.36	1.12	58.98
44	2-8	1.00	50.00	40.00	1.11	60.35
45	2-9	1.00	30.00	51.64	2.24	61.72
46	2-10	1.00	52.00	39.22	1.01	63.10

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
47	2-11	1.00	50.00	40.00	1.54	64.47
48	2-12	1.00	68.00	34.30	0.67	65.82
49	2-13	1.00	50.00	40.00	1.19	67.20
50	2-14	1.00	52.00	39.22	1.20	68.57
51	2-15	1.00	50.00	40.00	1.07	69.92
52	2-16	1.00	62.00	35.92	1.01	71.30
53	2-17	1.00	68.00	34.30	1.02	72.67
54	2-18	1.00	32.00	50.00	1.20	74.02
55	5-1	1.00	48.00	40.82	1.84	75.50
56	5-2	1.00	60.00	36.51	1.16	76.87
57	5-3	1.00	46.00	41.70	4.58	78.24
58	5-4	1.00	20.00	63.25	4.97	79.62
59	5-5	1.00	40.00	44.72	2.00	80.99
60	5-6	1.00	52.00	39.22	1.38	82.35
61	5-7	1.00	54.00	38.49	2.52	83.72
62	5-8	1.00	44.00	42.64	2.47	85.09
63	5-9	1.00	66.00	34.82	1.73	86.45
64	5-10	1.00	76.00	32.44	1.18	87.84
65	5-11	1.00	46.00	41.70	3.46	89.22
66	5-12	1.00	52.00	39.22	2.10	90.59
67	5-13	1.00	44.00	42.64	1.90	91.95
68	5-14	1.00	48.00	40.82	2.34	93.32
69	5-15	1.00	62.00	35.92	1.45	94.67
70	5-16	1.00	42.00	43.64	4.54	96.05
71	5-17	1.00	38.00	45.80	3.48	97.42
72	5-18	1.00	60.00	36.51	3.24	98.79
73	54-1	1.00	46.00	41.70	2.57	100.27
74	54-2	1.00	52.00	39.22	2.12	101.64
75	54-3	1.00	42.00	43.64	2.17	102.99
76	54-4	1.00	54.00	38.49	2.17	104.37
77	54-5	1.00	52.00	39.22	2.61	105.74
78	54-6	1.00	46.00	41.70	2.66	107.10
79	54-7	1.00	70.00	33.81	1.76	108.49
80	54-8	1.00	66.00	34.82	0.93	109.85
81	54-9	1.00	52.00	39.22	1.69	111.20
82	54-10	1.00	48.00	40.82	1.78	112.59
83	54-11	1.00	42.00	43.64	2.31	113.95
84	54-12	1.00	58.00	37.14	1.98	115.32
85	54-13	1.00	34.00	48.51	3.60	116.70
86	54-14	1.00	40.00	44.72	3.03	118.07
87	54-15	1.00	66.00	34.82	1.07	119.43
88	54-16	1.00	50.00	40.00	1.94	120.82
89	54-17	1.00	60.00	36.51	1.56	122.19
90	54-18	1.00	66.00	34.82	1.31	123.55
91	32-1	1.00	50.00	40.00	1.85	124.92
92	32-2	1.00	70.00	33.81	3.61	126.30
93	32-3	1.00	50.00	40.00	2.21	127.75
94	32-4	1.00	56.00	37.80	1.89	129.14
95	32-5	1.00	54.00	38.49	2.04	130.50
96	32-6	1.00	44.00	42.64	4.51	131.87
97	32-7	1.00	60.00	36.51	2.35	133.25
98	32-8	1.00	66.00	34.82	1.53	134.62
99	32-9	1.00	66.00	34.82	1.58	135.99
100	32-10	1.00	44.00	42.64	3.12	137.39
101	32-11	1.00	50.00	40.00	1.89	138.74
102	32-12	1.00	46.00	41.70	2.96	140.10
103	32-13	1.00	54.00	38.49	2.38	141.49
104	32-14	1.00	44.00	42.64	3.52	142.85

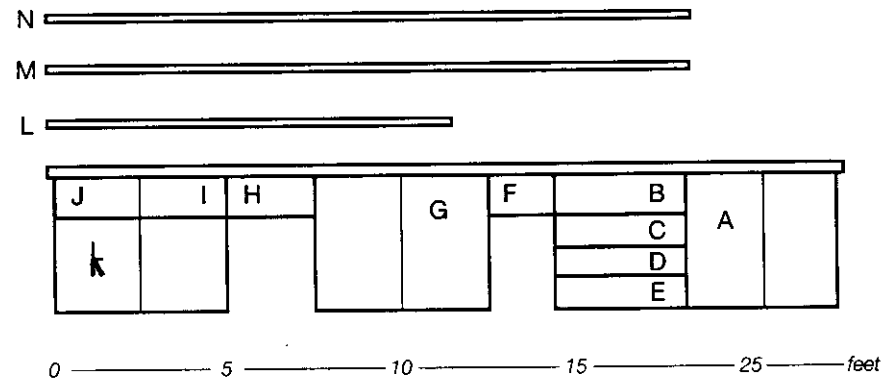
SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
105	32-15	1.00	44.00	42.64	2.25	144.22
106	32-16	1.00	44.00	42.64	4.07	145.00
107	32-17	1.00	48.00	47.82	2.43	146.97
108	32-18	1.00	34.00	46.51	8.70	148.37
109	57-1	1.00	62.00	35.82	0.95	149.18
110	57-2	1.00	60.00	35.51	1.32	151.17
111	57-3	1.00	48.00	40.82	0.75	152.53
112	57-4	1.00	62.00	35.82	1.58	153.77
113	57-5	1.00	46.00	41.70	3.27	155.27
MISSING SAMPLE						
115	57-7	1.00	30.00	51.84	0.95	156.65

Radioisotope Lab #1 Section J (bench, floors)

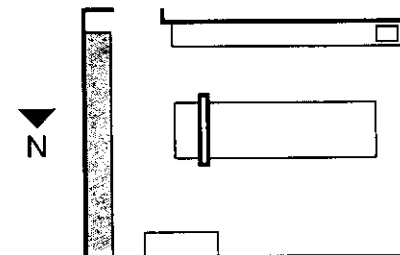
9/1/57  
J

Blank

# Isotope Lab #1 - East Wall ( Area J )



**Parker Hughes Institute**  
2657 Patton Road, Roseville MN





**Close out survey**  
**Lab Casework East Wall**  
2657 Lab Space  
Isotope Lab #1

Survey Date: 9/9/05	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%): 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

No.	Description	DPM/100 cm2	GM mR/hr	No.	Description	DPM/100 cm2	GM mR/hr
					<b>Cupboard G</b>		
	<b>Cupboard A</b>			32	Cupboard floor (left)	56	BKD
1	Cupboard floor (left)	64	BKD	33	Cupboard floor (right)	56	BKD
2	Cupboard floor (right)	48	BKD	34	Cupboard side (left)	62	BKD
3	Cupboard side (left)	52	BKD	35	Cupboard side (right)	42	BKD
4	Cupboard side (right)	44	BKD	36	Cupboard shelf (left)	54	BKD
5	Cupboard shelf (left)	46	BKD	37	Cupboard shelf (right)	54	BKD
6	Cupboard shelf (right)	48	BKD	38	Cupboard (rear side)	30	BKD
7	Cupboard (rear side)	38	BKD	39	Left door (inside)	32	BKD
8	Left door (inside)	52	BKD	40	Left door (outside)	56	BKD
9	Left door (outside)	56	BKD	41	Right door (inside)	52	BKD
10	Right door (inside)	60	BKD	42	Right door (outside)	54	BKD
11	Right door (outside)	42	BKD		<b>Drawer H</b>		
	<b>Drawer B</b>			43	Drawer (bottom left)	56	BKD
12	Drawer (bottom left)	38	BKD	44	Drawer (bottom right)	64	BKD
13	Drawer (bottom right)	56	BKD	45	Drawer (sides, inside)	52	BKD
14	Drawer (sides, inside)	58	BKD	46	Drawer (front, handles)	40	BKD
15	Drawer (front, handles)	58	BKD		<b>Drawer I</b>		
	<b>Drawer C</b>			47	Drawer (bottom left)	38	BKD
16	Drawer (bottom left)	36	BKD	48	Drawer (bottom right)	72	BKD
17	Drawer (bottom right)	66	BKD	49	Drawer (sides, inside)	48	BKD
18	Drawer (sides, inside)	52	BKD	50	Drawer (front, handles)	50	BKD
19	Drawer (front, handles)	42	BKD		<b>Drawer J</b>		
	<b>Drawer D</b>			51	Drawer (bottom left)	68	BKD
20	Drawer (bottom left)	42	BKD	52	Drawer (bottom right)	46	BKD
21	Drawer (bottom right)	38	BKD	53	Drawer (sides, inside)	46	BKD
22	Drawer (sides, inside)	52	BKD	54	Drawer (front, handles)	54	BKD
23	Drawer (front, handles)	36	BKD		<b>Cupboard K</b>		
	<b>Drawer E</b>			55	Cupboard floor (left)	66	BKD
24	Drawer (bottom left)	52	BKD	56	Cupboard floor (right)	62	BKD
25	Drawer (bottom right)	50	BKD	57	Cupboard side (left)	54	BKD
26	Drawer (sides, inside)	50	BKD	58	Cupboard side (right)	46	BKD
27	Drawer (front, handles)	54	BKD	59	Cupboard (rear)	76	BKD
	<b>Drawer F</b>			60	Cupboard shelf (left)	40	BKD
28	Drawer (bottom left)	36	BKD	61	Cupboard shelf (right)	50	BKD
29	Drawer (bottom right)	50	BKD	62	Left door (inside)	52	BKD
30	Drawer (sides, inside)	42	BKD	63	Left door (outside)	72	BKD
31	Drawer (front, handles)	62	BKD	64	Right door (inside)	52	BKD

**Close out survey**  
**Lab Casework East Wall**  
 2657 Lab Space  
 Isotope Lab #1

Survey Date: 9/9/05	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%): 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

No.	Description	DPM/100 cm <sup>2</sup>	GM mR/hr
	<b>Cupboard K (cont'd)</b>		
65	Right door (outside)	50	BKD
	<b>Shelf L</b>		
66	Section 1	48	BKD
67	Section 2	58	BKD
68	Section 3	60	BKD
69	Section 4	60	BKD
70	Section 5	46	BKD
	Section 6	66	BKD
	<b>Shelf M</b>		
71	Section 1	66	BKD
72	Section 2	54	BKD
73	Section 3	48	BKD
74	Section 4	70	BKD
75	Section 5	62	BKD
76	Section 6	40	BKD
77	Section 7	72	BKD
78	Section 8	68	BKD
79	Section 9	30	BKD
	<b>Shelf N</b>		
80	Section 1	44	BKD
81	Section 2	46	BKD
82	Section 3	52	BKD
83	Section 4	70	BKD
84	Section 5	48	BKD
85	Section 6	76	BKD
86	Section 7	68	BKD
87	Section 8	58	BKD
88	Section 9	68	BKD
89	Section 10	36	BKD
90	Section 11	48	BKD

## Radioisotope Lab #1 Section J (east wall)

9 SEP 2005 18:49

## ID: SMEAR SURVEY

USER: 7

COMMENT:

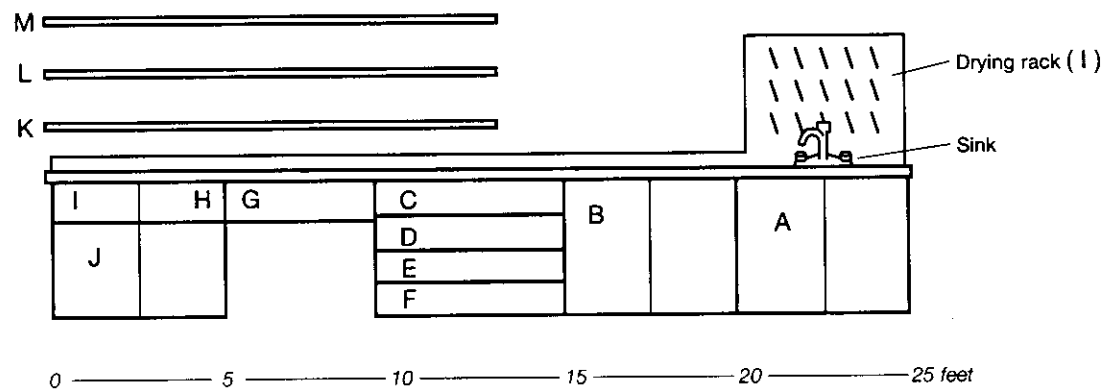
PRESET TIME : 1.00  
 DATA CALC : CPM H# : NO SAMPLE REPEATS: 1 PRINTER : EDIT  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF  
 TWO PHASE : NO AOC : NO CYCLE REPEATS : 1 DISK : EDIT  
 SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RWM LIST : OFF  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

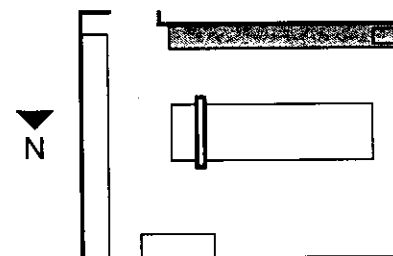
SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CFM	%ERROR		
1	61-1	1.00	64.00	35.36	1.01	1.30
2	61-2	1.00	48.00	40.82	0.54	2.65
3	61-3	1.00	52.00	39.22	0.77	4.00
4	61-4	1.00	44.00	42.64	1.07	5.38
5	61-5	1.00	46.00	41.70	1.41	6.72
6	61-6	1.00	48.00	40.82	0.92	8.08
7	61-7	1.00	38.00	45.88	1.11	9.45
8	61-8	1.00	52.00	39.22	1.06	10.82
9	61-9	1.00	56.00	37.80	0.50	12.17
10	61-10	1.00	60.00	36.51	0.74	13.53
11	61-11	1.00	42.00	43.64	1.56	14.88
12	61-12	1.00	38.00	45.88	7.56	16.26
13	61-13	1.00	56.00	37.80	0.98	17.63
14	61-14	1.00	58.00	37.14	0.82	18.98
15	61-15	1.00	58.00	37.14	0.76	20.33
16	61-16	1.00	36.00	47.14	1.24	21.72
17	61-17	1.00	66.00	34.82	0.65	23.07
18	61-18	1.00	52.00	39.22	1.00	24.42
19	**1	1.00	42.00	43.64	0.47	25.90
20	**2	1.00	42.00	43.64	0.75	27.25
21	**3	1.00	38.00	45.88	0.70	28.60
22	**4	1.00	52.00	39.22	4.59	29.97
23	**5	1.00	36.00	47.14	1.08	31.33
24	**6	1.00	52.00	39.22	0.91	32.68
25	**7	1.00	50.00	40.79	9.92	34.06
26	**8	1.00	50.00	40.00	1.16	35.42
27	**9	1.00	54.00	38.49	1.06	36.77
28	**10	1.00	36.00	47.14	0.98	38.15
29	**11	1.00	50.00	40.00	0.92	39.50
30	**12	1.00	42.00	43.64	1.39	40.85
31	**13	1.00	62.00	35.92	1.57	42.24
32	**14	1.00	56.00	37.80	0.91	43.58
33	**15	1.00	56.00	37.80	6.46	44.94
34	**16	1.00	62.00	35.92	1.68	46.32
35	**17	1.00	42.00	43.64	1.35	47.68
36	**18	1.00	54.00	38.49	1.56	49.04
37	22-1	1.00	54.00	38.49	2.28	50.50
38	22-2	1.00	30.00	51.64	2.85	51.87
39	22-3	1.00	32.00	50.00	3.28	53.22
40	22-4	1.00	56.00	37.80	1.60	54.60
41	22-5	1.00	52.00	39.22	2.15	55.95
42	22-6	1.00	54.00	38.49	1.61	57.32
43	22-7	1.00	56.00	37.80	0.99	58.68
44	22-8	1.00	64.00	35.36	0.85	60.03
45	22-9	1.00	52.00	39.22	0.99	61.38
46	22-10	1.00	40.00	44.72	2.22	62.77

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
Radioisotope Lab #1 Section J (east wall)						
47	22-11	1.00	38.00	45.88	1.36	64.13
48	22-12	1.00	72.00	33.33	1.54	65.49
49	22-13	1.00	48.00	40.82	1.36	66.85
50	22-14	1.00	50.00	40.00	2.11	68.20
51	22-15	1.00	68.00	34.30	0.93	69.55
52	22-16	1.00	46.00	41.70	1.73	70.93
53	22-17	1.00	46.00	41.70	1.54	72.28
54	22-18	1.00	54.00	38.49	2.19	73.64
55	11-1	1.00	66.00	34.82	0.38	75.12
56	11-2	1.00	62.00	35.92	2.30	76.47
57	11-3	1.00	54.00	38.49	1.79	77.84
58	11-4	1.00	46.00	41.70	1.71	79.22
59	11-5	1.00	76.00	32.44	1.21	80.57
60	11-6	1.00	40.00	44.72	4.45	81.94
61	11-7	1.00	50.00	40.00	1.96	83.32
62	11-8	1.00	52.00	39.22	2.24	84.67
63	11-9	1.00	72.00	33.33	2.27	86.02
64	11-10	1.00	52.00	39.22	2.72	87.40
65	11-11	1.00	50.00	40.00	2.91	88.75
66	11-12	1.00	48.00	40.82	2.25	90.12
67	11-13	1.00	58.00	37.14	2.21	91.50
68	11-14	1.00	60.00	36.51	2.38	92.85
69	11-15	1.00	60.00	36.51	2.37	94.22
70	11-16	1.00	46.00	41.70	3.98	95.60
71	11-17	1.00	66.00	34.82	6.28	96.96
72	11-18	1.00	54.00	38.49	2.20	98.32
73	40-1	1.00	48.00	40.82	3.31	99.80
74	40-2	1.00	70.00	33.81	1.39	101.15
75	40-3	1.00	62.00	35.92	1.54	102.50
76	40-4	1.00	40.00	44.72	1.94	103.88
77	40-5	1.00	72.00	33.33	1.18	105.23
78	40-6	1.00	68.00	34.30	1.49	106.59
79	40-7	1.00	30.00	51.64	1.70	107.97
80	40-8	1.00	44.00	42.64	1.56	109.32
81	40-9	1.00	46.00	41.70	3.08	110.69
82	40-10	1.00	52.00	39.22	0.99	112.07
83	40-11	1.00	70.00	33.81	1.75	113.42
84	40-12	1.00	48.00	40.82	2.23	114.77
85	40-13	1.00	76.00	32.44	0.75	116.15
86	40-14	1.00	68.00	34.30	0.94	117.50
87	40-15	1.00	58.00	37.14	0.88	118.85
88	40-16	1.00	68.00	34.30	0.78	120.23
89	40-17	1.00	36.00	47.14	1.66	121.58
90	40-18	1.00	48.00	40.82	1.16	122.95

## Isotope Lab #1 - South Wall ( Area J )



**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



**Close out survey**  
**Lab Casework South Wall**  
2657 Lab Space  
Isotope Lab #1

Survey Date: 9/9/05	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%): 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

No.	Description	DPM/100 cm2	GM mR/hr	No.	Description	DPM/100 cm2	GM mR/hr
<b>Cupboard A</b>				<b>Drawer F (cont'd)</b>			
1	Cupboard floor (left)	36	BKD	32	Drawer (bottom right)	40	BKD
2	Cupboard floor (right)	46	BKD	33	Drawer (sides, inside)	30	BKD
3	Cupboard side (left)	42	BKD	34	Drawer (front, handles)	52	BKD
4	Cupboard side (right)	46	BKD	<b>Drawer G</b>			
5	Behind cupboard	42	BKD	35	Drawer (bottom left)	62	BKD
6	Left door (inside)	50	BKD	36	Drawer (bottom right)	42	BKD
7	Left door (outside)	48	BKD	37	Drawer (sides, inside)	52	BKD
8	Right door (inside)	48	BKD	38	Drawer (front, handles)	50	BKD
9	Right door (outside)	56	BKD	<b>Drawer H</b>			
<b>Cupboard B</b>				39	Drawer (bottom left)	62	BKD
10	Cupboard floor (left)	44	BKD	40	Drawer (bottom right)	64	BKD
11	Cupboard floor (right)	58	BKD	41	Drawer (sides, inside)	56	BKD
12	Cupboard side (left)	50	BKD	42	Drawer (front, handles)	50	BKD
13	Cupboard side (right)	34	BKD	<b>Drawer I</b>			
14	Cupboard (rear side)	54	BKD	43	Drawer (bottom left)	48	BKD
15	Left door (inside)	50	BKD	44	Drawer (bottom right)	64	BKD
16	Left door (outside)	52	BKD	45	Drawer (sides, inside)	46	BKD
17	Right door (inside)	40	BKD	46	Drawer (front, handles)	52	BKD
18	Right door (outside)	48	BKD	<b>Cupboard J</b>			
<b>Drawer C</b>				47	Cupboard floor (left)	40	BKD
19	Drawer (bottom left)	42	BKD	48	Cupboard floor (right)	58	BKD
20	Drawer (bottom right)	36	BKD	49	Cupboard side (left)	38	BKD
21	Drawer (sides, inside)	44	BKD	50	Cupboard side (right)	44	BKD
22	Drawer (front, handles)	40	BKD	51	Cupboard (rear)	38	BKD
<b>Drawer D</b>				52	Cupboard shelf (left)	64	BKD
23	Drawer (bottom left)	44	BKD	53	Cupboard shelf (right)	54	BKD
24	Drawer (bottom right)	48	BKD	54	Left door (inside)	56	BKD
25	Drawer (sides, inside)	28	BKD	55	Left door (outside)	58	BKD
26	Drawer (front, handles)	44	BKD	56	Right door (inside)	48	BKD
<b>Drawer E</b>				57	Right door (outside)	66	BKD
27	Drawer (bottom left)	64	BKD	<b>Shelf K</b>			
28	Drawer (bottom right)	52	BKD	58	Section 1	52	BKD
29	Drawer (sides, inside)	66	BKD	59	Section 2	56	BKD
30	Drawer (front, handles)	46	BKD	60	Section 3	46	BKD
<b>Drawer F</b>				61	Section 4	44	BKD
31	Drawer (bottom left)	46	BKD	62	Section 5	54	BKD
				63	Section 6	32	BKD

**Close out survey**  
**Lab Casework South Wall**  
 2657 Lab Space  
 Isotope Lab #1

Survey Date: 9/9/05		Surveyed by: Cathy Knox
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)		Instrument: Ludlum GM ser#123415
Efficiency (%): 50%		Background: < 0.05 mR/Hr
Instrument: LS6500		Calibration date: 6/15/05

No.	Description	DPM/100 cm2	GM mR/hr	No.	Description	DPM/100 cm2	GM mR/hr
	<b>Shelf L</b>						
64	Section 1	58	BKD				
65	Section 2	46	BKD				
66	Section 3	56	BKD				
67	Section 4	60	BKD				
68	Section 5	56	BKD				
69	Section 6	38	BKD				
	<b>Shelf M</b>						
70	Section 1	30	BKD				
71	Section 2	54	BKD				
72	Section 3	50	BKD				
73	Section 4	40	BKD				
74	Section 5	40	BKD				
75	Section 6	48	BKD				
	<b>Section N, Sink</b>						
76	Drying rack, top	54	BKD				
77	Drying rack, center	62	BKD				
78	Drying rack, bottom	46	BKD				
79	Faucet handles	62	BKD				
80	Faucet stem	72	BKD				
81	Sink bowl	38	BKD				

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
47	3-11	1.00	40.00	44.72	4.10	64.15
48	3-12	1.00	58.00	37.14	3.30	65.50
49	3-13	1.00	38.00	45.88	4.59	66.89
50	3-14	1.00	44.00	42.64	3.46	68.25
51	3-15	1.00	38.00	45.88	3.71	69.60
52	3-16	1.00	64.00	35.36	1.80	70.99
53	3-17	1.00	54.00	38.49	2.95	72.34
54	3-18	1.00	56.00	37.80	7.77	73.71
55	20-1	1.00	58.00	37.14	3.90	75.19
56	20-2	1.00	48.00	40.82	3.73	76.55
57	20-3	1.00	66.00	34.82	3.75	77.91
58	20-4	1.00	52.00	39.22	1.50	79.28
59	20-5	1.00	56.00	37.80	1.26	80.63
60	20-6	1.00	46.00	41.70	1.73	82.00
61	20-7	1.00	44.00	42.64	1.84	83.37
62	20-8	1.00	54.00	38.49	1.23	84.72
63	20-9	1.00	32.00	50.00	2.68	86.09
64	20-10	1.00	58.00	37.14	1.74	87.45
65	20-11	1.00	46.00	41.70	1.85	88.80
66	20-12	1.00	56.00	37.80	1.82	90.15
67	20-13	1.00	60.00	36.51	1.28	91.53
68	20-14	1.00	56.00	37.80	1.23	92.88
69	20-15	1.00	38.00	45.88	2.01	94.23
70	20-16	1.00	30.00	51.64	4.39	95.62
71	20-17	1.00	54.00	38.49	1.60	96.99
72	20-18	1.00	50.00	40.00	1.72	98.33
73	8-1	1.00	40.00	44.72	1.59	99.82
74	8-2	1.00	40.00	44.72	2.15	101.17
75	8-3	1.00	48.00	40.82	3.79	102.52
76	8-4	1.00	54.00	38.49	2.28	103.90
77	8-5	1.00	62.00	35.92	2.12	105.27
78	8-6	1.00	46.00	41.70	2.20	106.62
79	8-7	1.00	62.00	35.92	1.14	108.00
80	8-8	1.00	72.00	33.33	1.12	109.35
81	8-9	1.00	38.00	45.88	2.64	110.70

9/9/5-



## Radioisotope Lab #1 Section J (South wall)

© 50K 2005 10:15Z

ID: 53PH1A1

DATE: 10/10/05

COMMENTS:

USER: J

PRESERVE TIME:

1.00

DATA TAG:

CEN

HH:

MM:

SS:

SAMPLE REPEATS:

1

COUNT:

: 1000

COUNT RATE:

NO

IC#:

NO

REPLICATES:

1

RSD:

: 0.01

TRF PHASE:

NO

ACC:

NO

CYCLE REPEATS:

1

OVER:

: 0.01

SCOUTILLATOR:

LTH015

LUMEX: YES

LOW SAMPLE RET:

0

RWH LIST:

: OFF

LOW LEVEL:

NO

HALF LIFE CORRECTION DATE:

none

GPP: 1.00E+0000

XEMPOB: 1.00

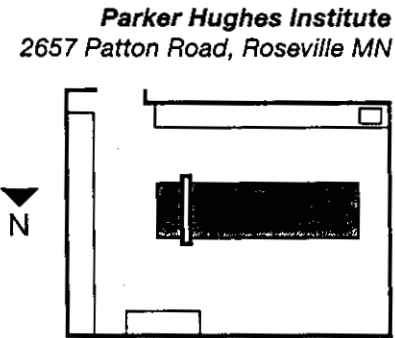
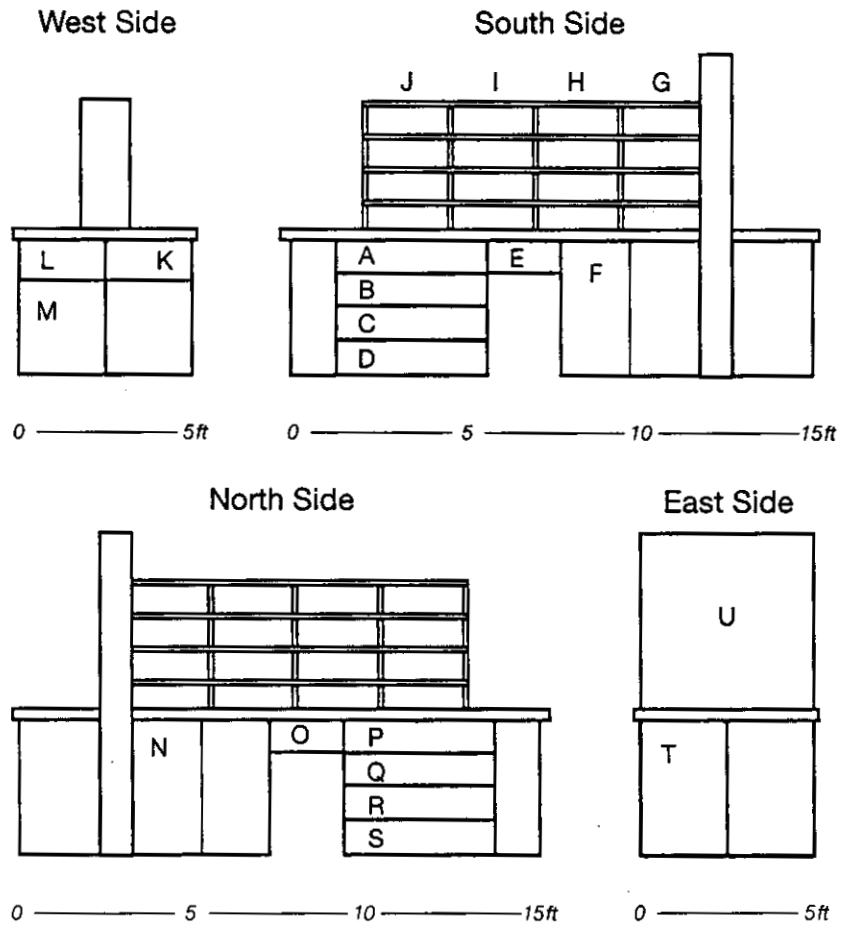
FACTOR: 2.000000

RKS. SUB:

1

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	**1	1.00	36.00	47.14	2.22	1.32
2	**2	1.00	46.00	41.70	1.70	2.67
3	**3	1.00	42.00	43.64	1.47	4.03
4	**4	1.00	46.00	41.70	1.99	5.40
5	**5	1.00	42.00	43.64	2.16	6.75
6	**6	1.00	50.00	40.00	1.16	8.10
7	**7	1.00	48.00	40.82	0.91	9.48
8	**8	1.00	48.00	40.82	1.09	10.83
9	**9	1.00	56.00	37.80	1.20	12.18
10	**10	1.00	44.00	42.64	0.98	13.57
11	**11	1.00	58.00	37.14	1.08	14.92
12	**12	1.00	50.00	40.00	1.20	16.27
13	**13	1.00	34.00	48.51	1.14	17.63
14	**14	1.00	54.00	38.47	1.20	18.90
15	**15	1.00	50.00	40.00	0.91	20.35
16	**16	1.00	52.00	39.22	1.09	21.73
17	**17	1.00	40.00	44.72	1.20	23.08
18	**18	1.00	48.00	40.82	2.80	24.44
19	**1	1.00	42.00	43.64	0.99	25.92
20	**2	1.00	36.00	49.69	18.01	27.28
21	**3	1.00	44.00	42.64	1.10	28.63
22	**4	1.00	40.00	44.72	1.37	30.00
23	**5	1.00	44.00	42.64	0.96	31.32
24	**6	1.00	48.00	40.82	1.11	32.72
25	**7	1.00	28.00	53.45	2.37	34.10
26	**8	1.00	44.00	42.64	1.22	35.45
27	**9	1.00	64.00	35.36	1.11	36.80
28	**10	1.00	52.00	39.22	1.35	38.18
29	**11	1.00	66.00	34.82	1.07	39.57
30	**12	1.00	46.00	41.70	1.08	40.90
31	**13	1.00	46.00	41.70	2.29	42.27
32	**14	1.00	40.00	44.72	2.10	43.67
33	**15	1.00	30.00	51.64	0.34	44.97
34	**16	1.00	52.00	39.22	1.60	46.32
35	**17	1.00	62.00	35.32	2.05	47.70
36	**18	1.00	42.00	43.64	2.24	49.07
37	3-1	1.00	52.00	39.22	1.34	50.55
38	3-2	1.00	50.00	40.00	1.79	51.90
39	3-3	1.00	62.00	35.32	1.50	53.25
40	3-4	1.00	64.00	35.36	1.74	54.64
41	3-5	1.00	56.00	37.80	1.67	55.99
42	3-6	1.00	50.00	40.00	1.91	57.34
43	3-7	1.00	48.00	40.82	2.01	58.70
44	3-8	1.00	64.00	35.36	1.02	60.05
45	3-9	1.00	46.00	41.70	2.27	61.40
46	3-10	1.00	52.00	39.22	2.26	62.79

Isotope Lab #1 - Center Island ( Area J )



**Close out survey**

**Lab Casework Island Bench (South&West)**

2657 Lab Space

Isotope Lab #1

Survey Date: 9/9/05	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%): 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

No.	Description	DPM/100 cm2	GM mR/hr	No.	Description	DPM/100 cm2	GM mR/hr
<b>Drawer A</b>				<b>Bench Shelving G</b>			
1	Drawer (bottom left)	56	BKD	32	Bottom shelf (bottom)	46	BKD
2	Drawer (bottom right)	44	BKD	33	Bottom Left Side	56	BKD
3	Drawer (sides, inside)	50	BKD	34	Bottom right side	48	BKD
4	Drawer (front, handles)	60	BKD	35	Bottom Underside	36	BKD
<b>Drawer B</b>				36	Center shelf(bottom)	64	BKD
5	Drawer (bottom left)	58	BKD	37	Center Left Side	78	BKD
6	Drawer (bottom right)	48	BKD	38	Center right side	50	BKD
7	Drawer (sides, inside)	44	BKD	39	Center Underside	66	BKD
8	Drawer (front, handles)	50	BKD	40	Top shelf(bottom)	44	BKD
<b>Drawer C</b>				41	Top Left Side	54	BKD
9	Drawer (bottom left)	76	BKD	42	Top right side	52	BKD
10	Drawer (bottom right)	56	BKD	43	Top Underside	66	BKD
11	Drawer (sides, inside)	50	BKD	44	Top surface	52	BKD
12	Drawer (front, handles)	56	BKD	<b>Bench Shelving H</b>			
<b>Drawer D</b>				45	Bottom shelf (bottom)	52	BKD
13	Drawer (bottom left)	48	BKD	46	Bottom Left Side	68	BKD
14	Drawer (bottom right)	36	BKD	47	Bottom right side	48	BKD
15	Drawer (sides, inside)	50	BKD	48	Bottom Underside	44	BKD
16	Drawer (front, handles)	60	BKD	49	Center shelf(bottom)	60	BKD
<b>Drawer E</b>				50	Center Left Side	54	BKD
17	Drawer (bottom left)	40	BKD	51	Center right side	64	BKD
18	Drawer (bottom right)	76	BKD	52	Center Underside	88	BKD
19	Drawer (sides, inside)	40	BKD	53	Top shelf(bottom)	56	BKD
20	Drawer (front, handles)	60	BKD	54	Top Left Side	52	BKD
<b>Cupboard F</b>				55	Top right side	58	BKD
21	Cupboard floor (left)	68	BKD	56	Top Underside	42	BKD
22	Cupboard floor (right)	58	BKD	57	Top surface	50	BKD
23	Cupboard side (left)	94	BKD	<b>Bench Shelving I</b>			
24	Cupboard side (right)	56	BKD	58	Bottom shelf (bottom)	40	BKD
25	Cupboard shelf (left)	66	BKD	59	Bottom Left Side	54	BKD
26	Cupboard shelf (right)	48	BKD	60	Bottom right side	54	BKD
27	Cupboard (rear)	60	BKD	61	Bottom Underside	72	BKD
28	Left door (inside)	54	BKD	62	Center shelf(bottom)	48	BKD
29	Left door (outside)	54	BKD	63	Center Left Side	46	BKD
30	Right door (inside)	58	BKD	64	Center right side	76	BKD
31	Right door (outside)	60	BKD	65	Center Underside	58	BKD
				66	Top shelf (bottom)	86	BKD

**Close out survey****Lab Casework Island Bench (South&West)**

2657 Lab Space

Isotope Lab #1

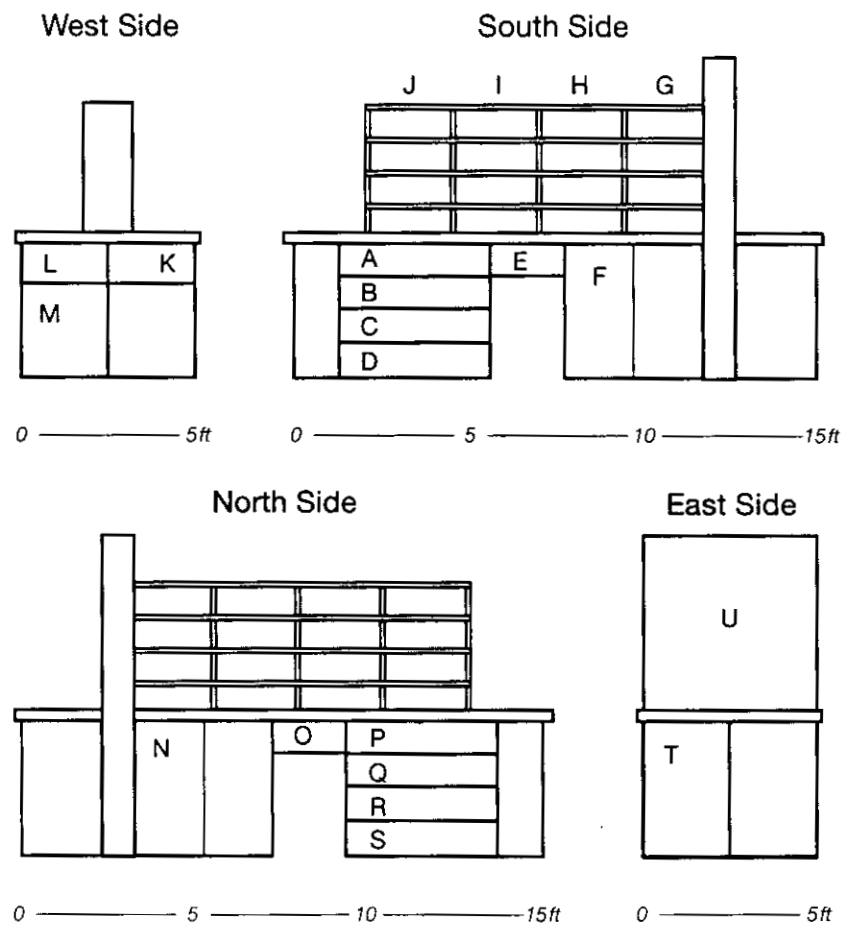
Survey Date: 9/9/05	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%): 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

No.	Description	DPM/100 cm2	GM mR/hr	No.	Description	DPM/100 cm2	GM mR/hr
67	<b>Bench Shelving I (cont'd)</b>						
68	Top Left Side	44	BKD				
69	Top right side	50	BKD				
70	Top Underside	56	BKD				
71	Top surface	36	BKD				
	<b>Bench Shelving J</b>						
72	Bottom shelf (bottom)	60	BKD				
73	Bottom Left Side	76	BKD				
74	Bottom right side	46	BKD				
75	Bottom Underside	54	BKD				
76	Center shelf(bottom)	56	BKD				
77	Center Left Side	56	BKD				
78	Center right side	62	BKD				
79	Center Underside	52	BKD				
80	Top shelf(bottom)	58	BKD				
81	Top Left Side	48	BKD				
82	Top right side	48	BKD				
83	Top Underside	52	BKD				
84	Top surface	52	BKD				
	<b>West Side</b>						
	<b>Drawer K</b>				<b>Cupboard M</b>		
85	Drawer (bottom left)	62	BKD	93	Cupboard floor (left)	60	BKD
86	Drawer (bottom right)	58	BKD	94	Cupboard floor (right)	68	BKD
87	Drawer (sides, inside)	34	BKD	95	Cupboard side (left)	58	BKD
88	Drawer (front, handles)	70	BKD	96	Cupboard side (right)	66	BKD
	<b>Drawer L</b>			97	Cupboard shelf (left)	48	BKD
89	Drawer (bottom left)	52	BKD	98	Cupboard shelf (right)	58	BKD
90	Drawer (bottom right)	44	BKD	99	Cupboard (rear)	40	BKD
91	Drawer (sides, inside)	56	BKD	100	Left door (inside)	64	BKD
92	Drawer (front, handles)	44	BKD	101	Left door (outside)	68	BKD
				102	Right door (inside)	70	BKD
				103	Right door (outside)	58	BKD

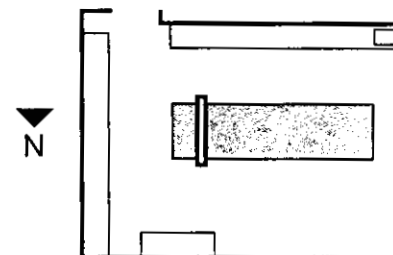


SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CFM	%ERROR		
47	13-11	1.00	48.00	40.82	1.74	64.48
48	13-12	1.00	44.00	42.64	2.58	65.85
49	13-13	1.00	60.00	36.51	1.93	67.24
50	13-14	1.00	54.00	38.49	1.88	68.60
51	13-15	1.00	64.00	35.36	1.50	69.97
52	13-16	1.00	88.00	30.15	1.17	71.35
53	13-17	1.00	56.00	37.80	5.03	72.72
54	13-18	1.00	52.00	39.22	4.65	74.09
55	61-1	1.00	58.00	37.14	4.05	75.57
56	61-2	1.00	42.00	43.64	5.38	76.94
57	61-3	1.00	50.00	40.00	4.14	78.30
58	61-4	1.00	40.00	44.72	3.62	79.69
59	61-5	1.00	54.00	38.49	2.15	81.05
60	61-6	1.00	54.00	38.49	2.97	82.40
61	61-7	1.00	72.00	33.33	1.81	83.79
62	61-8	1.00	48.00	40.82	2.73	85.15
63	61-9	1.00	46.00	41.70	3.56	86.52
64	61-10	1.00	76.00	32.44	1.63	87.90
65	61-11	1.00	58.00	37.14	4.80	89.27
66	61-12	1.00	86.00	30.50	1.37	90.64
67	61-13	1.00	46.00	41.70	3.32	92.02
68	61-14	1.00	44.00	42.64	3.15	93.37
69	61-15	1.00	50.00	40.00	2.24	94.74
70	61-16	1.00	56.00	37.80	3.70	96.12
71	61-17	1.00	36.00	47.14	3.95	97.49
72	61-18	1.00	60.00	36.51	3.20	98.85
73	25-1	1.00	76.00	32.44	2.27	100.34
74	25-2	1.00	46.00	41.70	2.58	101.70
75	25-3	1.00	54.00	38.49	2.44	103.07
76	25-4	1.00	56.00	37.80	4.20	104.46
77	25-5	1.00	56.00	37.80	3.32	105.82
78	25-6	1.00	62.00	35.92	2.31	107.19
79	25-7	1.00	52.00	39.22	4.06	108.57
80	25-8	1.00	58.00	37.14	3.80	109.94
81	25-9	1.00	48.00	40.82	6.12	111.31
82	25-10	1.00	48.00	40.82	4.03	112.70
83	25-11	1.00	52.00	39.22	4.60	114.07
84	25-12	1.00	52.00	39.22	3.33	115.44
85	25-13	1.00	62.00	35.92	1.69	116.82
86	25-14	1.00	58.00	37.14	3.46	118.19
87	25-15	1.00	34.00	48.51	5.27	119.55
88	25-16	1.00	70.00	33.81	2.37	120.94
89	25-17	1.00	52.00	39.22	3.28	122.30
90	25-18	1.00	44.00	42.64	4.54	123.67
91	19-1	1.00	56.00	37.80	3.79	125.15
92	19-2	1.00	44.00	42.64	4.44	126.52
93	19-3	1.00	60.00	36.51	2.05	127.89
94	19-4	1.00	68.00	34.30	4.14	129.27
95	19-5	1.00	58.00	37.14	2.66	130.64
96	19-6	1.00	66.00	34.82	3.05	131.99
97	19-7	1.00	48.00	40.82	5.02	133.39
98	19-8	1.00	58.00	37.14	1.95	134.87
99	19-9	1.00	40.00	44.72	3.24	136.20
100	19-10	1.00	64.00	35.36	2.71	137.57
101	19-11	1.00	68.00	34.30	2.97	138.92
102	19-12	1.00	70.00	33.81	2.63	140.27
103	19-13	1.00	58.00	37.14	2.26	141.64

# Isotope Lab #1 - Center Island ( Area J )



**Parker Hughes Institute**  
2657 Patton Road, Roseville MN



**Close out survey****Lab Casework Island Bench (North&East)**

2657 Lab Space

Isotope Lab #1

Survey Date: 9/9/05	Surveyed by: Cathy Knox
<b>Smear Survey Data</b>	<b>Exposure Rate (GM Survey Data)</b>
Radioisotopes: All (wide window)	Instrument: Ludlum GM ser#123415
Efficiency (%): 50%	Background: < 0.05 mR/Hr
Instrument: LS6500	Calibration date: 6/15/05

No.	Description	DPM/100 cm2	GM mR/hr	No.	Description	DPM/100 cm2	GM mR/hr
					<b>Center Bench (East)</b>		
	<b>Cupboard N</b>				<b>Cupboard T</b>		
1	Cupboard floor (left)	64	BKD	32	Cupboard floor (left)	52	BKD
2	Cupboard floor (right)	46	BKD	33	Cupboard floor (right)	72	BKD
3	Cupboard side (left)	60	BKD	34	Cupboard side (left)	54	BKD
4	Cupboard side (right)	54	BKD	35	Cupboard side (right)	44	BKD
5	Cupboard shelf (left)	34	BKD	36	Cupboard (rear)	68	BKD
6	Cupboard shelf (right)	52	BKD	37	Left door (inside)	46	BKD
7	Cupboard (rear)	50	BKD	38	Left door (outside)	70	BKD
8	Left door (inside)	66	BKD	39	Right door (inside)	46	BKD
9	Left door (outside)	68	BKD	40	Right door (outside)	56	BKD
10	Right door (inside)	56	BKD		<b>Center Bench East wall</b>		
11	Right door (outside)	58	BKD	41	Section U Bottom	54	BKD
	<b>Drawer O</b>			42	Section U Center	54	BKD
12	Drawer (bottom left)	50	BKD	43	Section U Top	68	BKD
13	Drawer (bottom right)	62	BKD				
14	Drawer (sides, inside)	68	BKD				
15	Drawer (front, handles)	68	BKD				
	<b>Drawer P</b>						
16	Drawer (bottom left)	46	BKD				
17	Drawer (bottom right)	68	BKD				
18	Drawer (sides, inside)	46	BKD				
19	Drawer (front, handles)	52	BKD				
	<b>Drawer Q</b>						
20	Drawer (bottom left)	68	BKD				
21	Drawer (bottom right)	56	BKD				
22	Drawer (sides, inside)	62	BKD				
23	Drawer (front, handles)	74	BKD				
	<b>Drawer R</b>						
24	Drawer (bottom left)	50	BKD				
25	Drawer (bottom right)	42	BKD				
26	Drawer (sides, inside)	54	BKD				
27	Drawer (front, handles)	60	BKD				
	<b>Drawer S</b>						
28	Drawer (bottom left)	38	BKD				
29	Drawer (bottom right)	34	BKD				
30	Drawer (sides, inside)	52	BKD				
31	Drawer (front, handles)	58	BKD				



## ID: SNEAR SURVEY

Center Island Bench (North and East)

9 SEP 2006 15:55

USER: J

COMMENT:

PRESET TIME: 1.00

DATA CALL :	CPM	RM :	NO	SAMPLE REPEATS :	1	PRINTER :	EDIT
COUNT BLANK :	NO	LO# :	NO	REPLICATES :	1	RS232 :	OFF
TWO PHASE :	NO	APC :	NO	CYCLE REPEATS :	1	DISK :	EDIT
SCINTILLATOR:	LIQUID	LUMEX: YES	LOW SAMPLE REJ:	0	RWM LIST :	OFF	
LOW LEVEL :	NO	HALF LIFE	CORRECTION DATE:		none		

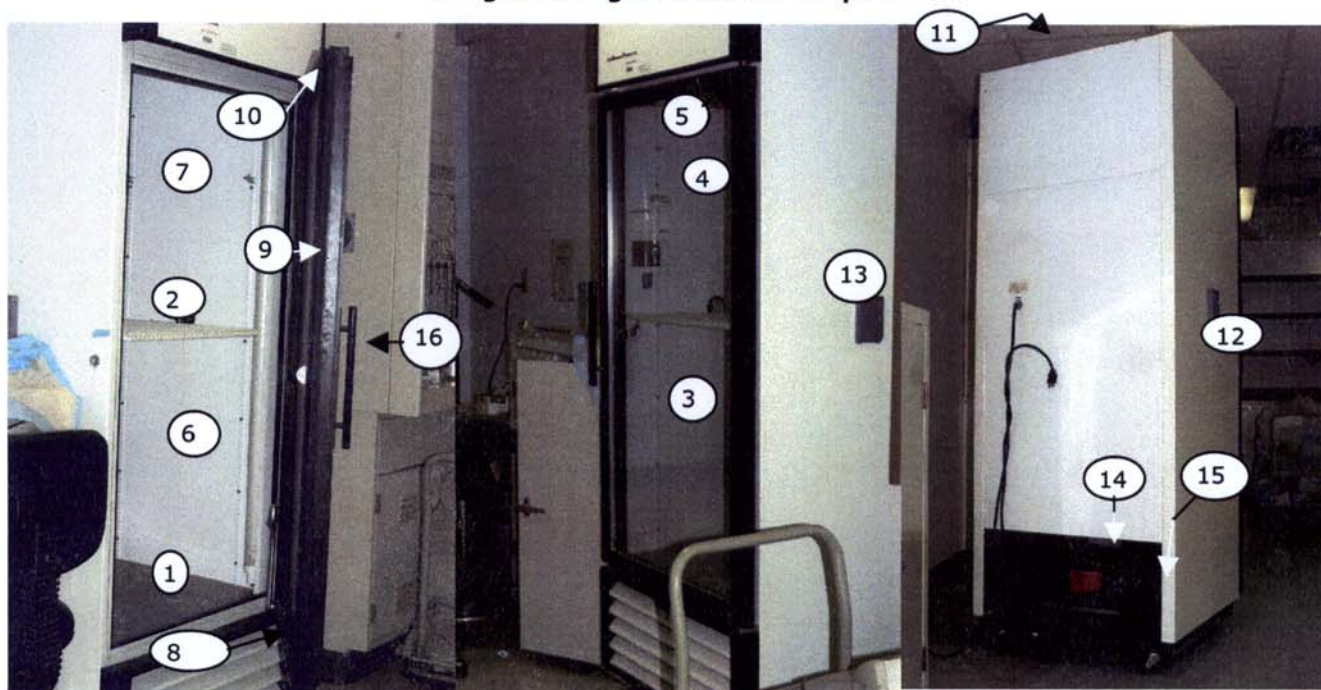
WIDE OPEN WINDOW      SE REPR: 1.00      FACTOR: 2.000000      GRN. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	25-1	1.00	64.00	35.35	1.46	1.30
2	25-2	1.00	46.00	41.70	1.94	2.67
3	25-3	1.00	60.00	36.51	1.00	4.12
4	25-4	1.00	54.00	38.49	1.36	5.47
5	25-5	1.00	34.00	48.51	1.86	6.80
6	25-6	1.00	52.00	39.22	1.25	8.17
7	25-7	1.00	50.00	40.00	2.10	9.52
8	25-8	1.00	66.00	34.82	1.38	10.97
9	25-9	1.00	68.00	37.67	21.03	12.25
10	25-10	1.00	56.00	37.80	1.82	13.62
11	25-11	1.00	58.00	37.14	1.61	14.97
12	25-12	1.00	50.00	40.00	1.91	16.35
13	25-13	1.00	62.00	35.92	1.41	17.70
14	25-14	1.00	68.00	34.30	4.70	19.06
15	25-15	1.00	68.00	34.30	1.20	20.42
16	25-16	1.00	46.00	41.70	2.03	21.79
17	25-17	1.00	68.00	34.30	1.18	23.13
18	25-18	1.00	46.00	41.70	1.50	24.52
19	1-1	1.00	52.00	39.22	1.33	25.89
20	1-2	1.00	68.00	34.30	2.60	27.34
21	1-3	1.00	56.00	37.80	1.88	28.72
22	1-4	1.00	62.00	35.92	1.86	30.07
23	1-5	1.00	74.00	37.95	30.60	31.44
24	1-6	1.00	50.00	40.00	2.66	32.82
25	1-7	1.00	42.00	43.64	5.66	34.17
26	1-8	1.00	54.00	38.49	2.60	35.54
27	1-9	1.00	60.00	36.51	2.95	36.92
28	1-10	1.00	38.00	45.88	2.80	38.27
29	1-11	1.00	34.00	48.51	3.20	39.64
30	1-12	1.00	52.00	39.22	2.41	41.02
31	1-13	1.00	58.00	37.14	1.90	42.37
32	1-14	1.00	52.00	39.22	1.35	43.72
33	1-15	1.00	72.00	34.23	3.38	45.11
34	1-16	1.00	54.00	38.49	2.01	46.47
35	1-17	1.00	44.00	42.64	2.67	47.82
36	1-18	1.00	68.00	34.30	1.31	49.20
37	39-1	1.00	46.00	41.70	1.99	50.65
38	39-2	1.00	70.00	33.81	1.05	52.02
39	39-3	1.00	46.00	41.70	2.65	53.39
40	39-4	1.00	56.00	37.80	1.90	54.74
41	39-5	1.00	54.00	38.49	1.59	56.08
42	39-6	1.00	54.00	38.49	2.08	57.47
43	39-7	1.00	68.00	34.30	1.23	58.82

### Laboratory Equipment from Radioisotope Lab #1

Page #	Item
1	4 degree refrigerator
2	4 degree refrigerator data
3	Gamma counter
4	Gamma counter data
5	Fume hood
6	Fume hood data
7	Fume hood exhaust / baffel
8	Fume hood exhaust / baffel data
9	Drying Oven
10	Drying oven data
11	(-)20 freezer
12	(-)20 freezer data
13	Storage cabinet
14	Storage cabinet data
15	Nitrogen dryer
16	Nitrogen dryer data
17	Lab sink drain
18	Lab sink drain data
19	Scintillation counter
20	Scintillation counter data
21	Monitor
22	Monitor data
23	Lab Equipment and supplies
24	Lab Equipment and supplies data
25	Solvent reagents
26	Solvent reagents data
27	Labware clean-up
28	Labware clean-up data
29	Equipment and supplies
30	Equipment and supplies (continued)
31	Equipment and supplies data
32	Microtube racks (re-smears)
33	Microtube racks (re-smears) data
34	Acid reagents
35	Acid reagents data

### 4 Degree Refrigerator Radioisotope Lab #1



Survey Date: 9/8/05

Surveyed by: Cathy Knox

#### Smear Survey Data

Radioisotopes: All (wide window)

Efficiency (%): 50%

Instrument: LS6500

#### Exposure Rate (GM Survey Data)

Instrument: Ludlum GM ser#123415

Background: < 0.05 mR/Hr

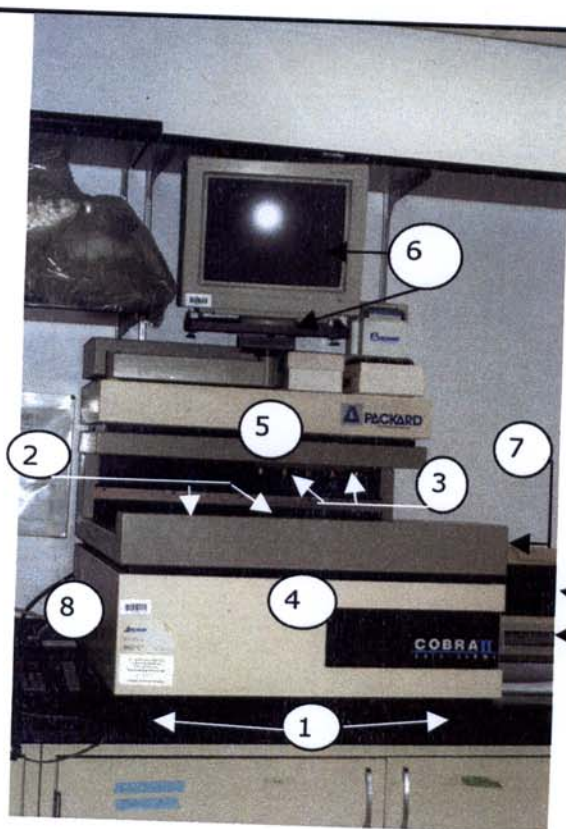
Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Refrigerator Bottom, inside	60	BKD
2	Shelf	58	BKD
3	Left side, inside	62	BKD
4	Left side, inside	56	BKD
5	Inside top, fan	30	BKD
6	Right side, inside	54	BKD
7	Right side, inside	62	BKD
8	Door seal, bottom	38	BKD
9	Door seal, side	84	BKD
10	Door seal, top	52	BKD
11	Top of refrigerator, outside	46	BKD
12	Left side, outside	44	BKD
13	Right side, outside	50	BKD
14	Compressor	58	BKD
15	Drain tray	54	BKD
16	Door, handle (outside)	56	BKD

MODE: SPECIAL SURVEY 4 Degree Lab #1 8 SEP 2005 17:14  
USER: J COMMENT:  
RESET TIME: 1.00  
RATIO CALC: CPM HR : NO SAMPLE REPEATS: 1 PRINTER : EBIT  
COUNT BLANK: NO LOW : NO REPLICATES: 1 RSZC : OFF  
TWO PHASE: NO ARE : NO CYCLE REPEATS: 1 CISE : OFF  
SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REQ: 0 PGM LIST : OFF  
LOW LEVEL: NO HALF LIFE CORRECTION RATE: none

WIDE OPEN WINDOW MEASURE: 1.00 FACTOR: 2.000000 REG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	42-1	1.00	60.00	36.34	4.48	1.34
2	42-2	1.00	58.00	37.14	4.16	2.69
3	42-3	1.00	62.00	35.92	4.69	4.06
4	42-4	1.00	56.00	37.80	3.07	5.42
5	42-5	1.00	30.00	53.33	16.38	6.79
6	42-6	1.00	54.00	38.49	4.05	8.15
7	42-7	1.00	62.00	35.92	3.07	9.54
8	42-8	1.00	38.00	45.88	3.07	10.89
9	42-9	1.00	84.00	30.86	1.76	12.25
10	42-10	1.00	52.00	39.23	1.76	13.64
11	42-11	1.00	46.00	41.30	5.61	14.99
12	42-12	1.00	44.00	42.64	2.89	16.35
13	42-13	1.00	50.00	41.57	10.28	17.74
14	42-14	1.00	58.00	37.14	4.26	19.12
15	42-15	1.00	54.00	38.49	5.77	20.49
16	42-16	1.00	56.00	37.80	3.67	21.87



**Cobra Gamma counter  
Radioisotope lab #1**

**Survey Date: 9/12/05**

**Surveyed by: Cathy Knox**

**Smear Survey Data**

Radioisotopes: All (wide window)  
Efficiency (%): 50%  
Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415  
Background: < 0.05 mR/Hr  
Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Keyboard	78 BKD	
2	Counting deck	62 BKD	
3	Sample counting wells	40 BKD	
4	Front (bottom section)	56 BKD	
5	Front (top)	64 BKD	
6	Monitor/support arm	76 BKD	
7	Right side	56 BKD	
8	Left side	58 BKD	
9	Rear (not visible)	72 BKD	
10	Racks (not in photo)	68 BKD	
11	Racks (not in photo)	52 BKD	
12	Racks (not in photo)	40 BKD	
13	Printer knob	46 BKD	
14	Printer controls	52 BKD	

## ID: SHEAR SURVEY

12 SEP 2005 15:52 (4)

USER: 3

COMMENT:

PRESET TIME : 1.00

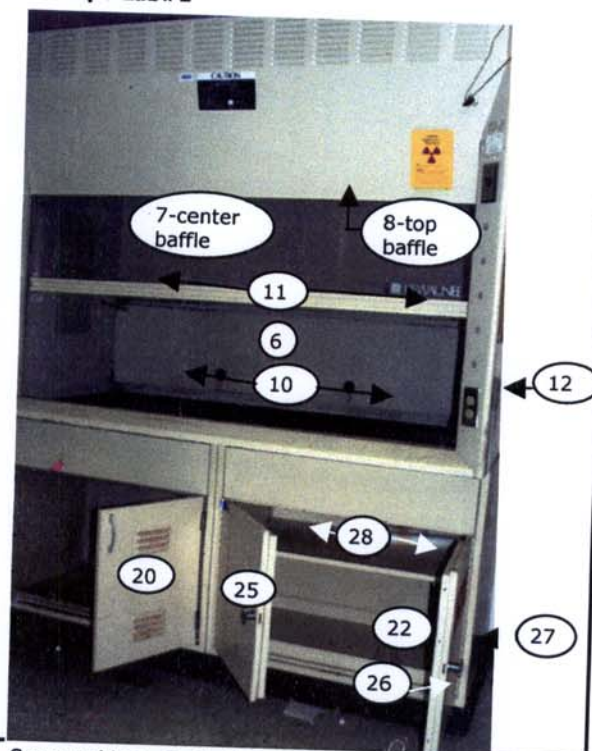
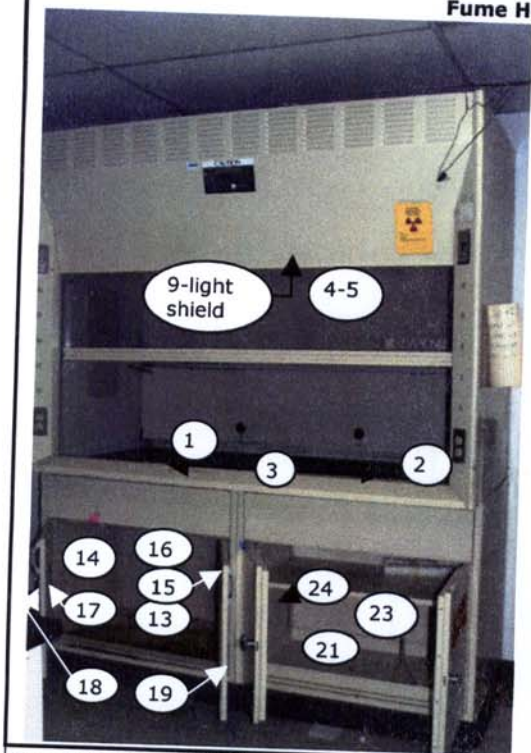
DATA CALC :	CFM	HH :	NO	SAMPLE REPEATS :	1	PRINTER :	EDIT
COUNT BLANK :	NO	IC# :	NO	REPLICATES :	1	RS232 :	OFF
TWO PHASE :	NO	AQC :	NO	CYCLE REPEATS :	1	DISK :	EDIT
SCINTILLATOR :	LIQUID	LUMEX :	YES	LOW SAMPLE REJ :	0	RWIN LIST :	OFF
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE :	none				

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	42-1	1.00	78.00	52.84	10.24	1.37
2	42-2	1.00	62.00	35.92	4.23	2.61
3	42-3	1.00	40.00	44.72	5.84	4.34
4	42-4	1.00	56.00	37.80	6.12	5.42
5	42-5	1.00	64.00	35.38	4.98	6.77
6	42-6	1.00	76.00	32.44	5.17	8.14
7	42-7	1.00	56.00	37.80	3.45	9.52
8	42-8	1.00	58.00	37.14	4.28	10.89
9	42-9	1.00	72.00	33.33	4.19	12.26
10	42-10	1.00	68.00	34.30	5.66	13.64
11	42-11	1.00	52.00	39.22	4.27	15.00
12	42-12	1.00	40.00	44.72	5.84	16.37
13	42-13	1.00	46.00	41.70	4.86	17.75
14	42-14	1.00	52.00	40.71	9.66	19.13



# Fume Hood Radioisotope Lab#1



Survey Date: 9/12/05

Surveyed by: Cathy Knox

## Smear Survey Data

Radioisotopes: All (wide window)  
 Efficiency (%): 50%  
 Instrument: LS6500

## Exposure Rate (GM Survey Data)

Instrument: Ludlum GM ser#123415  
 Background: < 0.05 mR/Hr  
 Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Left inside work surface	60	BKD
2	Right inside work surface	36	BKD
3	Front guard	38	BKD
4	Sash (inside)	48	BKD
5	Sash (outside)	66	BKD
6	Baffle (bottom inside)	58	BKD
7	Baffle (center inside)	56	BKD
8	Baffle (top inside)	66	BKD
9	Light shield	74	BKD
10	Rear wall, behind baffle (bottom)	88	BKD
11	Rear wall, behind baffle (center)	58	BKD
12	Electric outlets/switch (front, outside)	50	BKD
13	Acid storage (bottom)	42	BKD
14	Acid storage (left side)	60	BKD
15	Acid storage (right side)	44	BKD
16	Acid storage (rear)	48	BKD
17	Acid storage (left door inside)	58	BKD
18	Acid storage (left door outside)	50	BKD
19	Acid storage (right door inside)	46	BKD
20	Acid storage (right door outside)	60	BKD
21	Solvent storage (bottom left side)	50	BKD
22	Solvent storage (bottom right side)	42	BKD
23	Solvent storage (rear)	54	BKD
24	Solvent storage (left door inside)	46	BKD
25	Solvent storage (left door outside)	34	BKD
26	Solvent storage (right door inside)	86	BKD
27	Solvent storage (right door outside)	46	BKD
28	Solvent storage shelf	32	BKD

## ID: SHEAR SURVEY

12 SEP 2005 15:52 (4)

USER: 3

COMMENT:

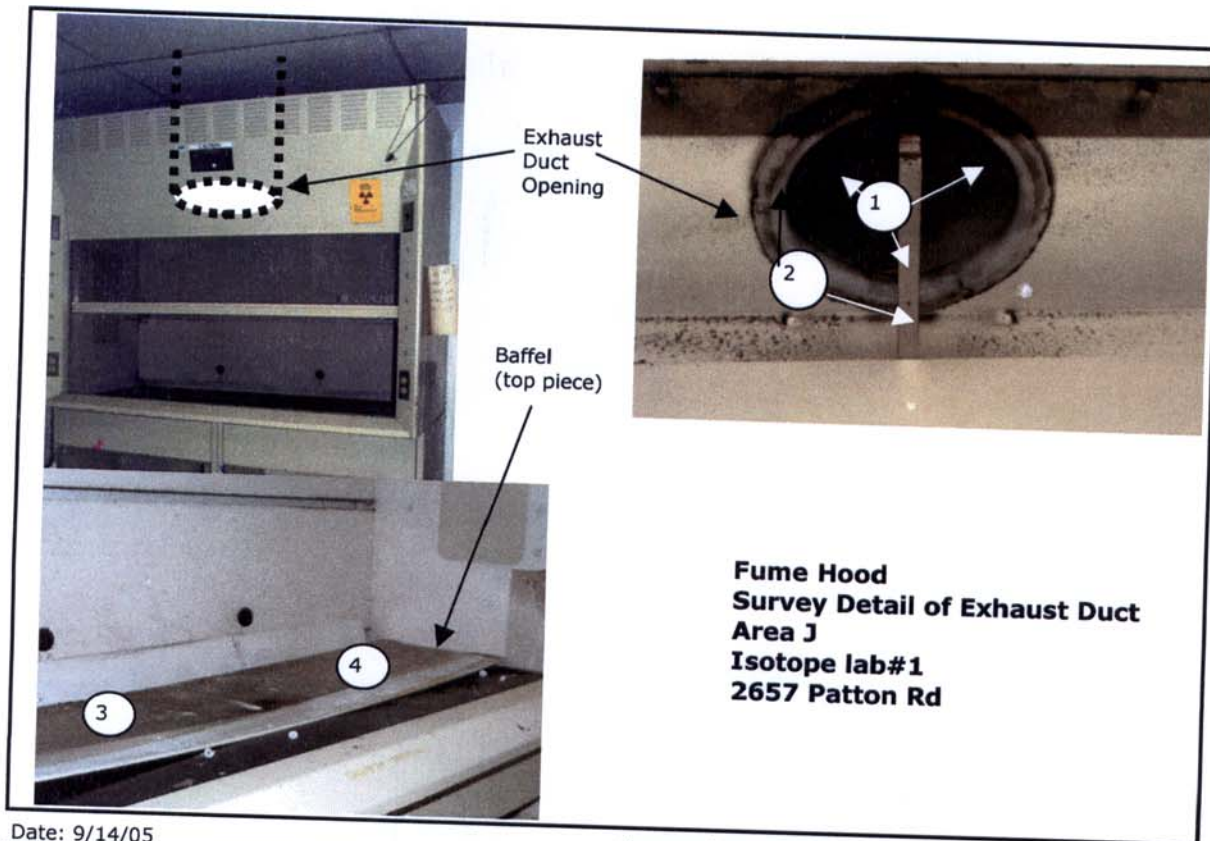
PRESET TIME : 1.00

DATA CALC :	CFM	H# :	NO	SAMPLE REPEATS :	1	PRINTER :	EDIT
COUNT BLANK :	NO	IC# :	NO	REPLICATES :	1	RS232 :	OFF
TWO PHASE :	NO	AQC :	NO	CYCLE REPEATS :	1	DISK :	EDIT
SCINTILLATOR :	LIQUID	LUMEX :	YES	LOW SAMPLE REJ :	0	RWM LIST :	OFF
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE :	none				

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	42-1	1.00	78.00	52.84	10.24	1.37
2	42-2	1.00	62.00	35.92	4.23	2.61
3	42-3	1.00	40.00	44.72	5.84	4.04
4	42-4	1.00	56.00	37.80	6.12	5.42
5	42-5	1.00	64.00	35.38	4.98	6.77
6	42-6	1.00	76.00	32.44	5.17	8.14
7	42-7	1.00	56.00	37.80	3.45	9.52
8	42-8	1.00	58.00	37.14	4.28	10.89
9	42-9	1.00	72.00	33.33	4.19	12.26
10	42-10	1.00	68.00	34.30	5.66	13.64
11	42-11	1.00	52.00	39.22	4.27	15.00
12	42-12	1.00	40.00	44.72	5.84	16.37
13	42-13	1.00	46.00	41.70	4.86	17.75
14	42-14	1.00	52.00	40.71	9.66	19.13





Date: 9/14/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)  
Efficiency (%): 50%  
Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415  
Background: <0.05 mR/Hr  
Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Inside of exhaust duct	52	BKD
2	Edge of exhaust duct	80	BKD
3	Inside surface, top baffel (left side)	64	BKD
4	Inside surface, top baffel (right side)	82	BKD

## ID: SHEAR SURVEY

USER: J COMMENT:

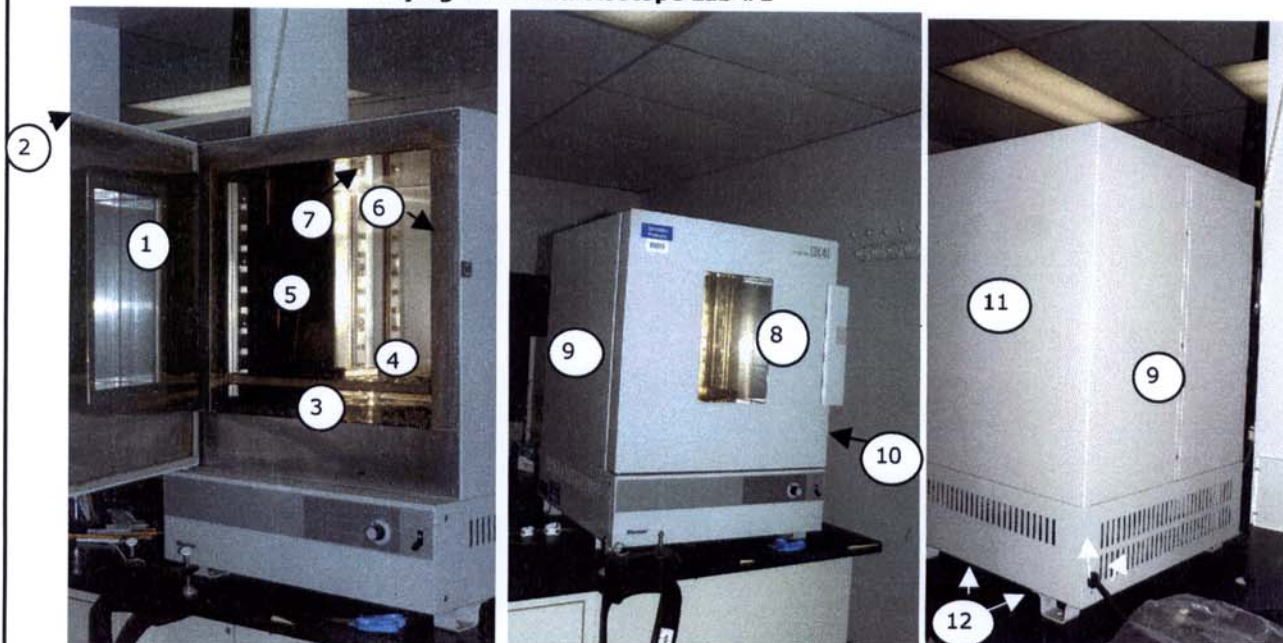
14 SEP 2005 16:07

PRESET TIME : 1.00  
 DATA CALC : CPM HW : NO SAMPLE REPEATS: 1 PRINTER : EDIT  
 COUNT BLANK : NO TC# : NO REPLICATIONS : 1 PS337 : OFF  
 TWO PHASE : NO AGC : NO CYCLE REPEATS : 1 DT5K : EDIT  
 SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 PWM: 150 : OFF  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %CORCOR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	31-1	1.00	52.00	40.71	13.78	1.33
2	31-2	1.00	80.00	32.40	10.00	2.70
3	31-3	1.00	64.00	35.36	7.49	4.06
4	31-4	1.00	82.00	31.99	9.75	5.43

## Drying Oven Radioisotope Lab #1



Survey Date: 9/9/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)  
 Efficiency (%) 50%  
 Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415  
 Background: < 0.05 mR/Hr  
 Calibration date: 6/15/05

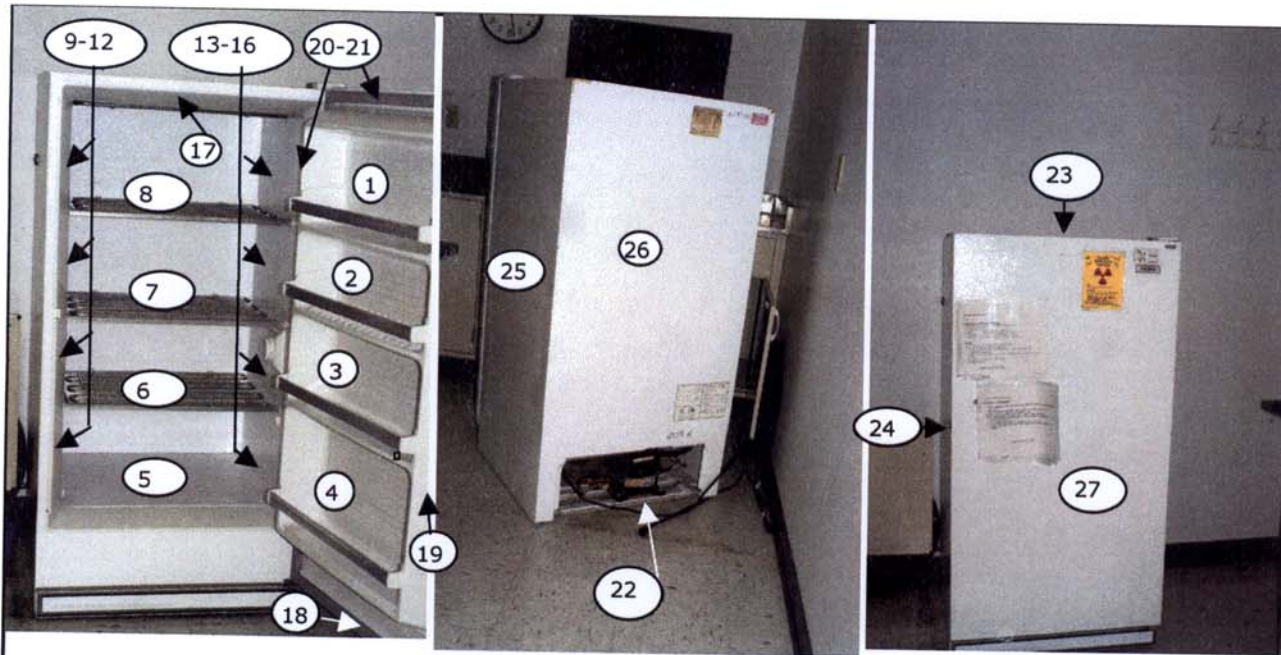
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Door inside	92	BKD
2	Door seal	46	BKD
3	Inside, bottom	50	BKD
4	Inside rack	48	BKD
5	Left side, inside	64	BKD
6	Right side, inside	46	BKD
7	Top, inside	40	BKD
8	Door, outside, handle	48	BKD
9	Left, outside	76	BKD
10	Right, outside	56	BKD
11	Rear, outside	36	BKD
12	Underside	62	BKD

10:5MEAR SURVEY  
USER: 3 COMMENT:  
PRESET TIME : 1.00  
DATA CALC : CPM NH : NO SAMPLE REPEATS: 1 PRINTER : EDD  
COUNT CRANK : NO JOH : NO REPLICATES : 1 PAPER : OFF  
TWO CHASL : NO APO : NO CYCLE REPEATS : 1 DISK : EDD  
SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 PPM LIST : OFF  
LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW ERROR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	39-1	1.00	92.00	29.49	1.17	1.32
2	39-2	1.00	46.00	41.70	2.49	2.67
3	39-3	1.00	50.00	40.00	1.49	4.02
4	39-4	1.00	48.00	40.92	4.21	5.39
5	39-5	1.00	64.00	35.36	1.91	6.74
6	39-6	1.00	46.00	41.70	1.93	8.09
7	39-7	1.00	40.00	44.72	1.42	9.47
8	39-8	1.00	48.00	40.92	1.70	10.82
9	39-9	1.00	76.00	32.44	1.31	12.19
10	39-10	1.00	56.00	37.80	1.84	13.55
11	39-11	1.00	36.00	47.14	2.34	14.90
12	39-12	1.00	62.00	35.92	1.17	16.25





-20 Freezer Radioisotope Lab #1

Survey Date: 9/9/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)

Efficiency (%) 50%

Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415

Background: &lt; 0.05 mR/Hr

Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Freezer Door shelf	48	BKD
2	Freezer Door shelf	68	BKD
3	Freezer Door shelf	66	BKD
4	Freezer Door shelf	86	BKD
5	Freezer (bottom, inside)	48	BKD
6	Freezer lower shelf	72	BKD
7	Freezer middle shelf	66	BKD
8	Freezer upper shelf	52	BKD
9	Freezer inside left side	52	BKD
10	Freezer inside left side	58	BKD
11	Freezer inside left side	60	BKD
12	Freezer inside left side	62	BKD
13	Freezer inside right side	70	BKD
14	Freezer inside right side	60	BKD
15	Freezer inside right side	56	BKD
16	Freezer inside right side	40	BKD
17	Freezer inside top	52	BKD
18	Door seal bottom	62	BKD
19	Door seal right side	56	BKD
20	Door seal top	52	BKD
21	Door seal left side	40	BKD
22	Compressor motor	42	BKD
23	Freezer outside top	50	BKD
24	Freezer outside left side	46	BKD
25	Freezer outside right side	36	BKD
26	Freezer outside rear	58	BKD
27	Door outside	66	BKD

# ID: SMEAR SURVEY

9 SEP 2005 21:37 (12)

USER: 9

COMMENT:

PRESET TIME : 1.00

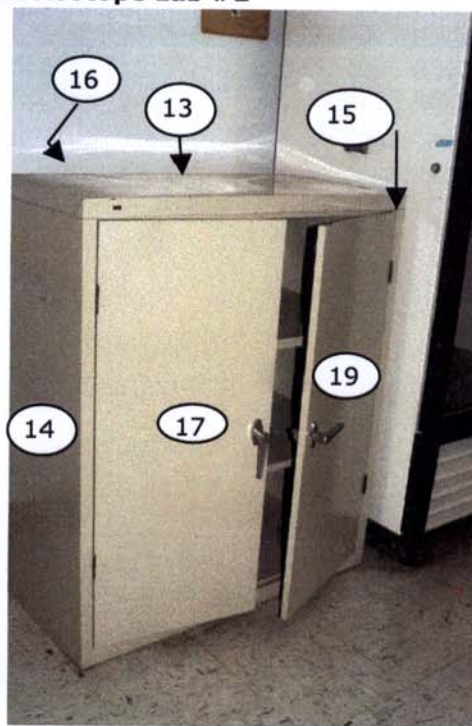
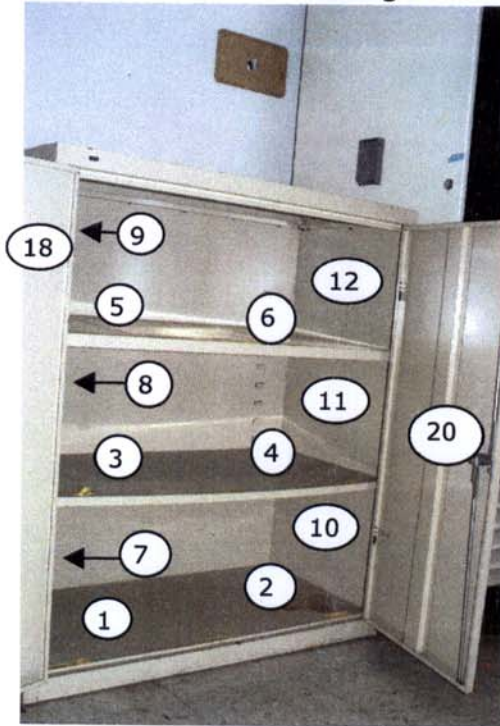
DATA CALL : CFM H# : NO SAMPLE REPEATS: 1 PRINTER : EDIT  
COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF  
T( PHASE : NO ADC : NO CYCLE REPEATS : 1 STOP : EDIT  
SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RUN LIST : OFF  
LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 0.0% FACTOR: 2.000000 DEF. SUB: 1

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CFM	%ERROR		
1	26-1	1.00	48.00	40.82	2.04	1.00
2	26-2	1.00	68.00	34.30	1.40	2.65
3	26-3	1.00	66.00	34.85	1.56	4.00
4	26-4	1.00	86.00	30.50	0.92	5.37
5	26-5	1.00	48.00	40.82	2.34	6.77
6	26-6	1.00	72.00	33.33	1.48	8.07
7	26-7	1.00	66.00	34.82	0.99	9.45
8	26-8	1.00	52.00	39.22	1.13	10.80
9	26-9	1.00	52.00	39.22	1.89	12.15
10	26-10	1.00	58.00	37.14	1.49	13.54
11	26-11	1.00	60.00	36.51	1.30	14.88
12	26-12	1.00	62.00	35.92	1.49	16.24
13	26-13	1.00	70.00	33.81	1.38	17.62
14	26-14	1.00	60.00	36.51	1.07	18.95
15	26-15	1.00	56.00	37.50	1.46	20.32
16	26-16	1.00	40.00	44.72	1.84	21.70
17	26-17	1.00	52.00	39.22	1.96	23.07
18	26-18	1.00	62.00	35.92	1.36	24.42
19	32-1	1.00	56.00	37.50	1.29	25.90
20	32-2	1.00	52.00	39.22	1.73	27.25
21	32-3	1.00	40.00	44.72	1.94	28.60
22	32-4	1.00	42.00	43.64	2.51	29.99
23	32-5	1.00	50.00	40.00	2.07	31.35
24	32-6	1.00	46.00	41.70	2.53	32.70
25	32-7	1.00	36.00	47.14	2.08	34.08
26	32-8	1.00	58.00	37.14	1.35	35.43
27	32-9	1.00	66.00	34.82	1.11	36.80



### Storage Cabinet Radioisotope Lab #1



Survey Date: 9/9/05

Surveyed by: Cathy Knox

#### Smear Survey Data

Radioisotopes: All (wide window)

Efficiency (%): 50%

Instrument: LS6500

#### Exposure Rate (GM Survey Data)

Instrument: Ludlum GM ser#123415

Background: < 0.05 mR/Hr

Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Bottom shelf (left side)	64	BKD
2	Bottom shelf (right side)	66	BKD
3	Middle shelf (left side)	60	BKD
4	Middle shelf (right side)	42	BKD
5	Top shelf (left side)	66	BKD
6	Top shelf (right side)	50	BKD
7	Inside cabinet (left side)	80	BKD
8	Inside cabinet (left side)	52	BKD
9	Inside cabinet (left side)	48	BKD
10	Inside cabinet (right side)	62	BKD
11	Inside cabinet (right side)	64	BKD
12	Inside cabinet (right side)	58	BKD
13	Outside top	62	BKD
14	Outside left side	56	BKD
15	Outside right side	44	BKD
16	Outside back	46	BKD
17	Left door outside	56	BKD
18	Left door inside	54	BKD
19	Right door outside	44	BKD
20	Right door inside	58	BKD

# ID: SMEAR SURVEY

6.20.8

5. SEP 1985 11:15

(14)

USER: 3

COMMENT:

PRESET TIME : 1.00

DATA CALC : CPM MH : NO SAMPLE REPEATS: 1 PRINTER : EDIT

COUNT BLANK : NO LUM : NO REPLICATED : 1 PSZ:1 : RE-

TWO PHASE : NO AGE : NO CYCLE REPEATS : 1 DISK : EDIT

SCINTILLATOR : LIQUID LUMEX: YES LOW SAMPLE REA: 0 BAK : 137 : DEF

LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW

%ERROR: 2.00


FACTOR: 2.000000

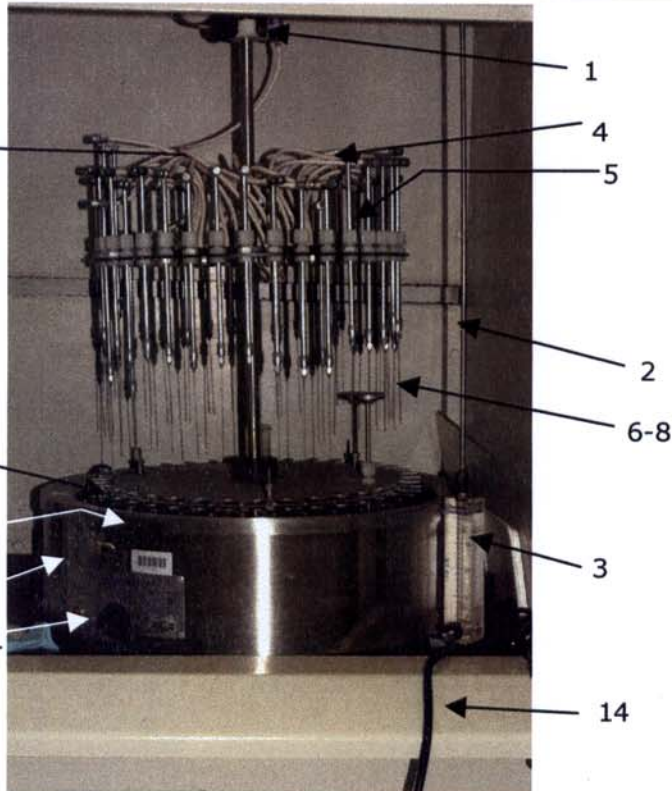
RES. 500:

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	29-1	1.00	64.00	35.35	1.10	1.32
2	29-2	1.00	66.00	34.62	1.51	2.61
3	29-3	1.00	60.00	36.51	1.01	3.60
4	29-4	1.00	42.00	47.61	1.10	5.41
5	29-5	1.00	66.00	34.62	1.30	6.75
6	29-6	1.00	50.00	47.00	2.70	8.10
7	29-7	1.00	60.00	36.51	1.95	9.44
8	29-8	1.00	52.00	39.22	1.82	10.84
9	29-9	1.00	48.00	40.82	2.16	12.19
10	29-10	1.00	62.00	35.32	1.91	13.57
11	29-11	1.00	64.00	35.35	1.90	14.92
12	29-12	1.00	58.00	37.14	1.85	16.29
13	29-13	1.00	62.00	35.92	1.70	17.65
14	29-14	1.00	56.00	37.86	1.86	19.02
15	29-15	1.00	44.00	42.64	4.29	20.37
16	29-16	1.00	46.00	41.70	2.77	21.75
17	29-17	1.00	56.00	37.86	1.89	23.10
18	29-18	1.00	54.00	38.49	2.36	24.47
19	2-1	1.00	44.00	42.64	2.30	25.84
20	2-2	1.00	58.00	37.14	1.05	27.28



Nitrogen gas  
Drying Apparatus

13 →   
hose outlets



**Nitrogen drying Apparatus  
Radioisotope Lab #1**

Survey Date: 9/8/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)

Efficiency (%) 50%

Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415

Background: < 0.05 mR/Hr

Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr	
1	Spring	58	BKD	
2	Inflow tubing	58	BKD	
3	Flowmeter	48	BKD	
4	Nitrogen distribution hoses	46	BKD	
5	Upper support	50	BKD	
6	Canulas	52	BKD	
7	Canulas	58	BKD	
8	Canulas	38	BKD	
9	Sample holder	64	BKD	
10	Inside of waterbath	58	BKD	
11	Temp Controls	64	BKD	
12	Outside of waterbath	66	BKD	
13	Hose outlets	30	BKD	
14	Line to nitrogen tank	66	BKD	

# ID# 13MFLAR SURVEY

USER: 3

COMMENT:

8 SEP 2005 12:31

(16)

PRESET TIME : 1.00

DATA CALC : CPM HB : NO SAMPLE REPEATS: 1 PRINTER : PDIT

COUNT CLAMP : NO ID# : NO REPLICATES : 1 RS232C : OFF

TWO PHASE : NO AGC : NO CYCLE REPEATS : 1 DTSE : PDIT

SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RMC 107 : OFF

LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW

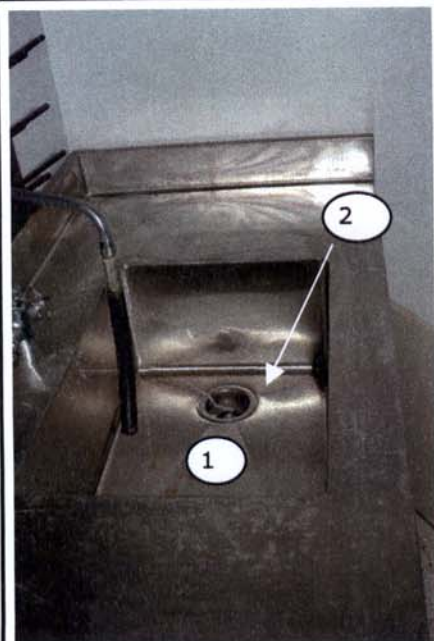
%ERROR: 2.00

FACTOR: 0.00000

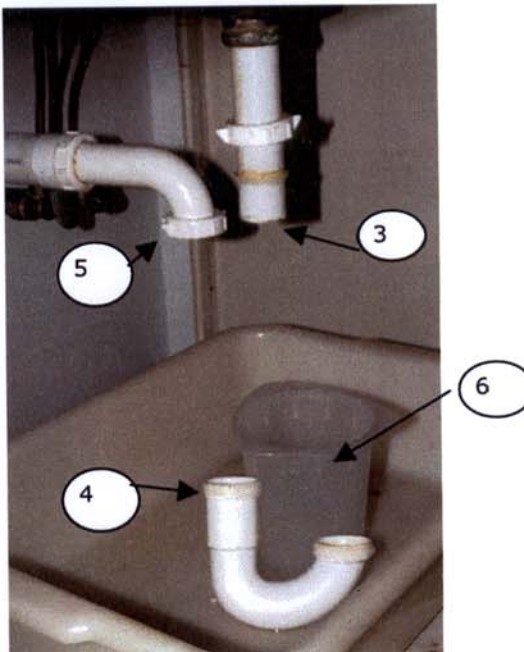
DATA SUB:

3

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	57-1	1.00	58.00	37.14	4.11	1.00
2	57-2	1.00	58.00	37.14	3.73	2.00
3	57-3	1.00	48.00	30.00	3.37	3.00
4	57-4	1.00	46.00	41.00	5.62	4.00
5	57-5	1.00	50.00	11.00	5.45	5.00
6	57-6	1.00	52.00	39.22	6.22	6.00
7	57-7	1.00	58.00	37.14	3.37	7.00
8	57-8	1.00	38.00	45.00	7.56	8.00
9	57-9	1.00	64.00	33.33	4.2	9.00
10	57-10	1.00	58.00	11.14	4.11	10.00
11	57-11	1.00	64.00	11.14	3.74	11.00
12	57-12	1.00	66.00	11.14	3.14	12.00
13	57-13	1.00	30.00	11.00	4.00	13.00
14	57-14	1.00	66.00	33.33	3.75	14.00



**Sink Drain  
Survey Detail  
Area J  
Isotope Lab#1  
2657 Patton Rd**



Date: 9/14/05

Surveyed by: Cathy Knox

Smear Survey Data			Exposure Rate (GM Survey Data)	
Radioisotopes: All (wide window)			Instrument: 123415	
Efficiency (%): 50%			Background: <0.05 mR/Hr	
Instrument: LS6500			Calibration date: 6/15/05	
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr	
1	Sink (basin)	60	BKD	
2	Sink drain (inlet)	64	BKD	
3	Drain from sink to trap	82	BKD	
4	Trap	54	BKD	
5	Drain (post trap)	58	BKD	
6	Water sample from trap (1 ml)	62	BKD	

## ID: SMEAR SURVEY

14 SEP 2005 16:14

USER: 3

COMMENT:

PRESET TIME : 1.00

DATA CALC : CPM H# : NO SAMPLE REPEATS: 1 PRINTER : EGIT

COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF

TWO PHASE : NO AGC : NO CYCLE REPEATS : 1 DISK : EDIT

SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RWM LIST : OFF

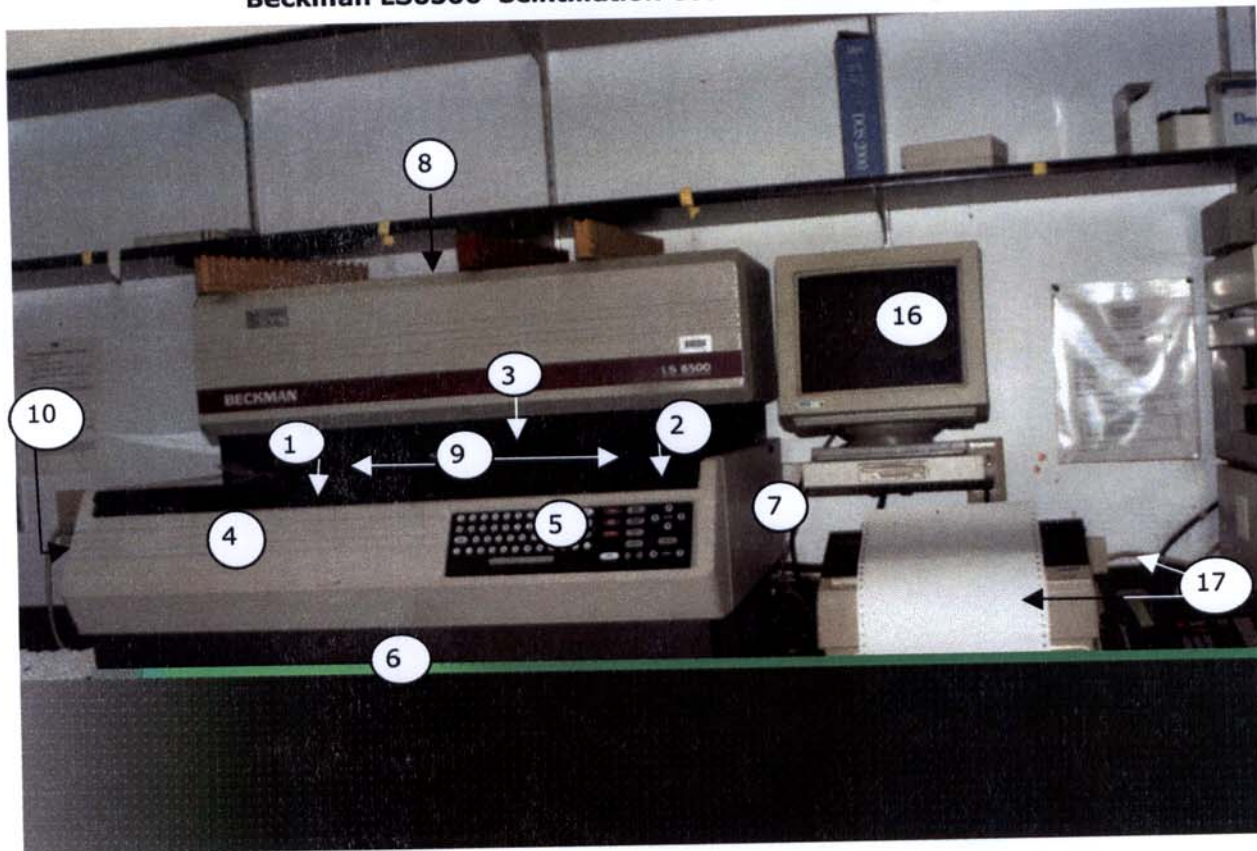
LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	12-1	1.00	60.00	37.71	9.30	1.34
2	12-2	1.00	64.00	35.36	5.59	2.69
3	12-3	1.00	82.00	33.80	18.64	4.07
4	12-4	1.00	54.00	38.49	4.17	5.44
5	12-5	1.00	58.00	37.14	3.50	6.80
6	12-6	1.00	62.00	35.92	1.41	8.15



# Beckman LS6500 Scintillation Counter Radioisotope Lab #1



Survey Date: 9/13/05		Surveyed by: Cathy Knox	
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>	
Radioisotopes: All (wide window)		Instrument: 123415	
Efficiency (%): 50%		Background: <0.05 mR/Hr	
Instrument: LS6500		Calibration date: 6/15/05	
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Deck left	58	BKD
2	Deck right	46	BKD
3	Sample changer area	56	BKD
4	Front	42	BKD
5	Control panel	50	BKD
6	Program cards/tray	42	BKD
7	Right side	36	BKD
8	Top	26	BKD
9	Lid	46	BKD
10	Left side	64	BKD
11	Rear (not pictured)	72	BKD
12	Racks ( not pictured)	42	BKD
13	Racks "	48	BKD
14	Racks "	56	BKD
15	Racks "	50	BKD
16	Monitor	160	BKD
17	Printer (knobs/controls)	64	BKD

see re-survey below

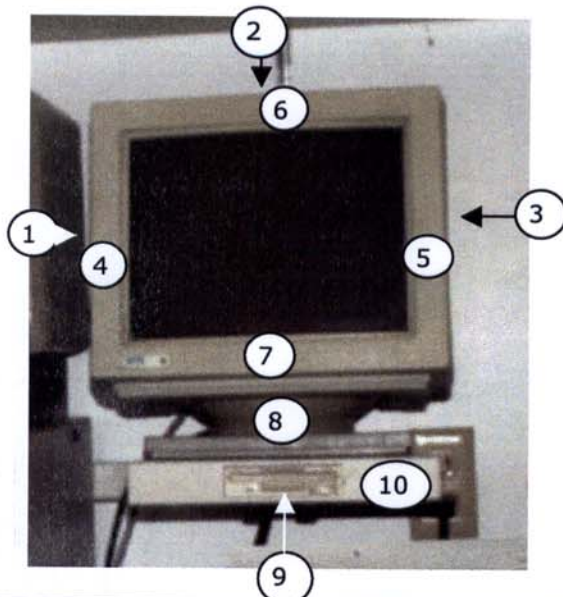
Page 20

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100% (15/15)      "      (R1)      (R2)      :      (1)      :      (6)      (7)      (8)      (9)      (10)      (11)      (12)      (13)      (14)      (15)

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	46-1	1.00	58.00	37.54	1.70	1.45
2	46-2	1.00	46.00	41.50	1.89	2.67
3	46-3	1.00	56.00	37.80	4.37	4.02
4	46-4	1.00	42.00	43.64	4.76	5.41
5	46-5	1.00	50.00	40.00	2.70	6.77
6	46-6	1.00	42.00	43.64	2.02	8.12
7	46-7	1.00	36.00	47.14	2.11	9.50
8	46-8	1.00	26.00	55.47	2.05	10.85
9	46-9	1.00	46.00	41.50	1.68	12.20
10	46-10	1.00	64.00	35.36	1.75	13.59
11	46-11	1.00	72.00	33.33	1.66	14.93
12	46-12	1.00	42.00	43.64	3.22	16.36
13	46-13	1.00	48.00	40.40	2.42	17.67
14	46-14	1.00	56.00	37.80	2.14	19.04
15	46-15	1.00	50.00	40.00	2.45	20.39
16	46-16	1.00	160.00	22.36	0.57	21.77
17	46-17	1.00	64.00	35.36	2.63	23.14

Re Survey of Monitor  
for LS6500  
Scintillation Counter



Survey Date:	9/13/05	Surveyed by:	Cathy Knox	
<b>Smear Survey Data</b>		<b>Exposure Rate (GM Survey Data)</b>		
Radioisotopes:	All (wide window)	Instrument: 123415		
Efficiency (%)	50%	Background: <0.05 mR/Hr		
Instrument:	LS6500	Calibration date: 6/15/05		
Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr	
1	Left rear	52	BKD	
2	Top rear	44	BKD	
3	Side rear	48	BKD	
4	Front side edge left	38	BKD	
5	Front side edge right	74	BKD	
6	Front side edge top	44	BKD	
7	Front side edge bottom	70	BKD	
8	Bottom pivot	68	BKD	
9	Disk drive	74	BKD	
10	Platform	44	BKD	

## ID: SMEAR SURVEY

USER: 3 COMMENT:

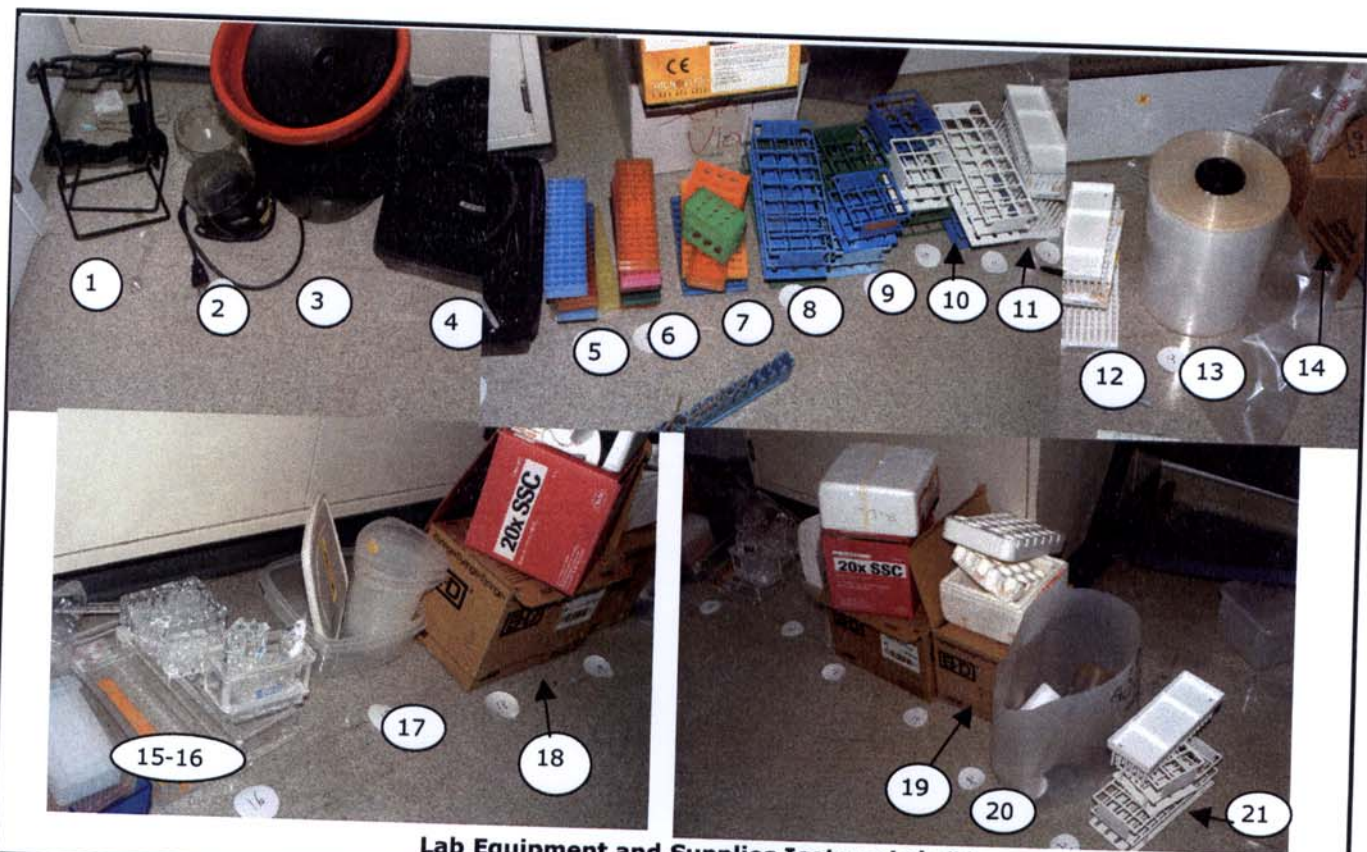
13 SEP 2005 17:00

PRESET TIME : 1.00  
 DATA CALC : CPM H# : NO SAMPLE REPEATS: 1 PRINTER : EDIT  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RSD32 : OFF  
 TWO PHASE : NO AGC : NO CYCLE REPEATS : 1 DISK : EDIT  
 SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RWM LIST : OFF  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	39-1	1.00	52.00	40.71	12.26	1.43
2	39-2	1.00	44.00	42.64	9.43	2.92
3	39-3	1.00	48.00	40.82	6.64	4.42
4	39-4	1.00	38.00	45.88	8.57	5.91
5	39-5	1.00	74.00	32.88	2.67	7.39
6	39-6	1.00	44.00	42.64	7.25	8.89
7	39-7	1.00	70.00	33.81	3.17	10.39
8	39-8	1.00	68.00	34.30	2.82	11.87
9	39-9	1.00	74.00	32.88	4.36	13.37
10	39-10	1.00	44.00	42.64	6.23	14.86





**Lab Equipment and Supplies Isotope Lab #1**

Survey Date: 8/19/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)  
 Efficiency (%): 50%  
 Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415  
 Background: < 0.05 mR/Hr  
 Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Pipette holder	60	BKD
2	Mini-centrifuge	74	BKD
3	Ice buckets	72	BKD
4	Ice buckets/pan	54	BKD
5	Test tube racks	38	BKD
6	Test tube racks	82	BKD
7	Test tube racks	58	BKD
8	Test tube racks	52	BKD
9	Test tube racks	74	BKD
10	Test tube racks	56	BKD
11	Test tube racks	48	BKD
12	Test tube racks	66	BKD
13	Plastic sheeting	60	BKD
14	Pipette box/pipettes	68	BKD
15	Test tube racks	48	BKD
16	Test tube racks	50	BKD
17	Plastic beakers/tupperware	48	BKD
18	20X SSC, syringes	52	BKD
19	Syringes, tube holders	32	BKD
20	Empty reagent bottles	50	BKD
21	Test tube racks	48	BKD

USER: 3

CORRECTION:

(24)

PRESENT TIME: 1.00

DATA CALC	CPM	H#	NO	SAMPLE REPEATS	PRINTED	EDIT
COUNT BLANK	NO	IC#	NO	REPLICATIONS	93202	801
TWO PHASE	NO	AGE	NO	CYCLE REPEATS	11.48	1000
SCINTILLATOR	LIQUID	LUMEX	YES	LOW SAMPLE RES	RND LIST	001
LOW LEVEL	NO	HALF LIFE	CORRECTION DATE			

WIDE OPEN WINDOW      %ERROR: 2.00      FACTOR: 2.000000      EUG. 5081      2

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	5-1	1.00	60.00	33.71	9.28	1.30
2	5-2	1.00	74.00	31.88	4.40	2.62
3	5-3	1.00	72.00	33.33	3.45	4.02
4	5-4	1.00	54.00	38.49	3.18	5.40
5	5-5	1.00	38.00	45.88	5.31	6.75
6	5-6	1.00	82.00	31.23	4.24	8.12
7	5-7	1.00	58.00	37.14	3.09	9.50
8	5-8	1.00	52.00	39.22	4.55	10.86
9	5-9	1.00	74.00	32.88	3.47	12.72
10	5-10	1.00	56.00	37.80	3.83	13.60
11	5-11	1.00	48.00	40.82	4.50	14.97
12	5-12	1.00	66.00	34.82	2.51	16.34
13	5-13	1.00	60.00	36.51	1.68	17.70
14	5-14	1.00	68.00	34.30	1.33	19.07
15	5-15	1.00	48.00	40.82	3.02	20.42
16	5-16	1.00	50.00	40.00	2.28	21.80
17	5-17	1.00	48.00	40.82	4.08	23.17
18	5-18	1.00	52.00	39.22	2.20	24.54
19	5-1	1.00	32.00	50.00	1.50	26.02
20	5-2	1.00	50.00	40.00	3.20	27.31
21	5-3	1.00	48.00	40.82	1.79	28.74
MISSING SAMPLE						
23	5-5	1.00	56.00	37.80	1.93	30.14

1.5 50.1



**Solvent Reagents Radioisotope Lab #1**



Survey Date: 9/1/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)

Efficiency (%) 50%

Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415

Background: < 0.05 mR/Hr

Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Solvent bottles	54	BKD
2	Solvent bottles	36	BKD
3	Solvent bottles	34	BKD
4	Solvent bottles	64	BKD
5	Solvent bottles	56	BKD
6	Solvent bottles	44	BKD
7	Solvent bottles	48	BKD
8	Solvent bottles	48	BKD
9	Solvent bottles	52	BKD
10	Solvent bottles	66	BKD

7. 10. 1945 1945

CONSTITUTIONAL

130

DATA CALC	YES	HM	= NO	SAMPLE REPEATS:	1	PRINTER	= FILE
COUNT SCALE :	NO	ID#	= NO	REPLICATION :	1	PCARD	= OFF
TWO PHASE :	NO	APC	= NO	CYCLE REPEATS :	1	FILE	= FILE
SCINTILLATOR :	THIN	CUMULATES	LOW SAMPLE REQ			WAIT 1.50	= OFF
LOW LEVEL :	NO	HALF LIFE	CORRECTION RATE:			none	

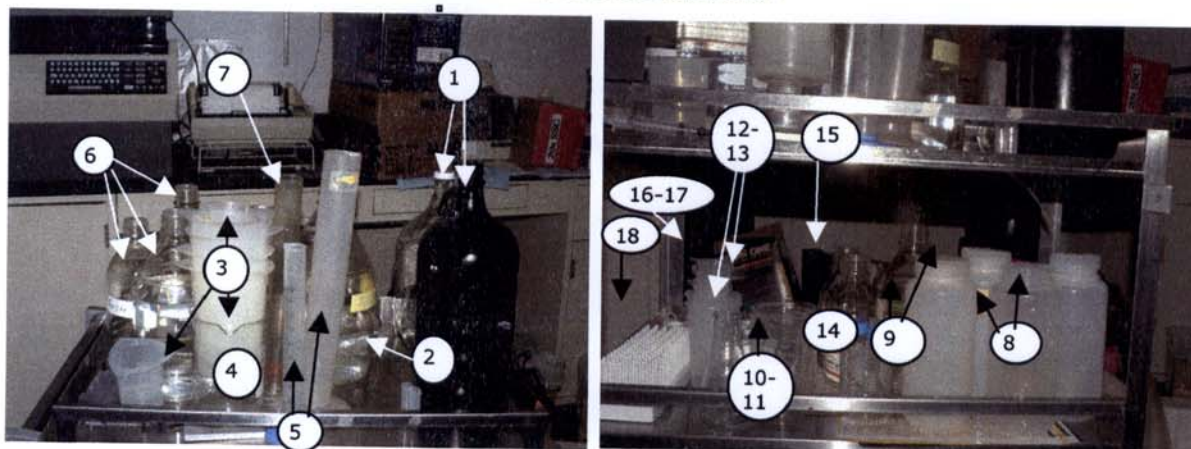
WIDE OPEN WINDOW      ZEROED: 0.00    FACTOR: 0.000000    OFF: 500    0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	57-1	1.00	54.00	38.49	0.82	1.32
2	57-2	1.00	36.00	47.14	1.62	2.67
3	57-3	1.00	34.00	48.51	0.93	4.02
4	57-4	1.00	64.00	35.36	0.93	5.38
5	57-5	1.00	56.00	37.80	1.02	6.73
6	57-6	1.00	44.00	42.64	1.06	8.10
7	57-7	1.00	48.00	40.82	1.25	9.47
8	57-8	1.00	48.00	40.82	0.84	10.82
9	57-9	1.00	52.00	39.82	1.56	12.17
10	57-10	1.00	66.00	34.82	0.76	13.59
MISSING SAMPLE						
12	57-12	1.00	52.00	39.82	0.65	14.92

INSTRUMENT CALIBRATION: PASS 1 SEP 2005 15:55  
Calibration successful

```
Calibrating Auto DPM
Counting Standard for 14C
Calibration Complete: 14C
Counting Standard for 3H
Calibration Complete: 3H
Calibration Successful
```

## Labware Clean-up Radioisotope lab#1



Survey Date: 8/25/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)  
 Efficiency (%): 50%  
 Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415  
 Background: < 0.05 mR/Hr  
 Calibration date: 6/15/05

Sample #		DPM/100 cm <sup>2</sup>	mR/Hr
1	Waste reagent bottles	50	BKD
2	Tank Buffer reagent bottle	68	BKD
3	Disposo beakers	44	BKD
4	Glass beakers	54	BKD
5	Graduated cylinders	58	BKD
6	Reagent bottles	64	BKD
7	Flasks	42	BKD
8	1 liter nalgenes (2)	52	BKD
9	1 liter nalgenes (2)	36	BKD
10	Glass beakers	36	BKD
11	Glass beakers	38	BKD
12	Flasks	54	BKD
13	Flasks	52	BKD
14	Falcon balance tubes	38	BKD
15	Empty reagent waste bottle	56	BKD
16	Small disposable beakers	58	BKD
17	Small disposable beakers	44	BKD
18	Test tube rack	52	BKD

Survey Date: 9/13/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)  
 Efficiency (%): 50%  
 Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415  
 Background: < 0.05 mR/Hr  
 Calibration date: 6/15/05

Sample #	Reagent Samples	DPM/100 cm <sup>2</sup>	mR/Hr
	Contamination check of mixed reagents (count from 1 ml of reagents)		
1	NaCl/Na Dodecyl Sulfate (6 falcon tubes)	52	BKD
2	" " " "	42	BKD
3	" " " "	58	BKD
4	" " " "	42	BKD
5	" " " "	54	BKD
6	" " " "	52	BKD
7	Tank buffer (.8 L)	42	BKD
8	Methanol (150 ml)	58	BKD
9	" (100 ml)	54	BKD
10	Unknown liquid in 50 ml tube	52	BKD
11	Acetonitrile (40 ml)	56	BKD
12	1N HCL (40 ml)	62	BKD



USER: 3 COMMENT: Labware Clean-UP  
 PRESET TIME : 1.00  
 DATA CALC : CPM H# : NO SAMPLE REPEATS: 1 PRINTER : EDIT  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF  
 TWO PHASE : NO ADC : NO CYCLE REPEATS : 1 DISK : EDIT  
 SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RWN LIST : OFF  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	2-1	1.00	50.00	40.00	3.93	1.32
2	2-2	1.00	68.00	34.30	4.13	2.69
3	2-3	1.00	44.00	42.64	5.40	4.04
4	2-4	1.00	54.00	38.49	3.14	5.40
5	2-5	1.00	58.00	37.14	3.01	6.77
6	2-6	1.00	64.00	35.36	2.19	8.12
7	2-7	1.00	42.00	43.64	3.43	9.50
8	2-8	1.00	52.00	39.22	1.67	10.85
9	2-9	1.00	36.00	47.14	2.55	12.22
10	2-10	1.00	36.00	47.14	3.89	13.60
11	2-11	1.00	38.00	45.88	3.26	14.97
12	2-12	1.00	54.00	38.49	1.02	16.33
13	2-13	1.00	52.00	39.22	1.45	17.70
14	2-14	1.00	38.00	45.88	2.00	19.07
15	2-15	1.00	56.00	37.80	1.16	20.43
16	2-16	1.00	58.00	37.14	0.78	21.82
17	2-17	1.00	44.00	42.64	2.18	23.19
18	2-18	1.00	52.00	39.22	0.58	24.55

TESTING SAMPLE

### Reagent Samples

PAGE: 1

### ID: SMEAR SURVEY

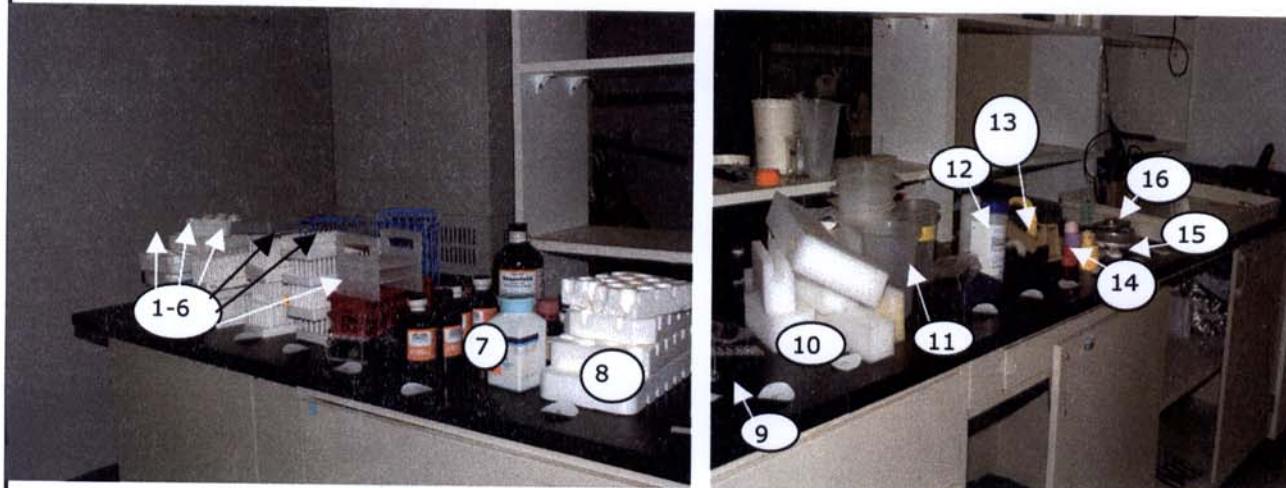
13 SEP 2005 17:46

USER: 3 COMMENT:  
 PRESET TIME : 1.00  
 DATA CALC : CPM H# : NO SAMPLE REPEATS: 1 PRINTER : EDIT  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF  
 TWO PHASE : NO ADC : NO CYCLE REPEATS : 1 DISK : EDIT  
 SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REJ: 0 RWN LIST : OFF  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	11-1	1.00	52.00	39.22	1.35	1.32
2	11-2	1.00	42.00	43.64	3.01	2.67
3	11-3	1.00	58.00	37.14	2.82	4.04
4	11-4	1.00	42.00	43.64	3.76	5.40
5	11-5	1.00	54.00	38.49	2.15	6.77
6	11-6	1.00	52.00	39.22	2.55	8.12
7	11-7	1.00	42.00	43.64	2.29	9.50
8	11-8	1.00	58.00	37.14	3.12	10.85
9	11-9	1.00	54.00	38.49	5.11	12.21
10	11-10	1.00	52.00	39.22	2.55	13.59
11	11-11	1.00	56.00	37.80	5.99	14.94
12	11-12	1.00	62.00	35.92	1.79	16.30

## Equipment and Supplies Isotope Lab#1



Survey Date: 8/23/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)

Efficiency (%) 50%

Instrument: LS6500

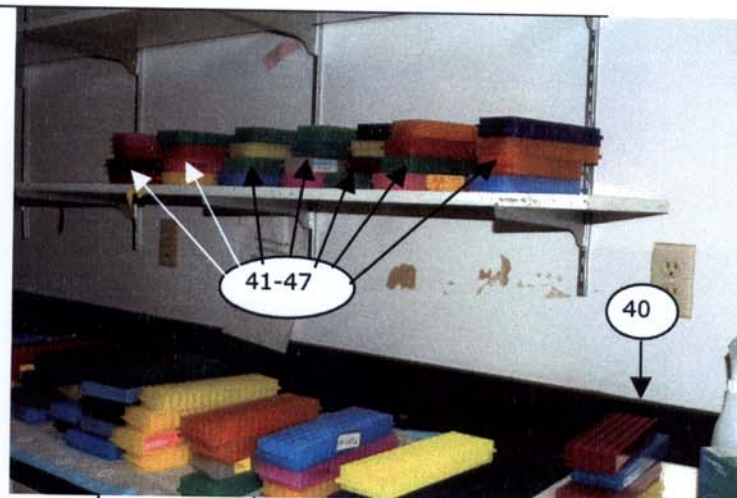
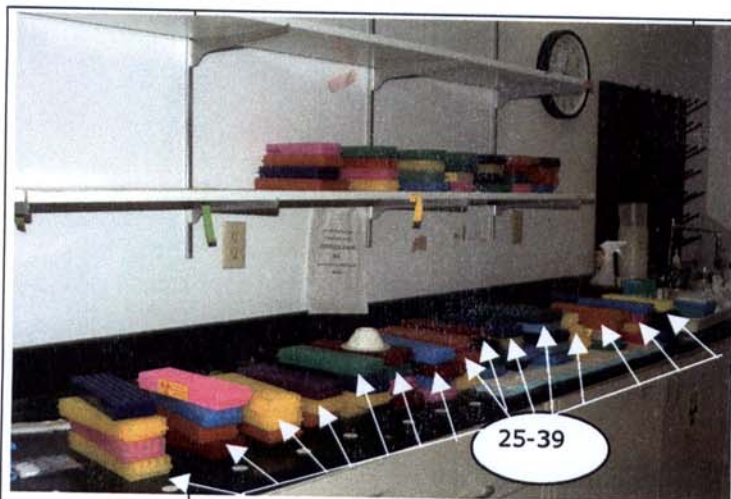
**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415

Background: &lt; 0.05 mR/Hr

Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
1	Test tube racks	64	BKD
2	Test tube racks	50	BKD
3	Test tube racks	38	BKD
4	Test tube racks	48	BKD
5	Test tube racks	36	BKD
6	Test tube racks	56	BKD
7	Chemicals	68	BKD
8	Foam racks	46	BKD
9	Broken Lucite	54	BKD
10	Foam packaging	66	BKD
11	Disposable beakers	54	BKD
12	Yeast bottle	40	BKD
13	Tape dispensers	36	BKD
14	Tape	44	BKD
15	Electronic timers	62	BKD
16	Centrifuge rotor	50	BKD
17	Waste (tubes/drugs)-not pictured	62	BKD
18	Disposable beakers-not pictured	60	BKD
19	2L reagent bottle-not pictured	56	BKD
20	Reagent waste bottle-not pictured	62	BKD
21	Syringes (no sharps)-not pictured	38	BKD
22	Pens/markers-not pictured	58	BKD
23	Filters-not pictured	60	BKD
24	Test tube racks-not pictured	40	BKD



Survey Date: 8/23/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)

Efficiency (%) 50%

Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415

Background: &lt; 0.05 mR/Hr

Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr
25	Microtube racks	62	BKD
26	Microtube racks	60	BKD
27	Microtube racks	48	BKD
28	Microtube racks	54	BKD
29	Microtube racks	52	BKD
30	Microtube racks	56	BKD
31	Microtube racks	56	BKD
32	Microtube racks	56	BKD
33	Microtube racks	54	BKD
34	Microtube racks	60	BKD
35	Microtube racks	128	BKD
36	Microtube racks	44	BKD
37	Microtube racks	80	BKD
38	Microtube racks	84	BKD
39	Microtube racks	42	BKD
40	Microtube racks	60	BKD
41	Microtube racks	60	BKD
42	Microtube racks	70	BKD
43	Microtube racks	48	BKD
44	Microtube racks	46	BKD
45	Microtube racks	50	BKD
46	Microtube racks	56	BKD
47	Microtube racks	76	BKD



# 10:5MEAR SURVEY

23 AUG 2005 12:52

(31)

USER: 3

COMMENT:

Equipment and Supplies

Radioisotope Lab #1

PRESET TIME : 1.00

DATA CALC : CPM H# : NO SAMPLE REPEATS: 1 PRINTER : EDIT

COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF

TWO PHASE : NO ADC : NO CYCLE REPEATS : 1 CLOCK : 0.0

SCINTILLATOR: LIQUID LUMEX: YES LOW SAMPLE REQ: 0 RWM LIMIT : 100

LOW LEVEL : NO HALF LIFE CORRECTION DATE: 1999

WIDE OPEN WINDOW

%ERROR: 2.00 FACTOR: 2.000000 GKG : 1.0

SAM NO	POS	TIME MIN	WIDE CPM	%ERROR	LUMEX %	ELAPSED TIME	
1	29-1	1.00	64.00	30.44	13.25	1.33	Test tube racks
2	29-2	1.00	50.00	40.79	9.90	2.69	
3	29-3	1.00	38.00	48.24	15.24	3.66	
4	29-4	1.00	48.00	40.82	7.13	5.44	
5	29-5	1.00	36.00	47.14	10.14	6.81	
6	29-6	1.00	56.00	37.80	6.20	8.16	
7	29-7	1.00	68.00	34.30	6.38	9.54	Chemicals
8	29-8	1.00	46.00	41.70	7.40	10.91	Foam racks
9	29-9	1.00	54.00	46.88	38.47	12.28	Broken Lucite
10	29-10	1.00	66.00	36.87	15.34	13.67	Foam (packaging)
11	29-11	1.00	54.00	38.49	6.07	15.04	Disposal beakers
12	29-12	1.00	40.00	44.72	6.76	16.41	yeast bottle
13	29-13	1.00	36.00	47.14	9.92	17.79	Tape dispensers
14	29-14	1.00	44.00	46.36	24.52	19.17	Tape
15	29-15	1.00	62.00	38.72	22.86	20.54	Timers (electronic)
16	29-16	1.00	50.00	40.00	6.80	21.92	Centrifuge rotor
17	29-17	1.00	62.00	35.72	4.48	23.29	Waste (tubes, dials)
18	29-18	1.00	60.00	36.51	3.80	24.65	Disposal beakers
19	46-1	1.00	56.00	37.80	8.05	26.16	2L reagent bottle
20	46-2	1.00	62.00	35.72	6.01	27.54	Reagent waste bottle
21	46-3	1.00	38.00	45.88	4.35	28.99	Syringes (no Sharps)
22	46-4	1.00	58.00	37.14	4.86	30.27	Pens, markers
23	46-5	1.00	60.00	36.51	4.04	31.64	Filters
24	46-6	1.00	40.00	44.72	7.22	33.01	Test tube racks
25	46-7	1.00	62.00	35.72	2.38	34.39	Micro tube racks
26	46-8	1.00	60.00	36.51	4.66	35.76	
27	46-9	1.00	48.00	40.82	6.49	37.12	
28	46-10	1.00	54.00	38.49	4.56	38.52	
29	46-11	1.00	52.00	39.22	3.99	39.89	
30	46-12	1.00	56.00	37.80	4.16	41.26	
31	46-13	1.00	56.00	37.80	3.44	42.64	
32	46-14	1.00	56.00	37.80	4.11	44.01	
33	46-15	1.00	54.00	38.49	3.79	45.37	
34	46-16	1.00	60.00	36.51	3.68	46.77	
35	46-17	1.00	128.00	25.00	1.74	48.14	See re-smea, not sunny
36	46-18	1.00	44.00	42.74	8.74	49.51	
37	8-1	1.00	80.00	33.17	15.06	51.00	
38	8-2	1.00	84.00	30.86	2.83	52.37	
39	8-3	1.00	42.00	43.64	5.93	53.74	
40	8-4	1.00	60.00	36.51	2.93	55.12	
41	8-5	1.00	60.00	36.51	5.24	56.49	
42	8-6	1.00	70.00	33.81	2.49	57.85	
43	8-7	1.00	48.00	40.82	3.76	59.25	
44	8-8	1.00	46.00	41.70	6.10	60.62	
45	8-9	1.00	50.00	40.00	3.52	61.99	
46	8-10	1.00	56.00	37.80	4.21	63.37	
47	8-11	1.00	76.00	32.44	2.77	64.75	microtube racks

MISSING SAMPLE

Survey Date: 9/13/05		Surveyed by: Cathy Knox		
<b>Smear Survey Data</b>			<b>Exposure Rate (GM Survey Data)</b>	
Radioisotopes: All (wide window)			Instrument: Ludlum GM ser#123415	
Efficiency (%): 50%			Background: < 0.05 mR/Hr	
Instrument: LS6500			Calibration date: 6/15/05	
Sample #	Description (equal to 25-47 above)	DPM/100 cm <sup>2</sup>	mR/Hr	
1	Microtube racks (re-smear)	34	BKD	
2	Microtube racks (re-smear)	44	BKD	
3	Microtube racks (re-smear)	58	BKD	
4	Microtube racks (re-smear)	76	BKD	
5	Microtube racks (re-smear)	66	BKD	
6	Microtube racks (re-smear)	50	BKD	
7	Microtube racks (re-smear)	64	BKD	
8	Microtube racks (re-smear)	76	BKD	
9	Microtube racks (re-smear)	64	BKD	
10	Microtube racks (re-smear)	58	BKD	
11	Microtube racks (re-smear)	56	BKD	
12	Microtube racks (re-smear)	64	BKD	
13	Microtube racks (re-smear)	76	BKD	
14	Microtube racks (re-smear)	68	BKD	
15	Microtube racks (re-smear)	54	BKD	
16	Microtube racks (re-smear)	70	BKD	
17	Microtube racks (re-smear)	82	BKD	
18	Microtube racks (re-smear)	58	BKD	
19	Microtube racks (re-smear)	76	BKD	
20	Microtube racks (re-smear)	58	BKD	
21	Microtube racks (re-smear)	60	BKD	

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthaler (1987). The total chlorophyll content was determined by the method of Arar and Cook (1980). The carotenoid content was determined by the method of Lichtenthaler and Weil (1983). The total phenolic content was determined by the method of Singleton and Rossi (1965). The total flavonoid content was determined by the method of Zhishen et al. (1999). The total protein content was determined by the method of Lowry et al. (1951). The total amino acid content was determined by the method of Kohn and Wootton (1982). The total nucleic acid content was determined by the method of Burton (1956). The total lipid content was determined by the method of Folch et al. (1957). The total carbohydrate content was determined by the method of Dubois and Gilles (1950). The total mineral content was determined by the method of Ashby et al. (1984). The total organic acid content was determined by the method of Saito et al. (1987). The total enzyme activity was determined by the method of Bergmeyer (1984). The total DNA content was determined by the method of Burton (1956). The total RNA content was determined by the method of Burton (1956). The total protein content was determined by the method of Lowry et al. (1951). The total amino acid content was determined by the method of Kohn and Wootton (1982). The total nucleic acid content was determined by the method of Burton (1956). The total lipid content was determined by the method of Folch et al. (1957). The total carbohydrate content was determined by the method of Dubois and Gilles (1950). The total mineral content was determined by the method of Ashby et al. (1984). The total organic acid content was determined by the method of Saito et al. (1987). The total enzyme activity was determined by the method of Bergmeyer (1984). The total DNA content was determined by the method of Burton (1956). The total RNA content was determined by the method of Burton (1956).

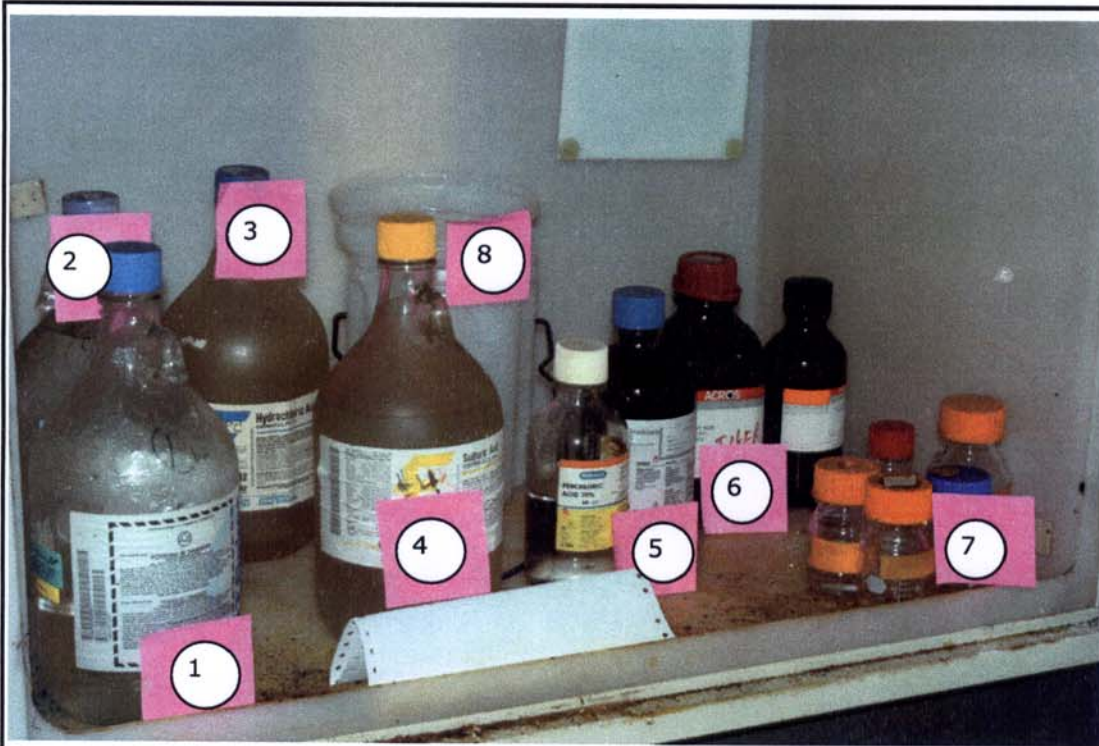
PRESET 4 (94) 1.00

COOPER, J. H., and G. E. GIBBS. 1979. The effects of the 1976-77 El Niño event on the fishery for *Sardinops sagax* in the Gulf of California. *U.S. Fish. Bull.* 77:1061-1077.

SCIENTIFIC INFORMATION: The following information is provided for informational purposes only and is not intended to be used for medical diagnosis or treatment. It is not a substitute for professional medical advice. Always consult your healthcare provider for more information.

DOI: 10.1002/eqm2.1490

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	ZERROR		
1	57-1	1.00	34.00	44.51	1.77	1.32
2	57-2	1.00	44.00	42.44	4.01	2.69
3	57-3	1.00	58.00	37.14	5.10	4.34
4	57-4	1.00	76.00	32.44	6.37	5.42
5	57-5	1.00	66.00	34.57	7.14	6.57
6	57-6	1.00	50.00	40.27	16.87	7.77
7	57-7	1.00	64.00	37.57	13.37	8.87
8	57-8	1.00	76.00	32.44	4.04	10.97
9	57-9	1.00	64.00	37.57	1.54	12.17
10	57-10	1.00	58.00	37.51	3.22	13.64
11	57-11	1.00	56.00	37.67	1.82	14.87
12	57-12	1.00	64.00	35.72	2.74	16.07
13	57-13	1.00	76.00	32.44	2.31	17.37
14	57-14	1.00	68.00	34.57	0.33	18.77
15	57-15	1.00	54.00	39.97	1.55	19.47
16	57-16	1.00	70.00	37.61	1.82	21.67
17	57-17	1.00	82.00	31.22	3.54	23.74
18	57-18	1.00	58.00	37.14	2.53	24.60
19	12-1	1.00	76.00	32.44	3.38	26.09
20	12-2	1.00	58.00	37.14	1.57	27.45
21	12-3	1.00	60.00	36.51	1.75	28.82



**Acid Reagents  
Radioisotope  
Lab#1**

Survey Date: 8/31/05

Surveyed by: Cathy Knox

**Smear Survey Data**

Radioisotopes: All (wide window)  
Efficiency (%): 50%  
Instrument: LS6500

**Exposure Rate (GM Survey Data)**

Instrument: Ludlum GM ser#123415  
Background: < 0.05 mR/Hr  
Calibration date: 6/15/05

Sample #	Description	DPM/100 cm <sup>2</sup>	mR/Hr	
1	Acid reagent bottles	52	BKD	
2	Acid reagent bottles	58	BKD	
3	Acid reagent bottles	44	BKD	
4	Acid reagent bottles	44	BKD	
5	Acid reagent bottles	34	BKD	
6	Acid reagent bottles	48	BKD	
7	Acid reagent bottles	62	BKD	
8	Acid reagent bottles	58	BKD	

# ID: SMEAR SURVEY

Acid Registry

31 AUG 2005 16:32

USER: 3 COMMENT:

PRESET TIME : 1.00

DATA CALC :	CPM	H# :	NO	SAMPLE REPEATS:	1	PRINTER :	EDIT
COUNT BLANK :	NO	IC# :	NO	REPLICATES :	1	RS232 :	OFF
TWO PHASE :	NO	ADC :	NO	CYCLE REPEATS :	1	DISK :	EDIT
SCINTILLATOR:	LIQUID	LUMEX:	YES	LOW SAMPLE REJ:	0	RWH 1197 :	OFF
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE:	none				

WIDE OPEN WINDOW %ERROR: 2.00 FACTOR: 2.000000 BK3, SUB: 0

SAM NO	POS	TIME MIN	WIDE		LUMEX %	ELAPSED TIME
			CPM	%ERROR		
1	42-1	1.00	52.00	39.22	6.74	1.32
2	42-2	1.00	58.00	37.14	3.65	2.67
3	42-3	1.00	44.00	42.64	5.16	4.04
4	42-4	1.00	44.00	42.64	4.60	5.40
5	42-5	1.00	34.00	48.51	3.89	6.25
6	42-6	1.00	48.00	40.82	3.68	8.12
7	42-7	1.00	62.00	35.92	1.83	9.50
8	42-8	1.00	58.00	37.14	2.67	10.85
MISSING SAMPLE						
10	42-10	1.00	90.00	29.81	3.51	12.24

**Express**

RECIT

City **ROSEVILLE**

State **MN** ZIP **55113**

2 Your Internal Billing Reference

3 To

Recipient's Name **US Warehouse** Phone **651-555-1234**

Company **US Warehouse**

Address **1234 Main St**

City **St Paul** State **IL** ZIP **60532**



0191089332

5 Packaging

FedEx Envelope\*

FedEx Pak\*

Other Pkg

6 Special Handling

SATURDAY Delivery

HOLD Weekday

HOLD Saturday

Does this shipment contain dangerous goods?

No

Yes

Dry Ice

Cargo

7 Payment Bill to:

Sender

Recipient

Third Party

Credit Card

Cash/Check

Total Packages

Total Weight

Total Charges

8 Release Signature

By signing you authorize us to deliver this shipment without obtaining a signature

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**\*\* 2DAY \*\***

**MON**

TRK# **8281 3087 4210**

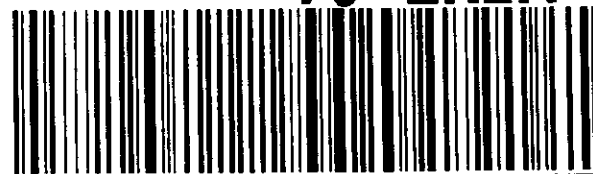
FORM 0215

Deliver By:  
**100CT05**  
**A2**

**60532**

**-IL-US**

**ORD**  
**79 ENLA**



**Medium**

Align bottom of Peel and Stick Airbill or Airbill Pouch here