Date: March 20, 2003

A
030-34406

To: Actions Administrator
Region III NRC

From: Catherine Knox
RSO
Parker Hughes Institute

Re: Laboratory area close-out ; Specific Materials License Number: 22-26786-01

Please review the enclosed report regarding a laboratory area close-out within our facility.
We are requesting and expedited review because the area is in the process of a sub-leasing agreement. Further details and contact information are included in the survey report.

Thank you.

311782

Parker Hughes Institute

Virology Laboratory
Close- Out Survey

March 2003

March 20, 2003

Material Licensing Branch
United States Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Attention: Actions Administrator

License Number: 22-26786-01

Dear Madam/Sir,

The Parker Hughes Institute will be closing off a section of our laboratory at the 2657 Patton road address. This area includes the Virology /Microbiology laboratory which was listed as a potential radioactive material use area on our materials license several years ago (amendment #3, letter dated November 23, 1998).

Although we anticipated using radiochemicals under sterile conditions, no radioactive material was ever used or stored in the virology laboratory. Our needs were met by completing experiments in our non-sterile designated radioactive use laboratory areas.

Request to Expedite Review Process

I have consulted with NUREG/CR-5849 to help begin the process of removing this use area from our materials license.
The sectioned off laboratory space has been placed under a sub-lease agreement. The new occupants are currently waiting for release of this space before remodeling can begin.

Potential Radionuclide Contaminants

None were identified because procedures using radiochemicals in the virology laboratory were never performed. Biological assays were performed on non-viable cell lysates in other designated use areas.

Document History

Surveys were not performed because no radioactive material was ever in use in the virology laboratory.

Virology Laboratory Survey Data

Smear and GM surveys were performed in the virology laboratory for close-out documentation purposes.

I have enclosed a numbered floor plan and other site location maps, a smear sample number key with descriptions, and the original scintillation counter smear result printouts. The removable (smear) surface activity samples represent disintegration's per minute for a surface area of approximately 100 cm squared.

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.

Water samples from the two sink traps of laboratory were taken with a 1 ml volume counted in 5 ml of counting cocktail.

Instrumentation

GM Survey

The GM survey meter model information and specifications have been enclosed in this report. The analog meter face fluctuations 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 frequency levels for all surfaces and equipment during scanning.

Liquid Scintillation Analysis

Smears
A scintillation counter (Beckman Instruments LS 6500), was used to count smear samples in liquid scintillation counting cocktail. Calibration standards information and printouts have been included.

Counting Program Summary

- Counting time was 1 minute per sample.
- The CPM data has a factor of 2 applied to it for counting efficiency reasons, (a 50% efficiency is assumed for multiple isotope purposes).
- Smear samples were taken on cotton tipped applicators and counted in 5 ml of counting cocktail.

Background Count

- The background counts were counted on the same user program, with 20 samples counted and averaged to establish background counting values.
- The 20 background count samples averaged 50.1 +/- 14.3 DPM (CPM x 2 for 50 % counting efficiency).
- The standard deviation of the background counts calculated to be 28.5% of the mean background counts.

Survey Results

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 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 3 times the background level would give 300 to 480 CPM/0.05 = 6000 to 9600 DPM at a minimum to detect 14C.
- For P-32, the survey meter is 32% efficient at 4 pi geometry, at 3 times background levels, 300 to 480 CPM/0.32= 937 to 1500 DPM for P-32.
- 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)	Efficiency (CPM/Corr DPM)
H-3	104,000	85,213	49022	64%
C-14	52,300	52,264	50,654	97%

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 and 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 data sheet headings).

Scintillation Counter MDA

Scintillation MDA in general = background CPM x 2 (efficiency factor) = 50.1, at three times background = 150.3 DPM for Minimum Detectable Activity. Samples above this threshold are considered positive.

Scintillation Counter Results

No result met or exceeded the MDA of 150 DPM (75 CPM).

Chemiluminescence

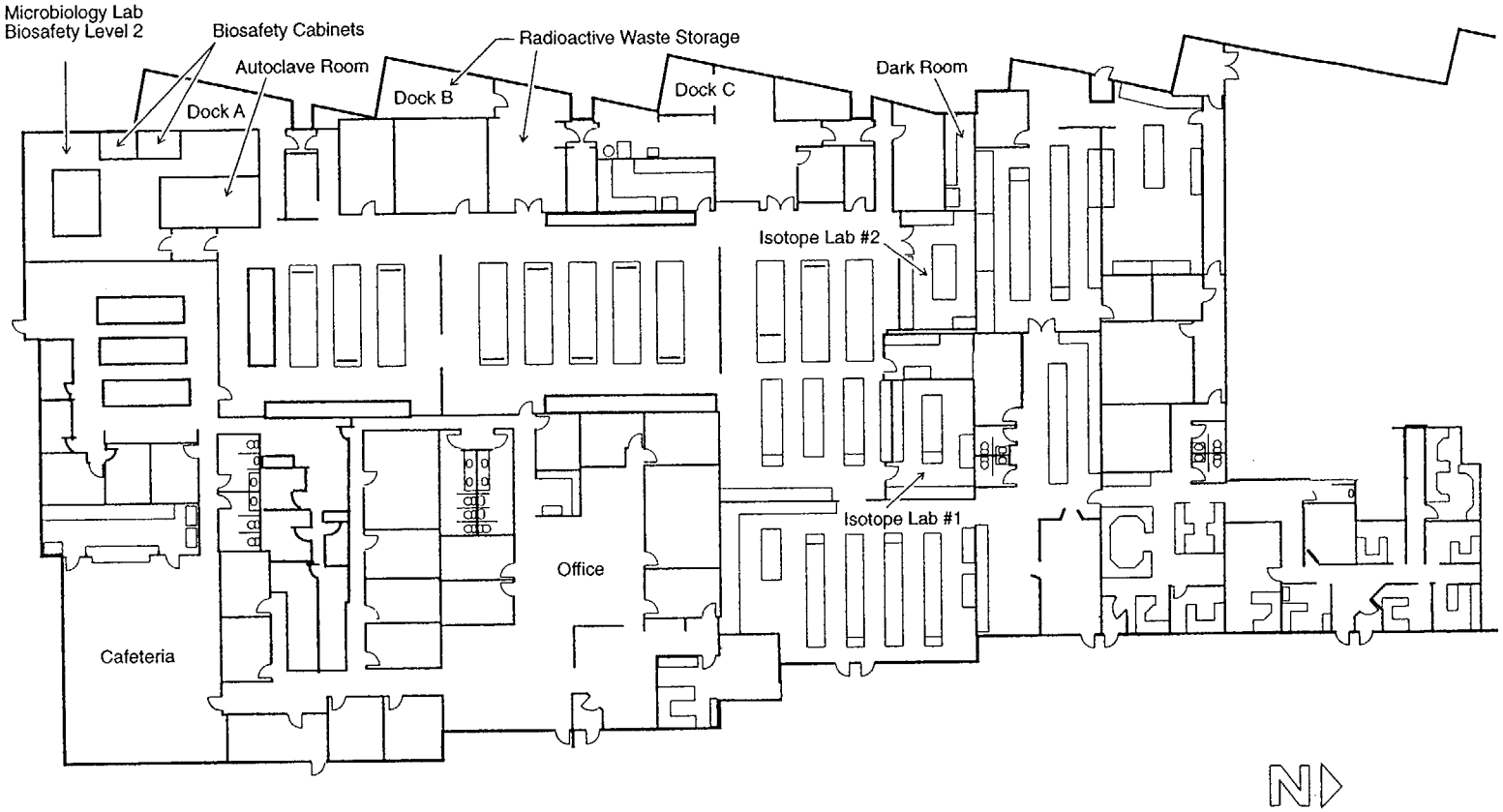
The virology laboratory while in operation used a variety of disinfectants and cleaners on work surfaces and instruments. Several of these were checked for chemiluminescence response by dipping cotton tipped applicators into a solution, then counting the applicator in 5 ml of counting cocktail.
The most active solutions were "Matar"(containing phenol and phenolchloroform) and "Lysol", a quarternary disinfectant. Spectrums for these disinfectants have been included in the background data section.

I hope to discuss this report with your agency as soon as possible. Your assistance is greatly appreciated
Please contact me at (651)628-9988 ext. 5004 , cell: 651-247-1922.

Sincerely,

Catherine Knox
Radiation Safety Officer
Parker Hughes Institute
Roseville, Minnesota

2657 Patton Road Facility
Roseville, Minnesota

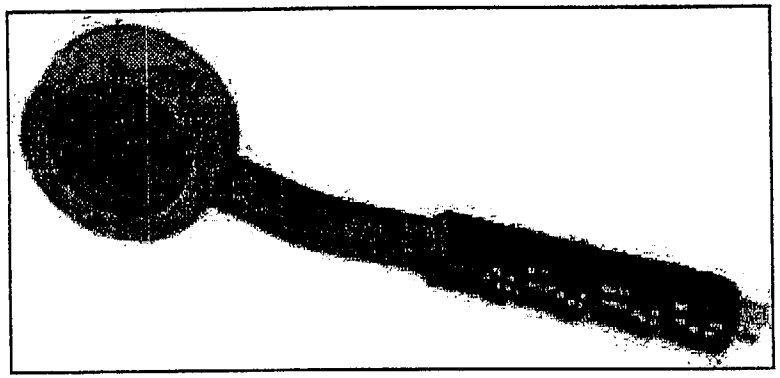


GM Detector
And
Survey Meter

Instrument Specifications
and
Calibration Information

MODEL 44-9
PANCAKE GEIGER-MULLER DETECTOR

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 scalers
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 ±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 ± 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

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER PARKER HUGHS INSTITUTE ORDER NO. 282115/264911

Ludlum Measurements, Inc. Model 3 Serial No. 71461

Mfg. Ludlum Measurements, Inc. Model 44-9 Serial No. PR 140356

Cal. Date 2-Jul-02 Cal Due Date 2-Jul-03 Cal. Interval 1 Year Meterface 202-330

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 41 % Alt 701.8 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. 26 mV Det. Oper. 900 V at 26 mV Threshold Dial Ratio ____ = ____ mV

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

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the ~~front~~ back 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	0.55	0.52
X 10	15 mR/hr	1.4	1.4
X 10	5 mR/hr	0.5	0.5
X 1	1.5 mR/hr = 3,530 cpm	1.5	1.5
X 1	1.0 mR/hr	1.0	1.0
X 0.1	353 cpm	1.5	1.5
X 0.1	118 cpm	0.5	0.5

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

X 0.1 **Range(s) Calibrated Electronically**

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

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

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/NCSL 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 ☐ Neutron Am-241 Be S/N T-304

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

m 500 S/N 81084 ☐ Oscilloscope S/N ____ ☑ Multimeter S/N 80040300

Calibrated By: Michael J Thomas Date 2-July-02

Reviewed By: Rhonda Harris Date 2 Jul 02

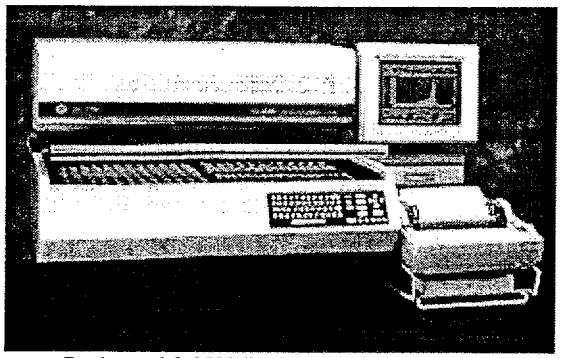
FORM C22A 10/31/2001

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed: ____

Liquid Scintillation Counter

Instrument Specifications and Calibration Information

Beckman LS 6500 Scintillation counter



Beckman LS 6500 liquid scintillation counter

H-Number Plus is standard in LS 6500 Systems and represents a significant improvement in accuracy and reproducibility over competitive LS systems. Quench is determined to a tenth of a channel.

The LS 6500 guides you with ease-to-follow menus and context-sensitive help screens. Operate the system without an external computer.

Look at the features this system offers:

Electronics

- 32,768 Channels Multichannel Analyzer
- Advanced Photomultiplier Design
- Interlocking Lead Shielding
- Motorola Host Processor & Digital Signal Processor

User Interface and Output

- Monochrome or Color Monitor
- Windowing User Interface
- Context-Sensitive Help Screens
- User-Selectable Output Format

General

- Automatic Power-Up Diagnostics
- Automatic Calibration and Verification
- Diagnostics Program
- Permanent Memory
- 336 standard vials and 648 miniature vials
- Automatic Batch Repeat

Beckman LS 6500 Liquid Scintillation counter

The current model LS 6500 Scintillation Counter offers unparalleled flexibility in a single high performance system, without the need of a dedicated external computer. Advanced electronic components, such as a Motorola 68000 Series microprocessor supported by a digital signal processor, maximize technological lifetime and make the LS 6500 fast and efficient.

A 32,768 channel multichannel analyzer gives you an eight-fold improvement in effective resolution (0.06 keV per channel) over that of conventional liquid scintillation counters (0.5 keV per channel). This provides the basis for:

- DPM results without quench curves
- A more precise quench monitor
- Superior results for multi-label studies
- Automatic color detection and correction

- Bi-Directional Sample Changer
- Positive Sample Identification
- Electrostatic Controller

Instrument Editing

- 20 User Programs
- Program Protection
- Isotope Library
- Interrupt Mode
- Instrument Parameters Window

Basic Calculations

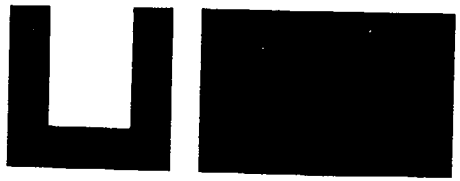
- Fixed Background Subtraction
- First-Vial Blank Subtraction
- Half-Life Correction to Any Date
- Final Result Normalization
- Repeat and Replicate Averaging with %CV
- Single-Label % of Reference

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 Instruments, Inc., Fullerton, CA 92634-3100
April 1992 015-245208 Printed in U.S.A.

BECKMAN
MADE IN U.S.A.

594946 LIQUID SCINTILLATION STANDARDS SET



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}C or ^{3}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.

Beckman Instruments, Inc. • Analytical Business Unit • Fullerton, CA 92634-3100

ACTIVITY CALIBRATION AND ERROR ANALYSIS

The ^{14}C and ^{3}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	-	CJP0406
BKG	-	BJP1908

The overall uncertainties associated with the activity values are estimated to be less than ±3.5% for the ^{3}H and ±3.5% for the ^{14}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}C or ^{3}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}H and ^{14}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}H and ^{14}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.

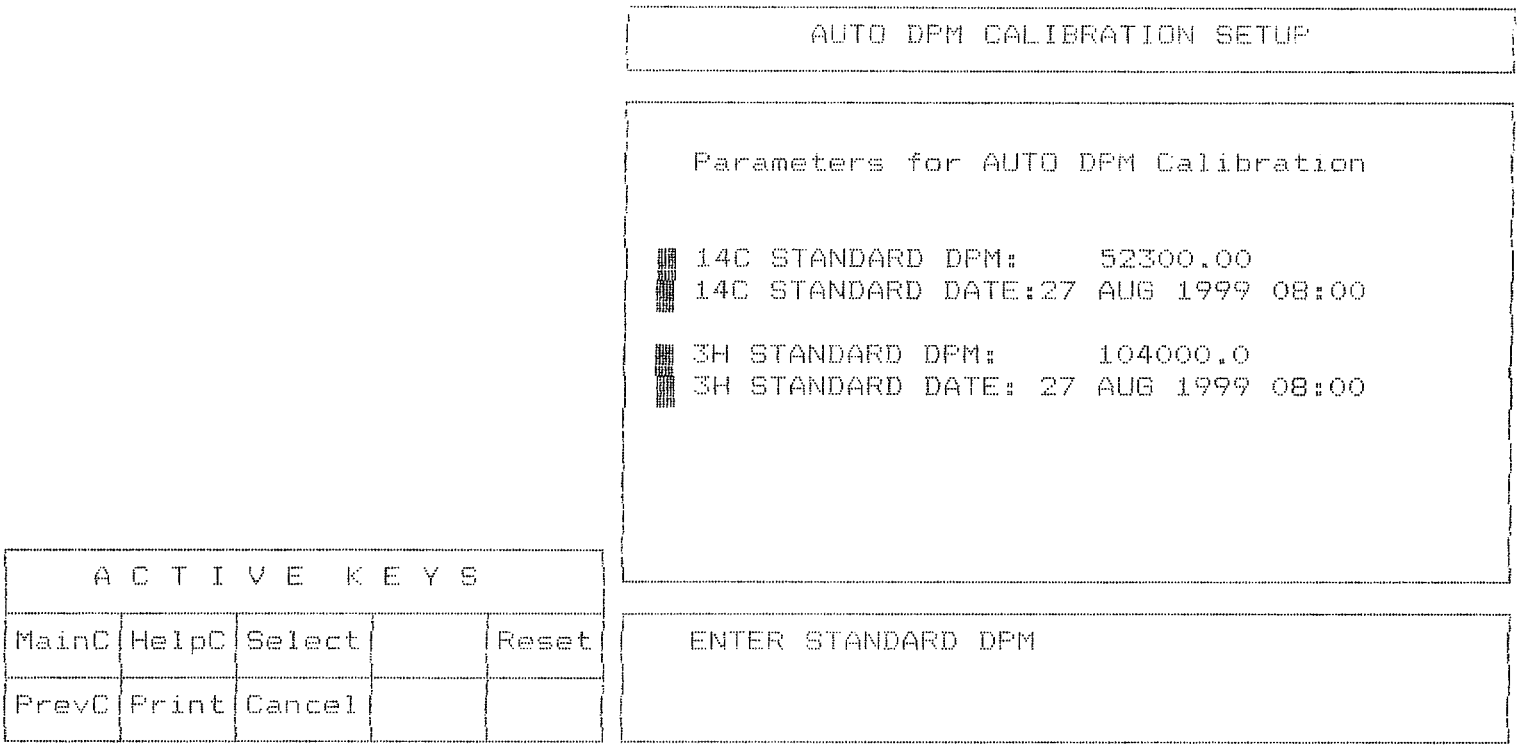
PRECAUTIONS ON STORAGE AND USE

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 combined.


AUTO DPM CALIBRATION SETUP
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
PrevC
Print
Cancel
ENTER STANDARD DPM

INSTRUMENT CALIBRATION: Mini 14 MAR 2003 13:38
Calibration successful

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

Background Scintillation Data

Background Scintillation Data

Count Date: 3/14/2003

Instrumentation:

Scintillation Counter: Beckman LS 6500 Ser# 7068525

DPM efficiency Factor: CPM x 2

Instument Count

Sample #	DPM	DPM-Mean
1	42	-8.1
2	68	17.9
3	50	-0.1
4	46	-4.1
5	36	-14.1
6	42	-8.1
7	22	-28.1
8	44	-6.1
9	54	3.9
10	56	5.9
11	38	-12.1
12	40	-10.1
13	80	29.9
14	54	3.9
15	70	19.9
16	50	-0.1
17	66	15.9
18	34	-16.1
19	70	19.9
20	40	-10.1
Total	1002	
Mean	50.1	
Std dev	14.33	
CV	0.29	

ID: SMEAR SURVEY 14 MAR 2003 14:11
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 AQC : NO CYCLE REPEATS : 1 DISK :EDIT
SCINTILLATOR: LIQUID LUMEX: NO LOW SAMPLE REJ: 0
DATA BUFFER IS FULL. DATA WILL GO TO PRINTER ONLY.
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 CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME
1	5-1	1.00	42.00	43.64	5.20	1.27
2	5-2	1.00	68.00	34.30	1.92	2.61
3	5-3	1.00	50.00	40.00	2.65	3.94
4	5-4	1.00	46.00	41.70	1.96	5.29
5	5-5	1.00	36.00	47.14	2.57	6.62
6	5-6	1.00	42.00	43.64	2.24	7.97
7	5-7	1.00	22.00	60.30	6.11	9.32
8	5-8	1.00	44.00	42.64	4.98	10.67
9	5-9	1.00	54.00	38.49	0.67	12.01
10	5-10	1.00	56.00	37.80	4.37	13.38
11	5-11	1.00	38.00	45.88	6.25	14.72
12	5-12	1.00	40.00	44.72	5.68	16.07
13	5-13	1.00	80.00	31.62	3.79	17.44
14	5-14	1.00	54.00	38.49	4.29	18.79
15	5-15	1.00	70.00	33.81	2.90	20.14
16	5-16	1.00	50.00	40.00	4.57	21.51
17	5-17	1.00	66.00	34.82	3.13	22.86
18	5-18	1.00	34.00	48.51	1.30	24.20
19	48-1	1.00	70.00	33.81	1.56	25.66
20	48-2	1.00	40.00	44.72	1.72	27.01

Beckman LS6500

Background count samples 1-20

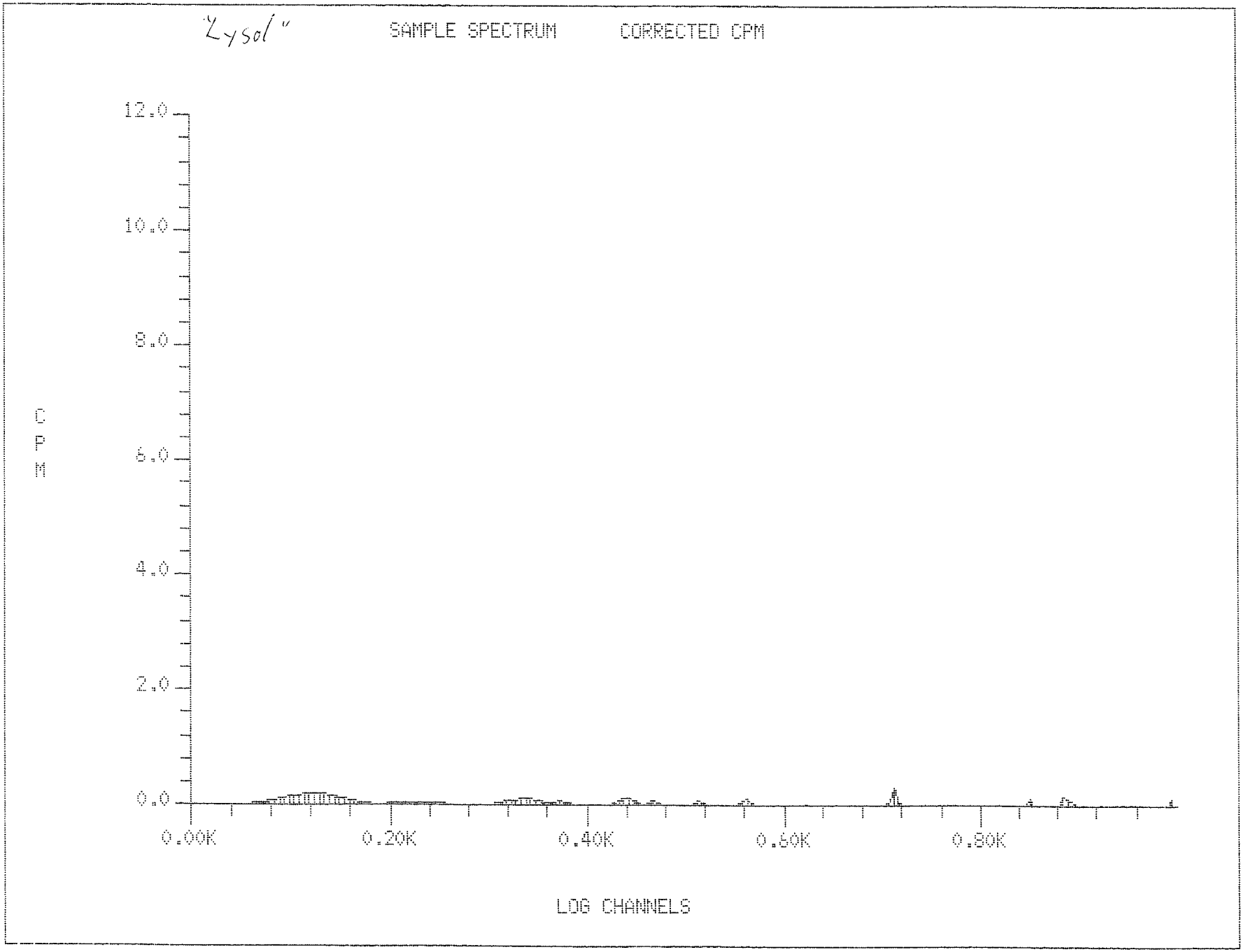
ID:HOT GRAPH 1 MIN 19 MAR 2003 16:23
USER: 4 COMMENT:
PRESET TIME : 1.00
DATA CALC : CPM H# :YES SAMPLE REPEATS: 1 PRINTER :EDIT
COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF
TWO PHASE : NO AQC : NO CYCLE REPEATS : 1 DISK :EDIT
SCINTILLATOR: LIQUID LUMEX: NO LOW SAMPLE REJ: 0
DATA BUFFER IS FULL. DATA WILL GO TO PRINTER ONLY.
RWM LIST : OFF
LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

WIDE OPEN WINDOW %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	H#	WIDE CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME
1	55-1	1.00	79.0	38.00	32.44	25.19	1.56

Lysol" disinfectant

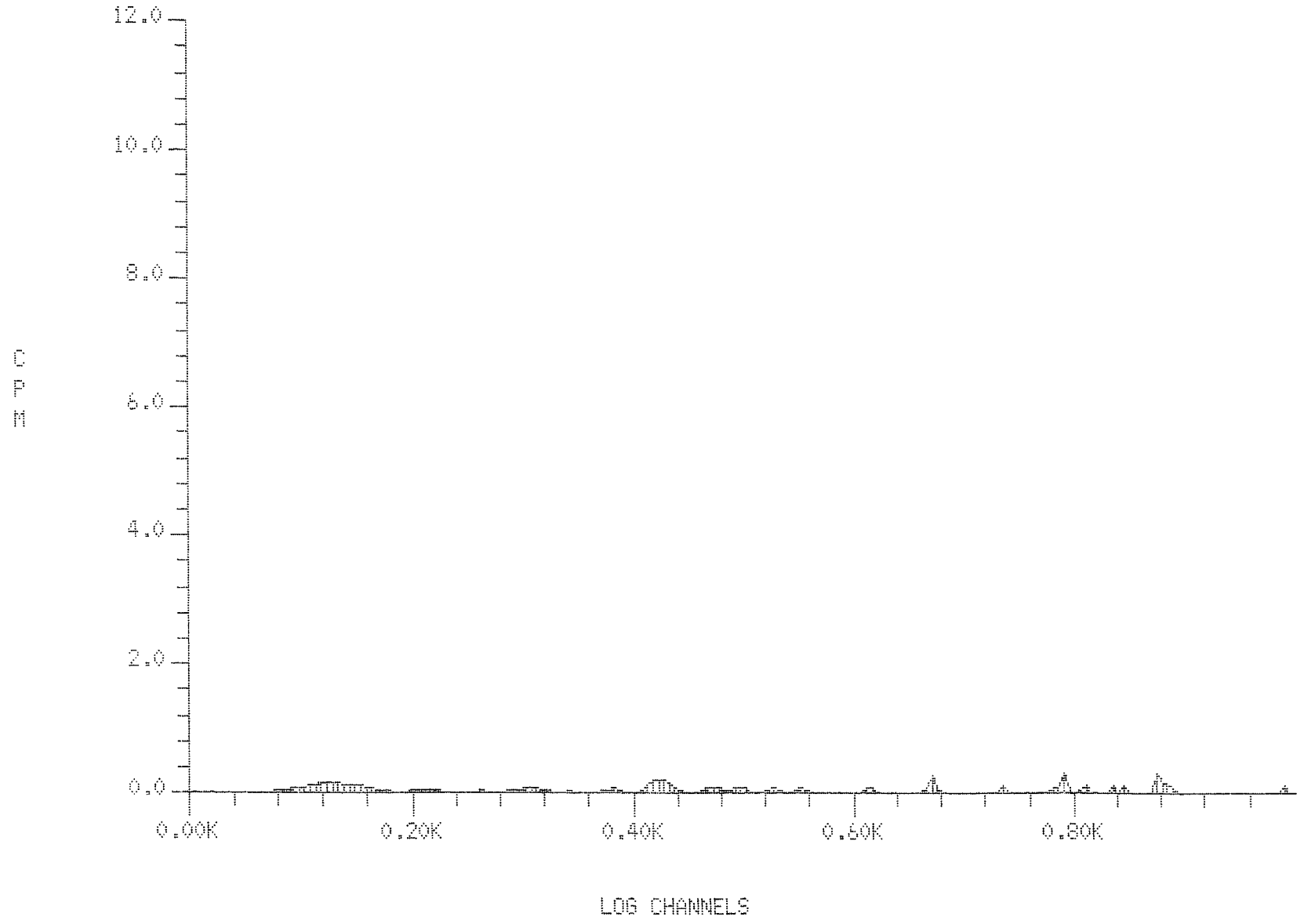
User: 4 Sample: 1 Position: 55-1 19 MAR 2003 16:24



SAM NO	POS	TIME MIN	H#	WIDE CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME	
2	55-2	1.00	75.4	44.00	30.15	12.15	4.43	"Envirocide" disinfectant

User: 4 Sample: 2 Position: 55-2 19 MAR 2003 16:26

"Envirocil" disinfectant SAMPLE SPECTRUM CORRECTED CPM

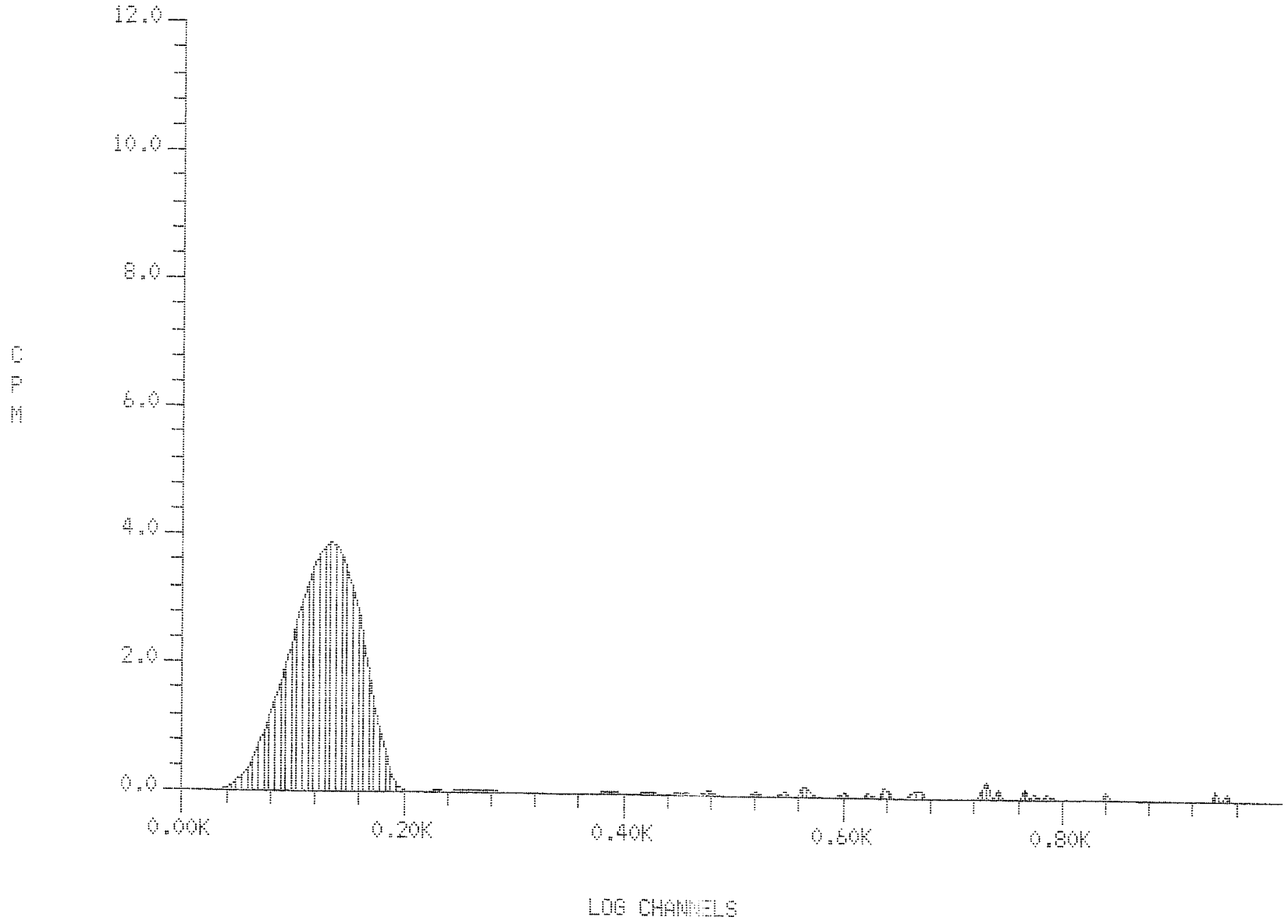


SAM NO	POS	TIME MIN	H#	WIDE CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME	
3	55-3	1.00	93.9	319.00	11.20	93.01	7.57	"Matar" disinfectant

User: 4 Sample: 3 Position: 55-3

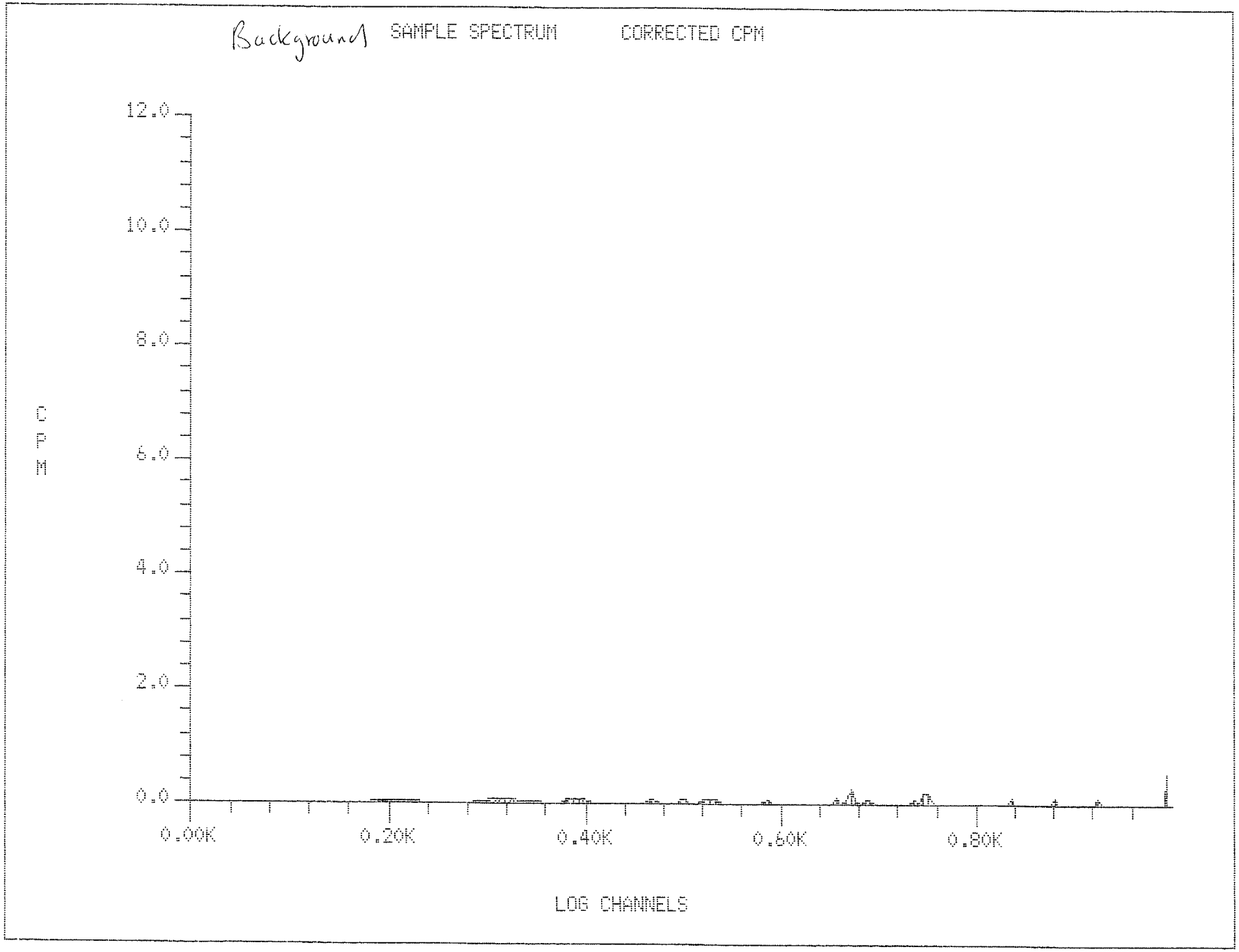
19 MAR 2003 16:29

"Matar" disinfectant SAMPLE SPECTRUM CORRECTED CPM



SAM NO	POS	TIME MIN	H#	WIDE CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME	
MISSING SAMPLE								
5	55-5	1.00	65.0	27.00	38.49	1.50	10.50	Background Sample

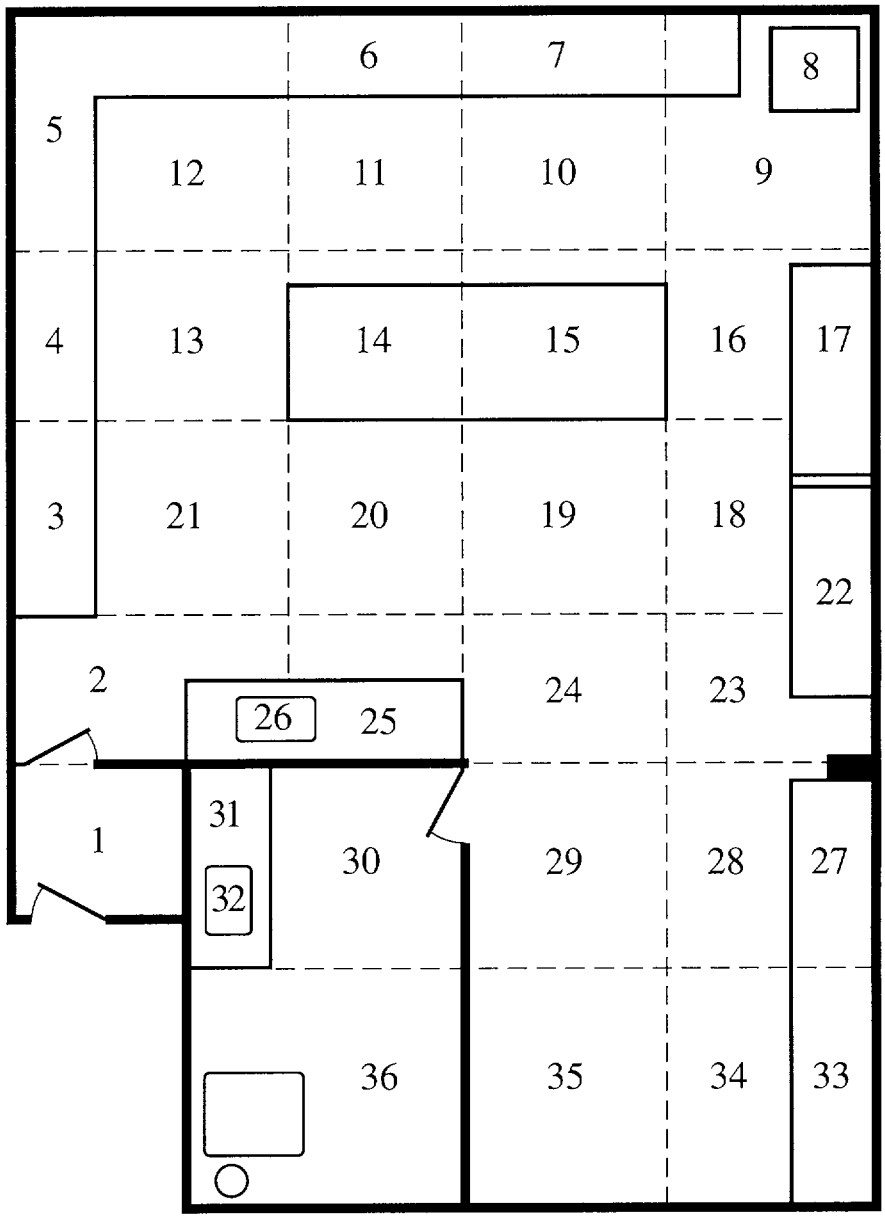
User: 4 Sample: 5 Position: 55-5 19 MAR 2003 16:33

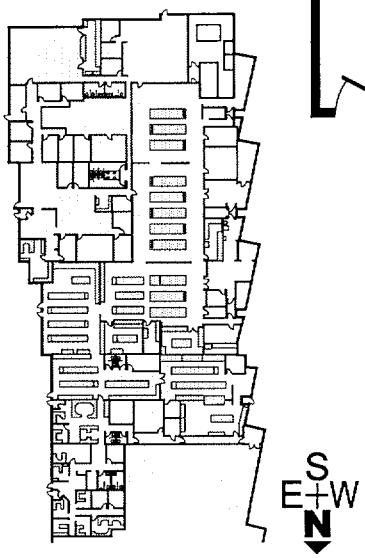


Laboratory Floor and Bench-top Survey

Parker Hughes Institute
2657 Patton Rd, Roseville, MN
Virology / Microbiology Lab
Area Close-Out Survey

Floor & Work Bench Surfaces





1/5" = 1 foot

Laboratory Survey Data

Floor and Bench tops

Facility : 2657 Patton Rd. Roseville MN

Virology laboratory

Instrumentation:

Scintillation Counter: Beckman LS 6500 Ser# 7068525

Efficiency: 50%

Background DPM = 50.1 MDA = 150.3 Net DPM

GM Survey Meter: Ludlum Model 3 meter, GM Pancake detector model 44-9

Meter # 71461 /Detector PR140356

Background CPM = 0.025-0.5 mR/hr

Sample #	DPM	Net DPM (DPM-Bkgd)	GM Survey (mR/hr)	Smear sample description
1	46	-4.1	background	Floor: Anitroom
2	40	-10.1	"	Floor: Lab entrance
3	54	3.9	"	Bench, East wall
4	58	7.9	"	Bench, East wall
5	56	5.9	"	Bench, East wall
6	70	19.9	"	Bench, South wall
7	48	-2.1	"	Bench, South wall
8	62	11.9	"	Floor: under incubators
9	46	-4.1	"	Floor: in front of bench
10	56	5.9	"	Floor: in front of bench
11	50	-0.1	"	Floor: in front of bench
12	68	17.9	"	Floor: in front of bench
13	38	-12.1	"	Floor: in front of bench
14	54	3.9	"	Bench top (island)
15	58	7.9	"	Bench top (island)
16	48	-2.1	"	Floor: front of safety cabinet
17	68	17.9	"	Floor: under safety cabinet
18	54	3.9	"	Floor: front of safety cabinet
19	76	25.9	"	Floor: in front of bench
20	66	15.9	"	Floor: in front of bench
21	64	13.9	"	Floor: in front of bench
22	70	19.9	"	Floor: under safety cabinet
23	66	15.9	"	Floor: front of safety cabinet
24	70	19.9	"	Floor (open area)
25	70	19.9	"	Bench top near sink
26	30	-20.1	"	Handwashing sink
27	42	-8.1	"	Bench top, north end of lab
28	78	27.9	"	Floor: in front of bench
29	44	-6.1	"	Floor: autoclave room entrance
30	48	-2.1	"	Floor: front of sink (autoclave room)
31	64	13.9	"	Bench top (autoclave room)
32	50	-0.1	"	Sink (autoclave room)
33	44	-6.1	"	Bench top, north end of lab
34	52	1.9	"	Floor: in front of bench
35	70	19.9	"	Floor: under minus 70 freezer
36	58	7.9	"	Floor: in front of autoclave

ID: SMEAR SURVEY 19 MAR 2003 12:39

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	AQC	: NO	CYCLE REPEATS :	1	DISK		:EDIT
SCINTILLATOR:	LIQUID	LUMEX:YES			LOW SAMPLE REJ:	0			

DATA BUFFER IS FULL. DATA WILL GO TO PRINTER ONLY.

RWM LIST : OFF

LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

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

Floor + Sinks
Benchtops

SAM NO	POS	TIME MIN	WIDE CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME
1	30-1	1.00	46.00	41.70	7.40	1.29
2	30-2	1.00	40.00	45.83	12.23	2.66
3	30-3	1.00	54.00	38.49	5.11	4.01
4	30-4	1.00	58.00	37.14	5.31	5.36
5	30-5	1.00	56.00	37.80	4.83	6.74
6	30-6	1.00	70.00	33.81	3.37	8.09
7	30-7	1.00	48.00	40.82	4.84	9.47
8	30-8	1.00	62.00	35.92	4.54	10.82
9	30-9	1.00	46.00	41.70	8.47	12.17
10	30-10	1.00	56.00	37.80	5.09	13.56
11	30-11	1.00	50.00	40.00	4.62	14.91
12	30-12	1.00	68.00	34.30	4.40	16.27
13	30-13	1.00	38.00	45.88	7.61	17.66
14	30-14	1.00	54.00	38.49	5.02	19.01
15	30-15	1.00	58.00	37.14	4.89	20.37
16	30-16	1.00	48.00	40.82	6.12	21.76
17	30-17	1.00	68.00	34.30	4.12	23.12
18	30-18	1.00	54.00	38.49	5.62	24.49
19	15-1	1.00	76.00	32.44	2.73	25.97
20	15-2	1.00	66.00	34.82	3.84	27.32
21	15-3	1.00	64.00	35.36	4.74	28.69
22	15-4	1.00	70.00	33.81	3.50	30.07
23	15-5	1.00	66.00	34.82	4.82	31.42
24	15-6	1.00	70.00	33.81	5.69	32.79
25	15-7	1.00	70.00	33.81	3.15	34.17
26	15-8	1.00	30.00	51.64	7.87	35.54
27	15-9	1.00	42.00	43.64	6.27	36.89
28	15-10	1.00	78.00	32.03	2.59	38.27
29	15-11	1.00	44.00	42.64	4.99	39.64
30	15-12	1.00	48.00	40.82	5.45	40.99
31	15-13	1.00	64.00	35.36	4.26	42.37
32	15-14	1.00	50.00	40.00	4.34	43.74
33	15-15	1.00	44.00	42.64	3.61	45.10
34	15-16	1.00	52.00	39.22	5.30	46.49
35	15-17	1.00	70.00	33.81	3.69	47.86
36	15-18	1.00	58.00	37.14	4.68	49.21

INSTRUMENT CALIBRATION: Mini 19 MAR 2003 12:1
Calibration successful

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

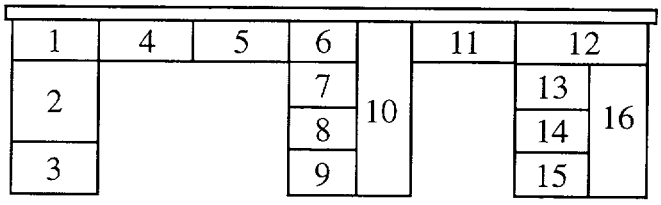
Laboratory Cabinets and Shelving

Parker Hughes Institute
2657 Patton Rd, Roseville, MN
Virology / Microbiology Lab
Area Close-Out Survey

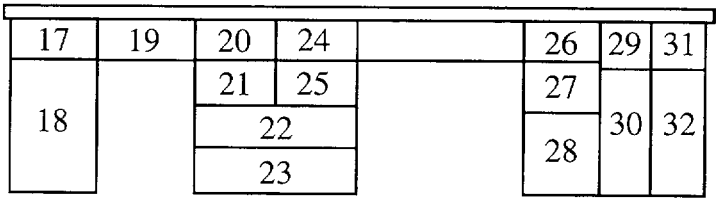
Cabinet Casework

1/5" = 1 foot

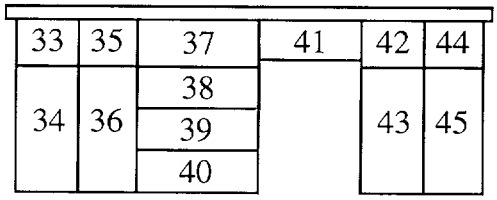
(A) East Wall



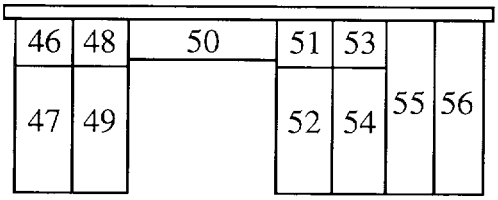
(B) South Wall

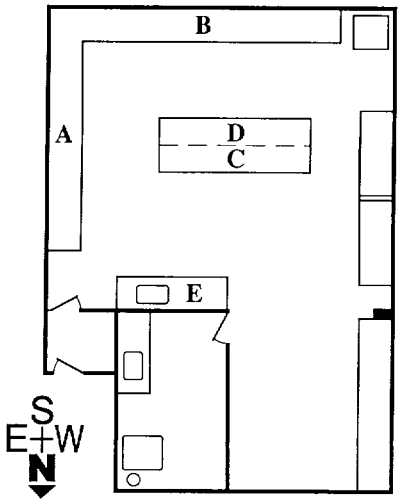


(C) Central Bench

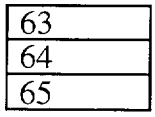


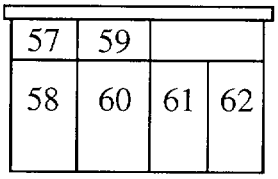
(D)





(E) Cabinets, & Shelves (North Wall)





Parker Hughes Institute
2657 Patton Rd, Roseville, MN
Virology / Microbiology Lab
Area Close-Out Survey

Cabinet Casework

(F) North Section of Lab

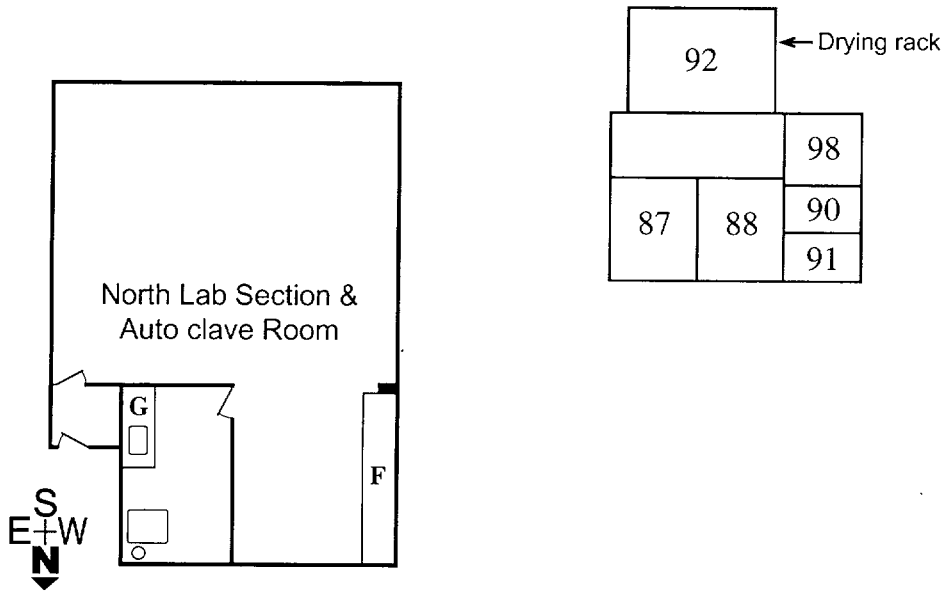
Shelves above Cabinets

66	68	70	72
			73
67	69	71	74

West Wall (North Section)

			78	80	82	84	
75	76	77	79	81	84	85	86

(G) Auto Clave Room



Cabinet Casework

Facility : 2657 Patton Rd. Roseville MN

Virology laboratory

Instrumentation:

Scintillation Counter: Beckman LS 6500 Ser# 7068525

Efficiency: 50%

Background DPM = 50.1 MDA = 150.3 Net DPM

GM Survey Meter: Ludlum Model 3 meter, GM Pancake detector model 44-9

Meter # 71461 /Detector PR140356

Background CPM = 0.025-0.5 mR/hr

Sample #	DPM	Net CPM (DPM-Bkgd)	GM Survey (mR/hr)	Smear sample description
1	52	1.9	Background	(A) East Wall
2	44	-6.1	"	"
3	56	5.9	"	"
4	54	3.9	"	"
5	58	7.9	"	"
6	66	15.9	"	"
7	48	-2.1	"	"
8	48	-2.1	"	"
9	46	-4.1	"	"
10	60	9.9	"	"
11	58	7.9	"	"
12	62	11.9	"	"
13	66	15.9	"	"
14	52	1.9	"	"
15	54	3.9	"	"
16	60	9.9	"	"
17	62	11.9	"	(B) South Wall
18	56	5.9	"	"
19	56	5.9	"	"
20	56	5.9	"	"
21	52	1.9	"	"
22	58	7.9	"	"
23	62	11.9	"	"
24	54	3.9	"	"
25	58	7.9	"	"
26	64	13.9	"	"
27	64	13.9	"	"
28	62	11.9	"	"
29	50	-0.1	"	"
30	42	-8.1	"	"
31	54	3.9	"	"
32	50	-0.1	"	"

Cabinet Casework

Facility : 2657 Patton Rd. Roseville MN

Virology laboratory

Instrumentation:

Scintillation Counter: Beckman LS 6500 Ser# 7068525

Efficiency: 50%

Background DPM = 50.1 MDA = 150.3 Net DPM

GM Survey Meter: Ludlum Model 3 meter, GM Pancake detector model 44-9

Meter # 71461 /Detector PR140356

Background CPM = 0.025-0.5 mR/hr

Sample #	DPM	Net CPM (DPM-Bkgd)	GM Survey (mR/hr)	Smear sample description
33	56	5.9	"	(C) Central Bench (island)
34	60	9.9	"	"
35	46	-4.1	"	"
36	50	-0.1	"	"
37	56	5.9	"	"
38	58	7.9	"	"
39	88	37.9	"	"
40	44	-6.1	"	"
41	56	5.9	"	"
42	60	9.9	"	"
43	52	1.9	"	"
44	70	19.9	"	"
45	50	-0.1	"	"
46	40	-10.1	"	(D) Central Bench (island)
47	76	25.9	"	"
48	62	11.9	"	"
49	58	7.9	"	"
50	48	-2.1	"	"
51	62	11.9	"	"
52	58	7.9	"	"
53	40	-10.1	"	"
54	50	-0.1	"	"
55	58	7.9	"	"
56	50	-0.1	"	"
57	40	-10.1	"	(E) Cabinets & Shelves (North side)
58	52	1.9	"	"
59	56	5.9	"	"
60	52	1.9	"	"
61	90	39.9	"	"
62	50	-0.1	"	"
63	56	5.9	"	"
64	50	-0.1	"	"
65	58	7.9	"	"

Cabinet Casework

Facility : 2657 Patton Rd. Roseville MN
Virology laboratory

Instrumentation:

Scintillation Counter: Beckman LS 6500 Ser# 7068525
Efficiency: 50%
Background DPM = 50.1 MDA = 150.3 Net DPM
GM Survey Meter: Ludlum Model 3 meter, GM Pancake detector model 44-9
Meter # 71461 /Detector PR140356
Background CPM = 0.025-0.5 mR/hr

Sample #	DPM	Net CPM (DPM-Bkgd)	GM Survey (mR/hr)	Smear sample description
66	76	25.9	"	(F) North Section Shelves and Cabinets
67	56	5.9	"	"
68	34	-16.1	"	"
69	76	25.9	"	"
70	44	-6.1	"	"
71	46	-4.1	"	"
72	52	1.9	"	"
73	44	-6.1	"	"
74	48	-2.1	"	"
75	78	27.9	"	"
76	44	-6.1	"	"
77	56	5.9	"	"
78	56	5.9	"	"
79	76	25.9	"	"
80	54	3.9	"	"
81	34	-16.1	"	"
82	82	31.9	"	"
83	46	-4.1	"	"
84	48	-2.1	"	"
85	34	-16.1	"	"
86	64	13.9	"	"
87	60	9.9	"	(G) Autoclave Room Cabinets
88	84	33.9	"	"
89	42	-8.1	"	"
90	56	5.9	"	"
91	52	1.9	"	"
92	56	5.9	"	"

Virology Cabinets

ID: SMEAR SURVEY 14 MAR 2003 17:17
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 AQC : NO CYCLE REPEATS : 1 DISK :EDIT
SCINTILLATOR: LIQUID LUMEX: NO LOW SAMPLE REJ: 0
DATA BUFFER IS FULL. DATA WILL GO TO PRINTER ONLY.
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 CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME
1	3-1	1.00	52.00	39.22	5.94	1.28
2	3-2	1.00	44.00	42.64	6.01	2.61
3	3-3	1.00	56.00	37.80	4.54	3.94
4	3-4	1.00	54.00	38.49	5.51	5.31
5	3-5	1.00	58.00	37.14	4.54	6.64
6	3-6	1.00	66.00	34.82	3.54	7.99
7	3-7	1.00	48.00	40.82	3.81	9.34
8	3-8	1.00	48.00	40.82	3.93	10.67
9	3-9	1.00	46.00	41.70	5.60	12.02
10	3-10	1.00	60.00	36.51	3.08	13.39
11	3-11	1.00	58.00	37.14	4.73	14.74
12	3-12	1.00	62.00	35.92	3.41	16.09
13	3-13	1.00	66.00	34.82	3.60	17.46
14	3-14	1.00	52.00	39.22	4.96	18.81
15	3-15	1.00	54.00	38.49	5.39	20.16
16	3-16	1.00	60.00	36.51	2.92	21.52
17	3-17	1.00	62.00	35.92	2.97	22.87
18	3-18	1.00	56.00	37.80	3.52	24.22
19	39-1	1.00	56.00	37.80	4.79	25.69
20	39-2	1.00	56.00	37.80	3.85	27.04
21	39-3	1.00	52.00	39.22	4.32	28.39
22	39-4	1.00	58.00	37.14	3.59	29.76
23	39-5	1.00	62.00	35.92	4.46	31.11
24	39-6	1.00	54.00	38.49	4.68	32.46
25	39-7	1.00	58.00	37.14	3.53	33.82
26	39-8	1.00	64.00	35.36	3.62	35.16
27	39-9	1.00	64.00	35.36	4.05	36.51
28	39-10	1.00	62.00	35.92	3.04	37.87
29	39-11	1.00	50.00	40.00	4.62	39.22
30	39-12	1.00	42.00	43.64	4.35	40.57
31	39-13	1.00	54.00	38.49	5.30	41.94
32	39-14	1.00	50.00	40.00	4.48	43.29
33	39-15	1.00	56.00	37.80	3.90	44.64
34	39-16	1.00	60.00	36.51	3.72	46.01
35	39-17	1.00	46.00	41.70	4.46	47.34
36	39-18	1.00	50.00	40.00	4.65	48.69
37	46-1	1.00	56.00	37.80	2.46	50.16
38	46-2	1.00	58.00	37.14	3.55	51.51
39	46-3	1.00	88.00	30.15	2.02	52.86
40	46-4	1.00	44.00	42.64	3.78	54.22
41	46-5	1.00	56.00	37.80	3.27	55.57
42	46-6	1.00	60.00	36.51	3.16	56.91
43	46-7	1.00	52.00	39.22	3.91	58.27
44	46-8	1.00	70.00	33.81	2.00	59.62

SAM NO	POS	TIME MIN	WIDE CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME
45	46-9	1.00	50.00	40.00	4.92	60.98
46	46-10	1.00	40.00	44.72	5.13	62.34
47	46-11	1.00	76.00	32.44	2.13	63.69
48	46-12	1.00	62.00	35.92	3.52	65.04
49	46-13	1.00	58.00	37.14	3.04	66.41
50	46-14	1.00	48.00	40.82	3.58	67.74
51	46-15	1.00	62.00	35.92	2.49	69.09
52	46-16	1.00	58.00	37.14	4.22	70.46
53	46-17	1.00	40.00	44.72	5.55	71.79
54	46-18	1.00	50.00	40.00	4.57	73.14
55	47-1	1.00	58.00	37.14	2.59	74.61
56	47-2	1.00	50.00	40.00	4.35	75.96
57	47-3	1.00	40.00	44.72	4.99	77.31
58	47-4	1.00	52.00	39.22	3.79	78.67
59	47-5	1.00	56.00	37.80	4.23	80.02
60	47-6	1.00	52.00	39.22	3.62	81.37
61	47-7	1.00	90.00	29.81	2.12	82.74
62	47-8	1.00	50.00	40.00	4.86	84.09
63	47-9	1.00	56.00	37.80	4.36	85.44
64	47-10	1.00	50.00	40.00	2.87	86.81
65	47-11	1.00	58.00	37.14	3.44	88.16
66	47-12	1.00	76.00	32.44	3.74	89.51
67	47-13	1.00	56.00	37.80	3.76	90.87
68	47-14	1.00	34.00	48.51	4.51	92.22
69	47-15	1.00	76.00	32.44	1.89	93.57
70	47-16	1.00	44.00	42.64	4.74	94.94
71	47-17	1.00	46.00	41.70	3.51	96.29
72	47-18	1.00	52.00	39.22	4.30	97.62
73	62-1	1.00	44.00	42.64	5.29	99.09
74	62-2	1.00	48.00	40.82	2.96	100.44
75	62-3	1.00	78.00	32.03	2.55	101.79
76	62-4	1.00	44.00	42.64	6.25	103.16
77	62-5	1.00	56.00	37.80	3.75	104.51
78	62-6	1.00	56.00	37.80	3.57	105.86
79	62-7	1.00	76.00	32.44	2.27	107.22
80	62-8	1.00	54.00	38.49	3.64	108.56
81	62-9	1.00	34.00	48.51	6.99	109.91
82	62-10	1.00	82.00	31.23	2.65	111.27
83	62-11	1.00	46.00	41.70	3.28	112.62
84	62-12	1.00	48.00	40.82	4.94	113.97
85	62-13	1.00	34.00	48.51	7.17	115.34
86	62-14	1.00	64.00	35.36	3.99	116.69
87	62-15	1.00	60.00	36.51	2.62	118.04
88	62-16	1.00	84.00	30.86	2.42	119.41
89	62-17	1.00	42.00	43.64	4.67	120.74
90	62-18	1.00	56.00	37.80	3.82	122.09
91	36-1	1.00	52.00	39.22	4.26	123.56
92	36-2	1.00	56.00	37.80	3.54	124.91

Equipment Survey
Scintillation and GM Data

Equipment Survey Data

Facility: 2657 Patton Rd Roseville, MN

Scintillation Counter: Beckman LS 6500 Ser# 7068525

Efficiency: 50%

Background DPM = 50.1 MDA = 150.3 Net DPM

GM Meter: Ludlum Model 3 meter, GM Pancake detector model 44-9

Meter # 71461 /Detector PR140356

Background CPM = 0.025-0.5 mR/hr

Sample #	DPM	Net DPM (DPM-Bkgd)	GM Survey (mR/hr)	Smear description
				Work Station HEPA Cabinet
1	100	49.9	Background	Filter (inlet)
1	48	-2.1		Re-smear of #1 (filter inlet)
2	86	35.9	"	Filter (outlet)
3	56	5.9	"	Inside cabinet (sides and rear)
4	80	29.9	"	Work surface (inside cabinet)
				Cell Plate Washer (SN/202841)
5	58	7.9	"	Housing/control panel
6	56	5.9	"	Well plate dispensing outlets
7	62	11.9	"	Tubing (inlet and outlet)
				Microscope/camera equipment(ID#50805)
8	68	17.9	"	Stage
9	78	27.9	"	Adjustment knobs
10	80	29.9	"	Camera / light box
				CO2 Incubator (SN/28180-6919)
11	48	-2.1	"	Control Panel
12	54	3.9	"	Door/internal latch
13	50	-0.1	"	Resivoir tray (dry)
14	58	7.9	"	CO2 Tank / regulator
				CO2 Incubator (SN/28114-6544)
15	94	43.9	"	Control Panel
16	54	3.9	"	Door/internal latch
17	70	19.9	"	Resivoir tray (dry)
				CO2 Incubator (SN/28114-6545)
18	66	15.9	"	Control Panel
19	58	7.9	"	Door/internal latch
20	72	21.9	"	Resivoir tray (dry)
21	42	-8.1	"	CO2 Tank / regulator
				Biological Safety Cabinet (SN/62139)
22	56	5.9	"	Worksurface (left)
23	46	-4.1	"	Worksurface (Right)
24	70	19.9	"	Front sash (bottom edge, handles)
25	54	3.9	"	Front edge (below sash)
				Biological Safety Cabinet (SN/62202)
26	64	13.9	"	Worksurface (left)
27	56	5.9	"	Worksurface (Right)
28	56	5.9	"	Front sash (bottom edge, handles)

Equipment Survey Data

Facility: 2657 Patton Rd Roseville, MN

Scintillation Counter: Beckman LS 6500 Ser# 7068525

Efficiency: 50%

Background DPM = 50.1 MDA = 150.3 Net DPM

GM Meter: Ludlum Model 3 meter, GM Pancake detector model 44-9

Meter # 71461 /Detector PR140356

Background CPM = 0.025-0.5 mR/hr

Sample #	DPM	Net DPM (DPM-Bkgd)	GM Survey (mR/hr)	Smear description
29	56	5.9	"	Front edge (below sash)
				Centrifuge (Beckman ET169)
30	66	15.9	"	Control Panel
31	44	-6.1	"	Inside (bowl)
32	64	13.9	"	Housing (sides)
33	72	21.9	"	Top (lid)
				Drains
34	36	-14.1	"	Handwashing sink drain, I ml trap sample
35	40	-10.1	"	Autoclave room sink drain, I ml trap sample
36	84	33.9	"	Autoclave drain, (dry; smear only)
				Cold Boxes (Bar Code ID# 50804)
37	46	-4.1	"	Door Handles
38	54	3.9	"	Shelves
39	52	1.9	"	Bottom of Unit
				Minus 70 Freezer (ID#ET402)
40	48	-2.1	"	Door latch
41	60	9.9	"	Door edge
42	76	25.9	"	Fan intake filter
43	86	35.9	"	Fan exhaust
				Beckman Ultra Centrifuge (never repaired for use)
44	58	7.9	"	Control Panel
45	38	-12.1	"	Lid
46	90	39.9	"	Cabinet
				Autoclave
47	56	5.9	"	Door Handles (inside door)
48	94	43.9	"	Inside chamber
49	46	-4.1	"	Control panel
				Room Exhausts
50	78	27.9	"	Biological Safety Cabinet (SN/62139)connection
51	82	31.9	"	Biological Safety Cabinet (SN/62202) connection
52	82	31.9	"	Celing PRV
53	50	-0.1	"	Celing PRV

Equipment Smears 1 of 2

ID: SMEAR SURVEY 19 MAR 2003 14:51

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	AQC	: NO	CYCLE REPEATS	: 1	DISK	:EDIT
SCINTILLATOR:	LIQUID	LUMEX:	YES	LOW SAMPLE REJ:	0		

DATA BUFFER IS FULL. DATA WILL GO TO PRINTER ONLY.

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 CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME
1	31-1	1.00	100.00	28.28	1.40	1.29
2	31-2	1.00	86.00	30.50	1.46	2.64
3	31-3	1.00	56.00	37.80	1.83	3.99
4	31-4	1.00	80.00	31.62	1.16	5.35
5	31-5	1.00	58.00	37.14	6.66	6.71
6	31-6	1.00	56.00	37.80	1.22	8.05
7	31-7	1.00	62.00	35.92	1.79	9.44
8	31-8	1.00	68.00	34.30	2.36	10.79
9	31-9	1.00	78.00	32.03	0.94	12.13
10	31-10	1.00	80.00	31.62	1.90	13.50
11	31-11	1.00	48.00	40.82	1.51	14.85
12	31-12	1.00	54.00	38.49	1.81	16.22
13	31-13	1.00	50.00	40.00	1.26	17.58
14	31-14	1.00	58.00	37.14	6.31	18.96
15	31-15	1.00	94.00	29.17	1.32	20.32
16	31-16	1.00	54.00	38.49	4.08	21.69
17	31-17	1.00	70.00	33.81	3.19	23.05
18	31-18	1.00	66.00	34.82	1.74	24.42
19	44-1	1.00	58.00	37.14	1.35	25.90
20	44-2	1.00	72.00	33.33	0.79	27.27
21	44-3	1.00	42.00	43.64	2.19	28.62
22	44-4	1.00	56.00	37.80	1.79	30.00
23	44-5	1.00	46.00	41.70	2.22	31.35
24	44-6	1.00	70.00	33.81	1.49	32.72
25	44-7	1.00	54.00	38.49	1.51	34.08
26	44-8	1.00	64.00	35.36	3.20	35.45
27	44-9	1.00	56.00	37.80	3.20	36.82
28	44-10	1.00	56.00	37.80	1.79	38.20
29	44-11	1.00	56.00	37.80	1.85	39.55
30	44-12	1.00	66.00	34.82	1.69	40.92
31	44-13	1.00	44.00	42.64	2.11	42.29
32	44-14	1.00	64.00	35.36	1.14	43.65
33	44-15	1.00	72.00	33.33	0.92	45.00
34	44-16	1.00	36.00	47.14	0.14	46.38
35	44-17	1.00	40.00	44.72	0.45	47.73
36	44-18	1.00	84.00	30.86	0.12	49.10
37	20-1	1.00	46.00	41.70	5.49	50.57
38	20-2	1.00	54.00	38.49	1.43	51.93
39	20-3	1.00	52.00	39.22	4.63	53.31
40	20-4	1.00	48.00	40.82	3.64	54.67
41	20-5	1.00	60.00	36.51	4.25	56.04
42	20-6	1.00	76.00	32.44	3.12	57.41
43	20-7	1.00	86.00	30.50	1.21	58.77
44	20-8	1.00	58.00	37.14	4.68	60.14

Equipment Setup 2 of 2

SAM NO	POS	TIME MIN	WIDE CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME
45	20-9	1.00	38.00	45.88	7.08	61.51
46	20-10	1.00	90.00	29.81	1.15	62.89
47	20-11	1.00	56.00	37.80	4.48	64.24
48	20-12	1.00	94.00	29.17	2.82	65.61
49	20-13	1.00	46.00	41.70	4.37	66.97
50	20-14	1.00	78.00	32.03	0.73	68.33
51	20-15	1.00	82.00	31.23	0.44	69.68
52	20-16	1.00	82.00	31.23	0.93	71.07
53	20-17	1.00	50.00	40.00	2.39	72.42

INSTRUMENT CALIBRATION: Mini 19 MAR [illegible]
Calibration successful

Calibrating Auto DPM
Counting Standard for [illegible]
Calibration Complete: [illegible]
Counting Standard for [illegible]
Calibration Complete [illegible]
Calibration Successful

ID: SMEAR SURVEY 20 MAR 2003 17:42

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	AQC : NO	CYCLE REPEATS :	1	DISK	:EDIT
SCINTILLATOR:	LIQUID	LUMEX:YES	LOW SAMPLE REJ:	0		

DATA BUFFER IS FULL. DATA WILL GO TO PRINTER ONLY.

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 CPM	WIDE %ERROR	LUMEX %	ELAPSED TIME	
1	36-1	1.00	46.00	41.70	4.46	1.27	Filter inlet
MISSING SAMPLE							
3	36-3	1.00	48.00	40.82	0.96	2.63	BKGD

Workstation Hepa Cabinet Re-Smear

Re-Smear of filter inlet

INSTRUMENT CALIBRATION: Mini 20 MAR 2003 17:35
Calibration successful

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

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 03620
Status Code: 0
Fee Category: 3M 3E
Exp. Date: 20070430
Fee Comments: 3E ADDED 8/18/97
Decom Fin Assur Reqd: N

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
   Applicant/Licensee: PARKER HUGHES INSTITUTE
   Received Date: 20030325
   Docket No: 3034406
   Control No.: 311782
   License No.: 22-26786-01
   Action Type: Amendment

2. FEE ATTACHED
   Amount:
   Check No.:

3. COMMENTS

Signed D. A. Hersey
Date 3-26-2003

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

1. Fee Category and Amount: _____

2. Correct Fee Paid. Application may be processed for:
   Amendment _____
   Renewal _____
   License _____

3. OTHER _____
   _____

Signed _____
Date _____