ADDENDUM

U.S. Environmental Protection Agency
Western Ecology Division

Final Status Summary Report for Decommissioning the Corvallis and Newport Research Facilities and the Termination of NRC Radioactive Materials License
No. 36-12343-02

December 27, 2005

Docket No:
030-05976
License No:
36-12343-02
Mail Control No:
470287

NHEERL-WED

RADIOACTIVE MATERIAL INVENTORY

ISOTOPE INVENTORY SUMMARY
15-Dec-05

Isotope	Begin Balance	Rec'd	Use/ Dispsd	Trans/ Decay	End	Possession Indicies < 1
			uCi			
Americium-241 Chk	1.00	0.00	0.00	1.00	0.00	000.0E+0
Carbon-14	4.30	0.00	0.00	0.00	4.30	43.0E-6
Cesium-137 Chk	3.60	0.00	0.00	0.64	2.96	exempt
Hydrogen-3	1.80	0.00	0.00	0.00	1.80	36.0E-6
Hydrogen-3 Sources	131,070.00	0.00	0.00	20,380.00	110,690.00	exempt
Nickel-63	1.00	0.00	0.00	0.08	0.92	3.7E-6
Radium-226 Chk	2.00	0.00	0.00	2.00	0.00	exempt
Totals	131,083.70	0.00	0.00	20,383.71	110,699.99	82.7E-6

License Posession Indicies: : All < 1.0? [✓] Yes

P Monaco 12/21/05

P.A. Monaco, Health & Radiation Safety **Date**

NHEERL-WED
RADIOACTIVE MATERIAL INVENTORY

NHEERL-WED SEALED SOURCE INVENTORY
15-Dec-05

Manufacturer	Serial #	Date	NUCL	mCi	LOC	User	Inventory	Swipe Activity <0.005uCi	mCi Begin Balance	Rec'd	Use/ Dispsd	Trans/ Decay	End
IPL	R-499	10/91	Am-241	0.0000	N/A	N/A		*Exempt	0.0010	0.0000	0.0000	0.0010	0.0000
LUDLUM	77146	8/90	Cs-137	0.0007	CSB-1	RSO	✓	*Exempt	0.0009	0.0000	0.0000	1.5940E-04	0.0007
LUDLUM	77222	8/90	Cs-137	0.0007	CSB-1	RSO	✓	*Exempt	0.0009	0.0000	0.0000	1.5940E-04	0.0007
LUDLUM	77207	8/90	Cs-137	0.0007	CSB-1	RSO	✓	*Exempt	0.0009	0.0000	0.0000	1.5940E-04	0.0007
LUDLUM	77176	8/90	Cs-137	0.0007	CSB-1	RSO	✓	*Exempt	0.0009	0.0000	0.0000	1.5940E-04	0.0007
NEN		9/82	C-14	0.0002	CSB-1	RSO	✓	*Exempt	0.0002	0.0000	0.0000	0.0000	0.0002
SCIENTECH	ST95-420	7/95	H-3	110.6900	CSB-1	RSO	✓	*Exempt	131.0700	0.0000	0.0000	20.3800	110.6900
IPL	405-92	9/92	Ni-63	0.0009	CSB-1	RSO	✓	*Exempt	0.0010	0.0000	0.0000	7.5570E-05	0.0009
N-C			Ra-226	0.0000	N/A	N/A		*Exempt	0.0010	0.0000	0.0000	0.0010	0.0000
N-C			Ra-226	0.0000	N/A	N/A		*Exempt	0.0010	0.0000	0.0000	0.0010	0.0000
									131.0778	0.0000	0.0000	20.3837	110.6941

SEALED SOURCE SUMMARY

Isotope	Begin Balance	Rec'd	uCi Use/ Dispsd	Trans/ Decay	End
Ameriicium-241	1.0	0.0	0.0	1.0	0.0
Carbon-14	0.2	0.0	0.0	0.0	0.2
Cesium-137	3.6	0.0	0.0	0.6	3.0
Hydrogen-3	131,070.0	0.0	0.0	20,380.0	110,690.0
Nickel-63	1.0	0.0	0.0	0.1	0.9
Radium-226	2.0	0.0	0.0	2.0	0.0
Totals	131,077.8	0.0	0.0	20,383.7	110,694.1

NHEERL-WED

RADIOACTIVE MATERIAL INVENTORY

TRACER INVENTORY SUMMARY

Isotope	Begin Balance	Rec'd	uCi Use/ Dispsd	Trans/ Decay	End Balance
Carbon-14	4.1	0.0	0.0	0.0	4.1
Hydrogen-3	1.8	0.0	0.0	0.0	1.8
Nickel-63	0.0	0.0	0.0	0.0	0.0
Totals	5.9	0.0	0.0	0.0	5.9

NHEERL-WED

RADIOACTIVE MATERIAL INVENTORY

RADIO-TRACER INVENTORY								
15-Dec-05								
		Quantity (uCi)						
Chemical Form	Isotope	Begin	Rec'd	Used/ Waste	Trans /Decay	Present	Location	User
Toluene 697-089	C-14	4.1	0.0	0.0	0.0	4.1	CSB-1	RSO
Total Carbon-14		4.1	0.0	0.0	0.0	4.1		
Water	H-3	1.8	0.0	0.0	0.000	1.8	CSB-1	RSO
Total Hydrogen-3		1.8	0.0	0.0	0.000	1.8		
Nickel	NI-63	0.0	0.0	0.0	0.0	0.0		
Total Nickel-63		0.0	0.0	0.0	0.0	0.0		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL HEALTH AND ENVIRONMENTAL EFFECTS
RESEARCH LABORATORY
WESTERN ECOLOGY DIVISION
200 S.W. 35TH STREET • CORVALLIS, OR 97333

OFFICE OF
RESEARCH AND DEVELOPMENT

December 14, 2005

Mr. Rainier Farmer
Radiation Safety Officer
Oregon State University
127 Oak Creek Building
30th and Western
Corvallis, Oregon 97331-7404

Dear Mr. Farmer:

As per your conversations with Mr. Phil Monaco, Radiation Safety Specialist at our facility, we are transferring to your custody three (3) radioactive sources. The sources are two (2) radium 226 sources (Nuclear Chicago check sources) of less than 1 micro curie each and one (1) americium 241 source of 616 Bq (37,000 DPM). The americium source is an NIST traceable reference standard and a calibration certificate is attached.

It is our understanding that these sources will be used for safety/training purposes.

Thank you for agreeing to take these sources. Please sign and return the attached Radioactive Shipping Certificate.

Cordially,

William L. Griffis
Chemist
Environmental Compliance Manager

UNITTES STATES ENVIRONMENTAL PROTECTION AGENCY
WESTERN ECOLOGY DIVISION
NATIONAL HEALTH AND ENVIRONMENTAL EFFECTS RESEARCH LABORATORY
200 SW 35TH STREET
CORVALLIS, OREGON 97333

RADIOACTIVE SHIPPING CERTIFICATE

US NRC Materials License No. 36-12343-02

Isotope 1

Chemical/Physical Form: plated Source Radionuclide: ^{241}Am S/N R-499

Radioactivity (Total): 616 Bq Date: 10/1/91 Specific Activity: N/A

Isotope 2

Chemical/Physical Form: Check Sources Radionuclide: ^{226}Ra

Radioactivity (Total): < 66 kBq Date: _____ Specific Activity: N/A

2 × 33.3 kBq

Leak Test: exempt Package Survey: See Attached

Shipped To: Radiation Safety Office
Oregon State University
127 Oak Creek Building
Corvallis OR 97331-7404
Attn: Rainier Farmer / Dan Harlan
541-737-7080 / 541-737-7082

Acknowledgement of Receipt:

I, Dan Harlan / Assist. RSO, acknowledge receipt of the above material
Print name/Title

on the 14 day of Dec, 2005.

Dan Harlan
Signature

Please return to Phil Monaco, Radiation Safety, Dynamac Corporation, 541-754-4787,
U.S. EPA Western Ecology Division, 200 SW 35th Street, Corvallis, Oregon 97333

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 20, 2005**
Subject: **Room Survey: Main Building 126 Final Contamination Survey.**

Description and Historic Use:

Small double lab (350 ft^2). Potentially hydrogen-3 and carbon-14 tracers, and nickel-63 and hydrogen-3:scandium sealed sources. No isotope use since prior to 1983. There is no record of leakage of any sealed sources used in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in MB 126 in November 2004. This room was an unrestricted area since prior to 1986.

All points surveyed (16 total and 16 removable) demonstrated no significant contamination. Seven points indicated very low levels of removable contamination from tritium (0.10 – 0.92 Bq/100 cm^2). All other sampling points were less than the lower limits of detection for contamination. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities. A HVAC duct swipe was made in November 2004 which detected 0.37 Bq/100 cm^2 of hydrogen-3.

Records for this room clearly demonstrate that contamination surveys were regularly performed, the area was not subject to any significant contamination events, and the room was maintained as a contaminate-free area. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. Records of the most recent historic surveys (i.e. prior to the final decommissioning surveys) of MB 126 are included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector. Removable contamination was determined using methanol-wetted swipes counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 20, 2005**
Subject: **Room Survey: Main Building 129 Final Contamination Survey.**

Description and Historic Use:

Triple lab (MB 125) converted to an office (225 ft^2). Carbon-14 tracers, and nickel-63 and hydrogen-3:scandium sealed sources. No isotope use since 1981. There is a record of a contamination event due to a tritium:scandium detector that was not properly vented. A record of the event and remediation is enclosed.

Surveys:

A total (fixed or static) contamination survey was conducted in MB 129 in November 2004. This room has been an unrestricted area since prior to 1982.

All points surveyed (6 total) were less than the lower limits of detection for contamination. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. A record of the most recent historic surveys (i.e. prior to the final decommissioning survey) of MB 129 is included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 20, 2005**
Subject: **Room Survey: Main Building 130 Final Contamination Survey.**

Description and Historic Use:

Single lab (225 ft^2). Potentially hydrogen-3, carbon-14, and chromium-51 tracers, and nickel-63 and hydrogen-3:scandium sealed sources. Hydrogen-3 and chromium-51 were used as tracers in the 1990's. This room was decommissioned as an unrestricted area on May 11, 1994. No isotope use since1994. There is no record of leakage of any sealed sources used in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in MB 130 at the time of restricted use decommissioning. All points surveyed demonstrated there was no significant contamination present. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities. A HVAC duct swipe was made in November 2004 which detected 0.47 Bq/100 cm^2 of carbon-14.

Records for this room clearly demonstrate that contamination surveys were regularly performed, the area was not subject to any significant contamination events (a small tritium contamination event from a sealed source in MB 125 was reported in 1979), and the room was maintained as a contaminate-free area. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. Records of the most recent historic surveys (i.e. prior to the final decommissioning surveys) of MB 130 are included in this report.

The survey for total contamination was conducted using a Ludlum Model 3 Survey Meter equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector. Removable contamination was determined using methanol-wetted swipes counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 20, 2005**
Subject: **Room Survey: Main Building 131 Final Contamination Survey.**

Description and Historic Use:

Triple lab (MB 125) converted to single office (225 ft^2). Carbon-14 tracers, and nickel-63 and hydrogen-3:scandium sealed sources. No isotope use since prior to1986. There is a record of a contamination event due to a tritium:scandium detector that was not properly vented. A record of the event and remediation is found under MB 129.

Surveys:

A total (fixed or static) contamination survey was conducted in MB 131 in November 2004. This room has been an unrestricted area since prior to 1986; radioactive materials were not used in this area since 1984.

All points surveyed (6 total) were less than the lower limits of detection for contamination. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. A record of the most recent historic surveys (i.e. prior to the final decommissioning survey) of MB 131 is included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 20, 2005**
Subject: **Room Survey: Main Building 133 Final Contamination Survey.**

Description and Historic Use:

Triple lab (MB 125) converted to single office (225 ft^2). Carbon-14 tracers, and nickel-63 and hydrogen-3:scandium sealed sources. No isotope use since 1983. There is a record of a contamination event due to a tritium:scandium detector that was not properly vented. A record of the event and remediation is found under MB 129.

Surveys:

A total (fixed or static) contamination survey was conducted in MB 131 in November 2004. This room has been an unrestricted area since 1984.

All points surveyed (6 total) were less than the lower limits of detection for contamination. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. A record of the most recent historic surveys (i.e. prior to the final decommissioning survey) of MB 133 is included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 20, 2005**
Subject: **Room Survey: Main Building 150 Final Contamination Survey.**

Description and Historic Use:

Single lab converted to single office (225 ft^2). Nickel-63 and hydrogen-3:Scandium sealed sources. No tracer isotopes use since 1981. There is no record of leakage of any sealed sources used in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in MB 150 in November 2004. This room has been an unrestricted area since prior to 1986.

The four points surveyed (4 total and 4 removable) demonstrated no significant contamination. One swipe indicated very low levels of removable contamination from tritium (0.35 Bq/100 cm^2). This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. A record of the most recent historic surveys (i.e. prior to the final decommissioning survey) of MB 150 is included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector. Removable contamination was determined using methanol-wetted swipes counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 21, 2005**
Subject: **Room Survey: Main Building 190 Final Contamination Survey.**

Description and Historic Use:

Single Lab (225 ft^2). This is the Radiation Safety Laboratory/Office. All radioisotopes tracers and sealed sources used at the Western Ecology Division were stored and/or handled in MB 190. Only references and standards are presently stored in this area pending final decommissioning approval and license termination. No sealed sources were used in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in MB 190 in November 2004. All total contamination surveys (38 total) demonstrated no contamination. Six swipes indicated very low levels of removable contamination from tritium (0.14 – 1.73 Bq/100 $cm^{2)}$ and/or carbon-14 (0.25 – 1.85 Bq/100 cm^2). The swipe of the exhaust plenum of a portable ventilation cabinet indicated both tritium and carbon-14 contamination (3.98 – 5.08 Bq/100 cm^2). This ventilation cabinet and the connecting duct work was disassembled in stages. Removal was completed in April 2005. The ventilation cabinet body and the duct work was free of any significant contamination. The connecting exhaust hose indicated minor contamination (13 Bq/100 cm^2). The hose was cleaned and reswiped to demonstrate a contamination level of 1.1 Bq/100 cm^2.

The sanitary sewer drain line indicated contamination of the iron tail piece (3.47 and 12.25 Bq/100 cm^2 of tritium and carbon-14 respectively). This piece was removed, further decontaminated, and disposed in April 2005. Surveys of the drain line indicated the level of contamination was below the detection limits.

Both the ventilation cabinet and the drain tail piece are less than the NRC criteria for contamination in an unrestricted area. All other sampling points were at background. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities. A HVAC duct swipe was made in November 2004 which detected contamination of 0.37 Bq/100 cm^2 of carbon-14.

Records for this room clearly demonstrate that contamination surveys were regularly performed, the area was not subject to any significant contamination events, and the room was maintained as a contaminate-free area. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. Records of the most recent

historic surveys (i.e. prior to the final decommissioning surveys) of MB 190 are included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector. Removable contamination was determined using methanol-wetted swipes counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 21, 2005**
Subject: **Room Survey: Main Building 232 Final Contamination Survey.**

Description and Historic Use:

Single instrument lab (225 ft^2). Hydrogen-3 and carbon-14 tracers, and nickel-63 and hydrogen-3:scandium sealed sources. This room was decommissioned as a unrestricted area on February 10, 1999. No isotope use since1999. There is no record of leakage of any sealed sources used in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in MB 232 at the time of restricted use decommissioning. The decommissioning records are enclosed. Initial decommissioning survey indicated contamination (185 $Bq/100cm^{2)}$ on the counter top surrounding the sink. The area was cleaned and resurveyed. The final survey indicated that any contamination was less than the lower detection limits (LLD). Therefore all points surveyed demonstrated no significant contamination. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

Records for this room clearly demonstrate that contamination surveys were regularly performed, the area was not subject to any significant contamination events, and the room was maintained as a contaminate-free area. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. Records of the most recent historic surveys (i.e. prior to the final decommissioning surveys) of MB 232 are included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector. Removable contamination was determined using methanol-wetted swipes counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 21, 2005**
Subject: **Room Survey: Main Building 236 Final Contamination Survey.**

Description and Historic Use:

Double lab (450 ft^2). Hydrogen-3 and carbon-14 tracers, and nickel-63 sealed sources. This room was decommissioned as an unrestricted area on April 22, 1999. No isotope use since1999. There is no record of leakage of any sealed sources used in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in MB 236 at the time of restricted use decommissioning. The decommissioning records are enclosed. Initial decommissioning surveys indicated minor contamination (3.7 Bq/100 cm^2) in one spot on the floor in front of the east counter. The area was cleaned and reswiped to demonstrate any contamination was less than the lower limits of detection (LLD). Minor fixed contamination (680 Bq/100 cm^2) was indicted in the north fume hood. This portion of the hood was removed in 2003 and appropriately disposed. All other points surveyed demonstrated no significant contamination. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

Records for this room clearly demonstrate that contamination surveys were regularly performed, the area was not subject to any significant contamination events, and the room was maintained as a contaminate-free area. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. Records of the most recent historic surveys (i.e. prior to the final decommissioning surveys) of MB 236 are included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector. Removable contamination was determined using methanol-wetted swipes counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 21, 2005**
Subject: **Room Survey: Main Building 246 Final Contamination Survey.**

Description and Historic Use:

Double Lab (450 ft^2). Hydrogen-3 and carbon-14 tracers, and nickel-63 sealed sources. Used for radioactive materials handling in 2004. There is no record of leakage of any sealed sources used in this area.

Surveys:

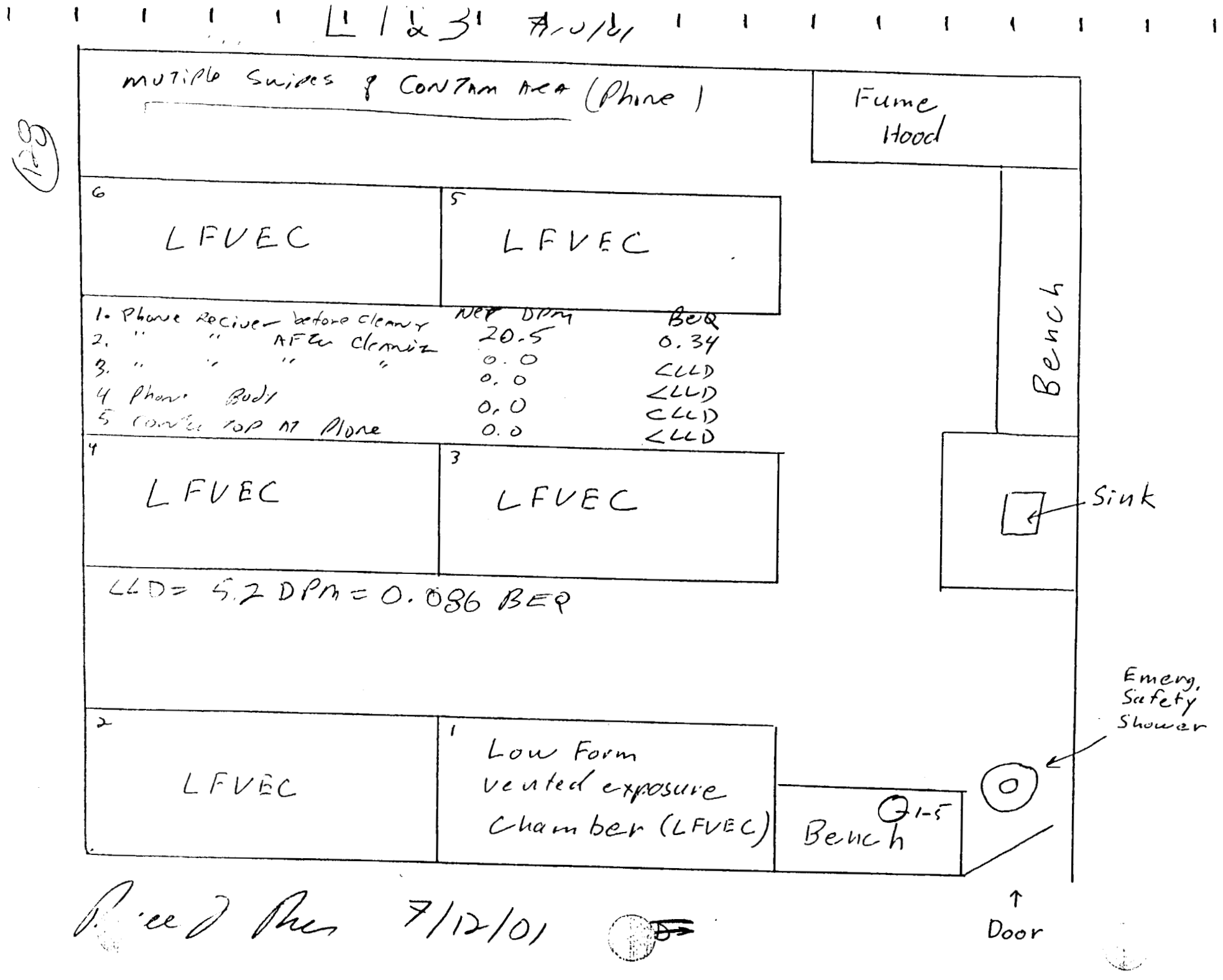
Total (fixed or static) and removable contamination surveys were conducted in MB 246 in November 2004. One piece of equipment (a small fiberglass containment tray) indicted minor contamination. This portion of the tray was cut-out and disposed as contaminated waste. All non-equipment points surveyed (46 total and 60 removable) demonstrated no significant contamination. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities. A HVAC duct swipe was made in November 2004 which detected no contamination.

Records for this room clearly demonstrate that contamination surveys were regularly performed, the area was not subject to any significant contamination events, and the room was maintained as a contaminate-free area. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area. Records of the most recent historic surveys (i.e. prior to the final decommissioning surveys) of MB 246 are included in this report.

The survey for total contamination was conducted using a Ludlum Model 2000 Scaler equipped with a Ludlum Model 44-9, 12-cm^2 thin-window Geiger-Muller pancake detector. Removable contamination was determined using methanol-wetted swipes counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

Addendum to Room Survey L123

Historical Survey



Reed Rhea 7/12/01

L-123 #5 Swipes

1. Hood Floor — 0.0 < LLD
2. Hood Back Wall — 0.0 < LLD
3. Floor @ Hood — 0.0 < LLD
4. Floor @ 4 Spike Area — 0.0 < LLD

Fume Hood ② ① ③

④ ⑤ Bench

6 LFVEC | 5 LFVEC ⑥

5. Counter Top @ Spike Area — 0.0 - < LLD
6. Cabinet 5 Top — 0.0 - < LLD
7. Phone — 68.4 - 1.14 BeQ
8. Door Handle — 0.0 < LLD

4 LFVEC | 3 LFVEC ⑩

Sink ⑧

9. Floor @ Door — 0.0 < LLD
10. Cabinet 3 — 0.0 < LLD

2 LFVEC | 1 Low Form vented exposure Chamber (LFVEC) ⑦ Bench

Emerg. Safety Shower ⑨ ⑪ ⑫

LLD = 5.3 DPM = 0.089 BeQ

↑ Door

11/5/01 Swipes

12-7

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 22, 2005**
Subject: **Room Survey: Newport L-142 Final Contamination Survey.**

Description and Historic Use:

Double lab (250 ft^2). Carbon-14 tracers. No isotopes present in this area since 1999. There is no record of a leaking sealed source or major spill in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in L-142 in December 2005. The five points for the fixed survey indicated that any contamination was below the lower limits of detection. Likewise, the removable contamination survey demonstrates that the area is clean and free from any significant contamination. Ten swipes were taken and counted for hydrogen-3 and carbon-14. One swipe indicated a contamination level of 10 dpm (0.17 Bq/100 cm^2). All other points were below the lower limits of detection. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

Records for this room clearly demonstrate that the area was not subject to any significant contamination events. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area.

Removable contamination swipes were counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

NHEERL-WED

RADIATION AREA SURVEY

REMOVABLE

LOG NO. 05-05

DATE 12/13/05 LOCATION L 142 ROOM L-142

INSTRUMENT PACKARD 2200CA

SERIAL NO. _____

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²
21	13	<LLD95	ND*
22	12	↓	↓
23	13		
24	18		
25	15		
26	13		
27	11		
28	13		
29	15		
30	19		

$LLD_{95} = \left\{\left(\frac{\sqrt{19}}{3}\right) \times 2.96\right\} + = 24$ CPM

BACKGROUND STANDARD (58,970 dpm) 19 / 66,560 dpm

255,200 dpm Source 11/79 113%

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²
	26	<LLD	ND*
	26	↓	↓
	26		
	26		
	34	10	0.17
	27	<LLD	ND*
	28	↓	↓
	29		
	27		
	29		

$LLD_{95} = \left\{\left(\frac{\sqrt{26}}{3}\right) \times 2.96\right\} + = 31$ CPM

BACKGROUND STANDARD (84000) 26 / 86511

NEN 103%

COMMENTS: *ND = NOT DETERMINED. BELOW THE DETECTION LIMITS.

RADIATION SPCL. _____ 12/22/05 DATE

NHEERL-WED

LOG NO. 05-06

RADIATION AREA SURVEY

FIXED

DATE 12/13/05 LOCATION L 142 ROOM L-142

INSTRUMENT Technical Associates TBM-3 GM

SERIAL NO. # 11434

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²
A	75	<LLDs	ND*
B	75		
C	50		
D	75		
E	75		

$LLD_{95} = \{(\sqrt{150})^{**} \times 2.96\} + = 36 + 150 = 186$ CPM

BACKGROUND STANDARD (150** CPM)

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²

$LLD_{95} = \{(\quad) \times 2.96\} + =$ CPM

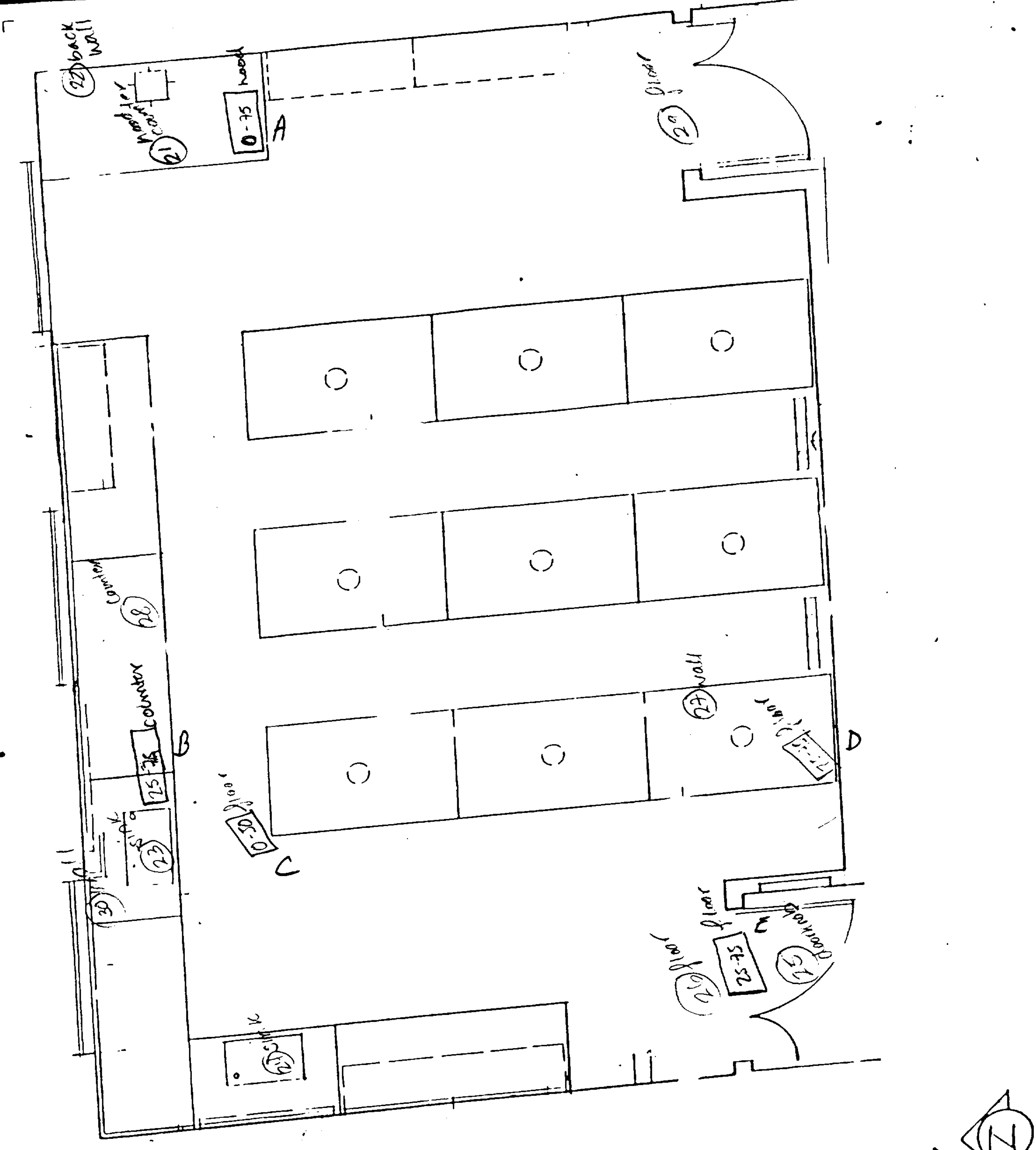
BACKGROUND STANDARD ( )

COMMENTS: ND* = NOT DETERMINED. Below the lower limits of Detection.

** = Based upon historical background.

PA Monaco
RADIATION SPCL.

12-21-05
DATE



Bioaccumulation Exposure / L142 (M16)

Date of Survey: 12/13/05

Surveyor: B

RSO Signature: [signature]

□ = survey meter cpm
O = swipes

SCINTILLATION COUNTER DATA SHEET page 1 of 1

96

Sampler's Init:
Sample desc: C-14 Disposal Area Swipes
Solid Source
June 1999

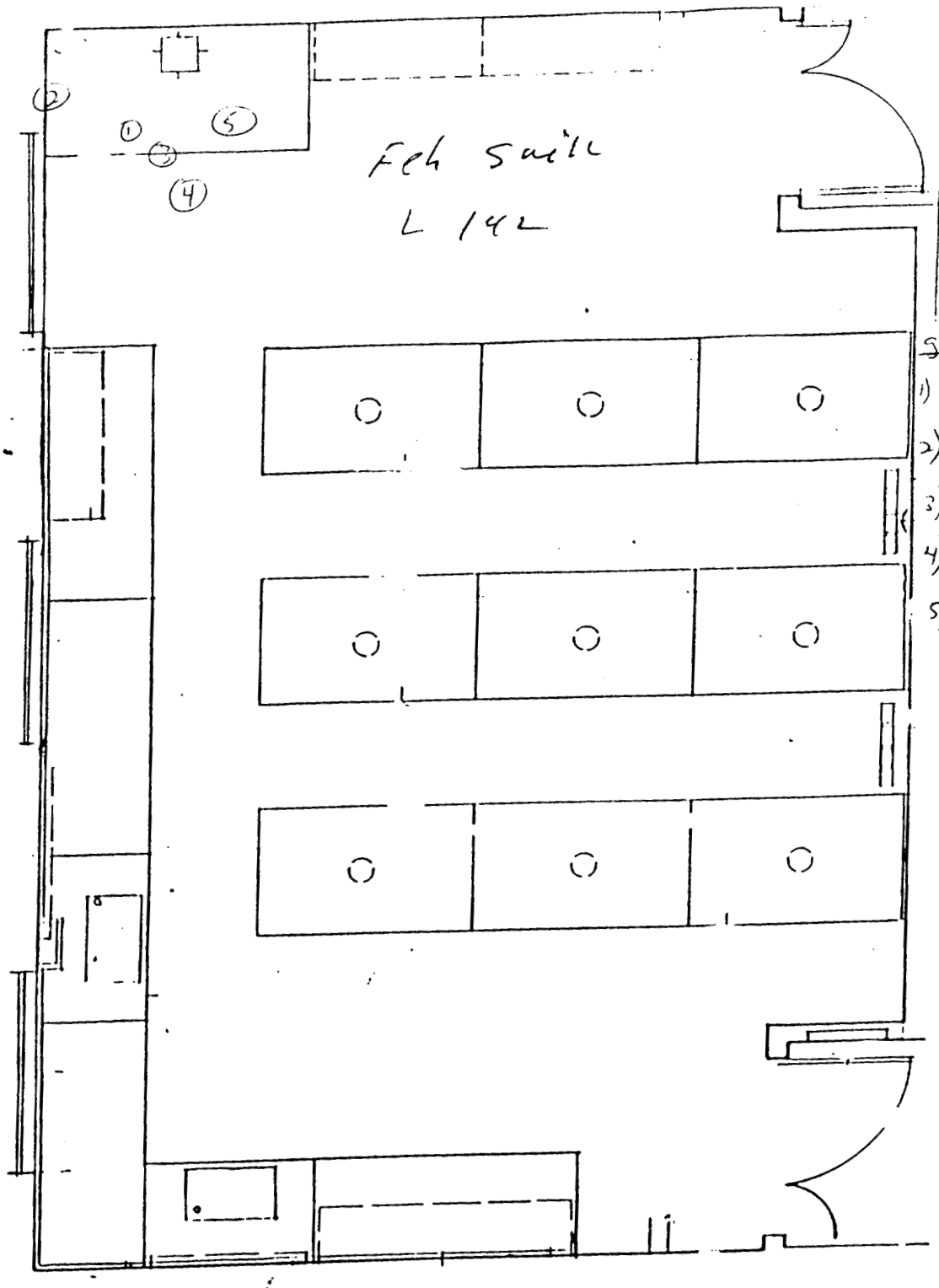
Machine Q.A.
Background CPM: 20,18
Reference Standard: 45 %
Operator Initial: _____

Sample Control
Collected: 6/22/99
Received: _____
Analyzed: _____
Returned P.I.: _____

92

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
		1					323	BLANK
	1	2					322.2	LSC STAND SOURCE
	2	3					78.1	FREEZER L108
	3	4					32.7	REFR L108
	4	5					30.5	FLOOR DOOR L108
	5	6					32.6	FLOOR IN HALL L109
	6	7					31.7	FLOOR NEAR -80 FREEZ
	7	8					29.1	FLOOR NEAR L142
	8	9					28.1	BACKEL TOP HAZ WASTE
	9	10					28.9	WALL HAZ. WASTE

ND



	gross	net cpm	net Bq
1)	142	3.2	<LLD
2)	130	2.0	<LLD
3)	148	3.8	<LLD
4)	154	4.4	<LLD
5)	126	1.6	<LLD

Bioaccumulation Exposure / L142 (M16)

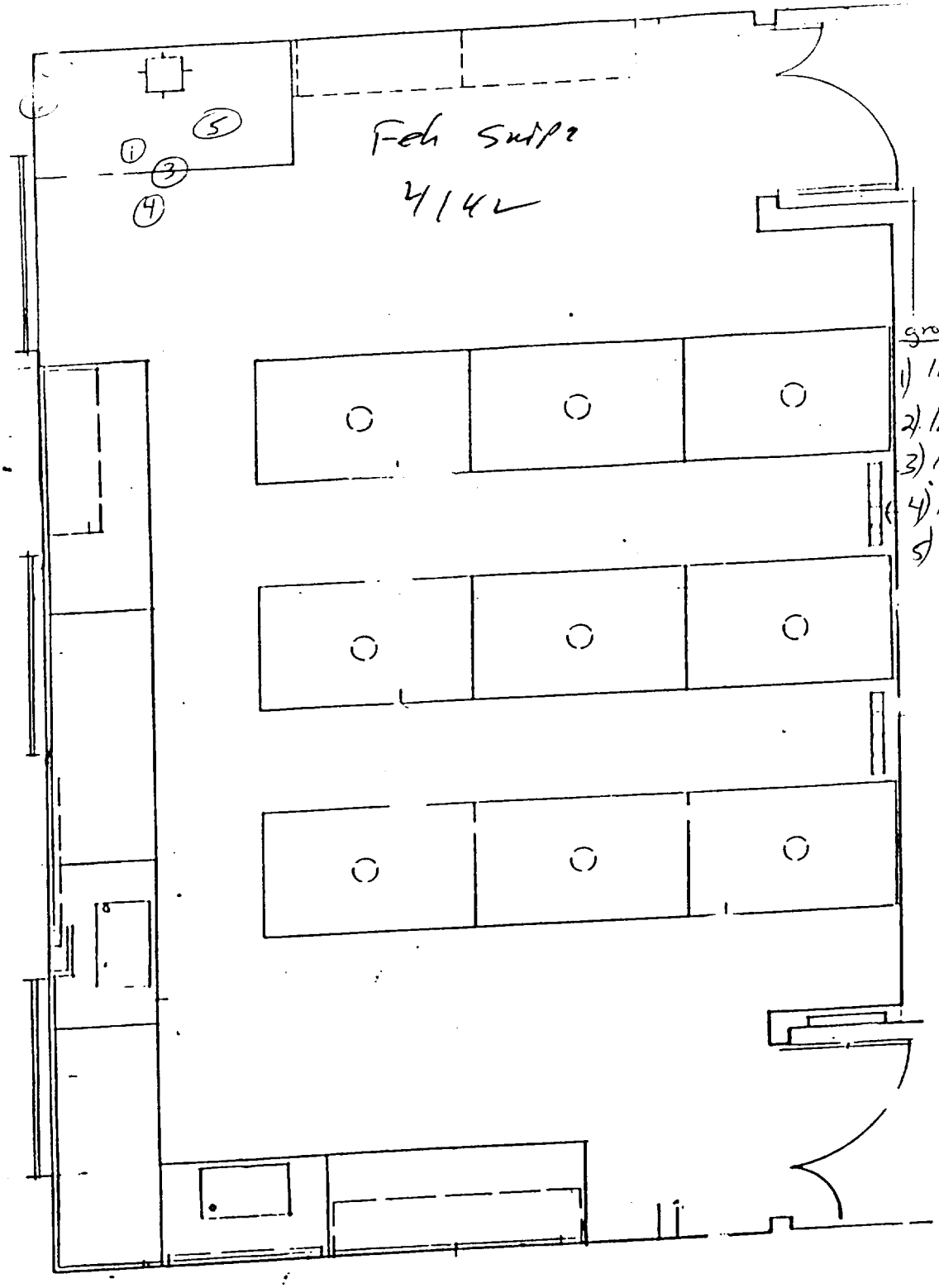
Date of Survey: 2-21-98

Surveyor: S Pozarych

RSO Signature:

LLD = ~~6~~ 6.2 Net DPM = ~~2.7~~ 2.8 * 10^{-6}

.103 Bq



	gross	net cpm	net Bq
1)	11.6	.2	< LLD
2)	12.4	1.0	< LLD
3)	11.6	.2	< LLD
4)	12.0	.6	< LLD
5)	15.6	4.2	< LLD

Bioaccumulation Exposure / L142 (M16)

Date of Survey: 2-20-98

Surveyor: S. Pozarycki

RSO Signature:

LLD = ~~6~~ 6.3 Net DPM = ~~2.7~~ 2.85 * 10^{-6}

= .105 Bq

SCINTILLATION COUNTER DATA SHEET page 1 of 1

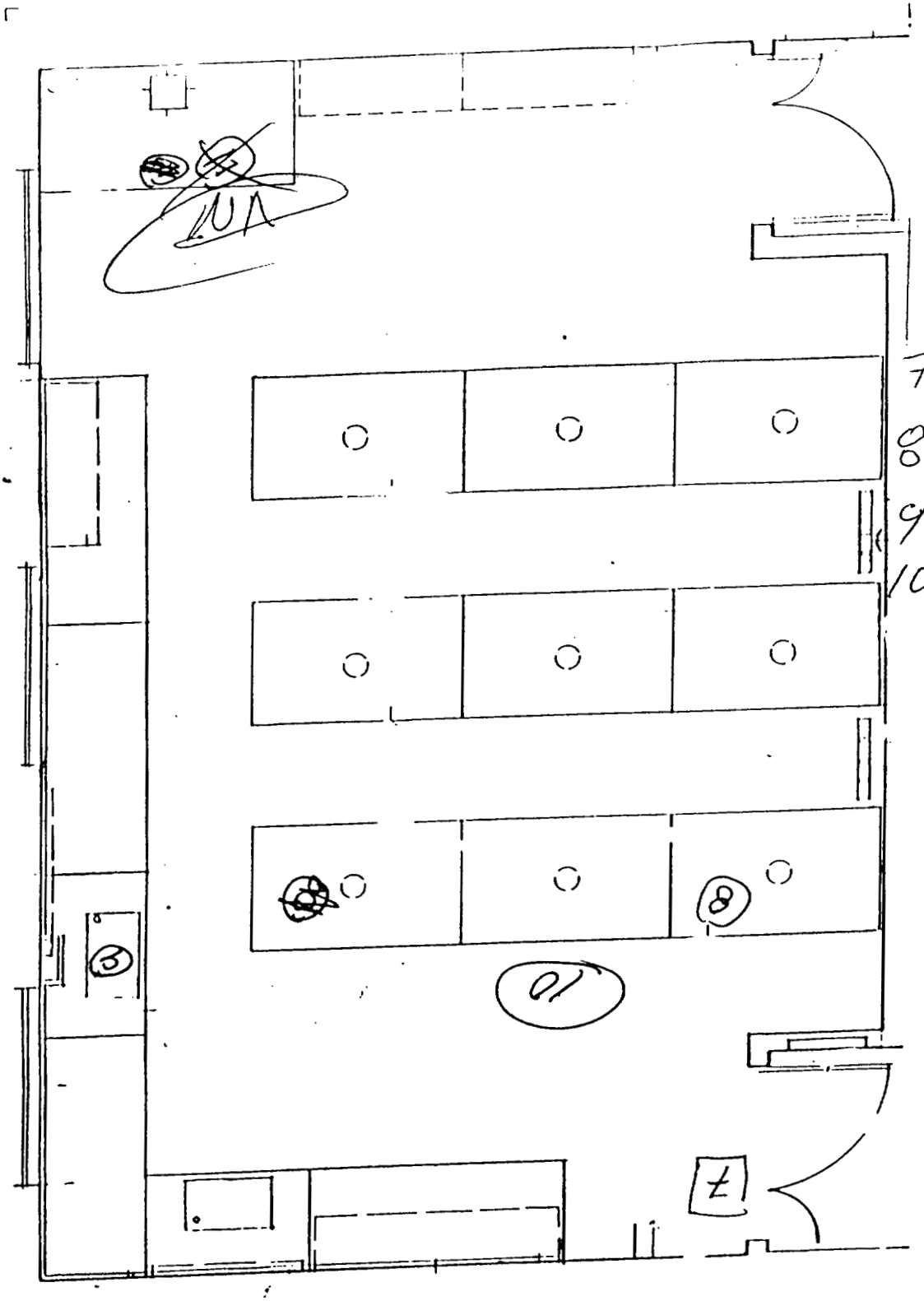
Sampler's Init: BZ
Sample desc: C-14 July Swipe

Machine Q.A.
Background CPM: 22.85
Reference Standard: 64 %
Operator Initial: BZ

Sample Control
Collected: 6/9/94
Received: 6/9/94
Analyzed: 6/9/94
Returned P.I.: 6/9/94

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS	
	060900	1					38.8	Blank	
	060901	2					38.8	Oxidize	108
	060902	3					35.4	Floor	
	060903	4					36.7	Hood Lip	
	060904	5					39.4	Sink	
	060905	6					38.9	Refer	
	060906	7					36.8	Floor	
	060907	8					36.4	Floor	
	060908	9					36.0	Vented Box	142
	060909	10					35.5	Sink	
	060910	11					37.7	Floor	
	060911	12			NOT DONE			Hood	

96



	Net DPM	uC:
7	0.0	(4)
8	0.0	(4)
9	0.0	(4)
10	0.0	(4)

Bioaccumulation Exposure / L142 (M16)

Date of Survey: 6/9/94

LLD = 6 Net DPM = $2.7 * 10^{-6}$

Surveyor: BZ

RSO Signature: Bruce J Bee

96

SCINTILLATION COUNTER DATA SHEET page 1 of 1

Sampler's Init: B2
Sample desc: C-14 MAY Swipes
1/2 YEAR SURVAY

Machine Q.A.

Background CPM: 21.3
Reference Standard: 93 %

Operator Initial: B2

Sample Control

Collected: 5-10-95
Received: "
Analyzed: "
Returned P.I.: "

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
	———	1	NA	Paper	18ml	OPTI	37.1	BLANK
	05T10001	2	↓	↓	↓	↓	35.6	L108 hood Lip
	2	3					36.2	L108 oxidize
	3	4					39.2	L108 Sink
	4	5					37.1	L108 Reter
	5	6					36.5	L108 Counter
	6	7					36.0	L108 ox floor
	7	8					35.1	L108 Floor AT Door
	8	9					36.8	L142 floor AT Door
	9	10					33.8	L142 Vent Cabinet
	10	11					34.5	L142 NW Counter
	11	12					34.3	L142 Hood Lip
	12	13					33.6	HALL L142
	13	14					37.9	HALL L108
	14	15					31.6	LSC Barrel Top Waste Storage
	15	16	↓	↓	↓	↓	35.6	Wall behind barrells Waste Storage

08

SCINTILLATION COUNTER DATA SHEET page 1 of ____

Sampler's Init: TF + BZ

Sample desc: C-14

SWIPES OF L-142 AFTER EXPERIMENT

Machine Q.A.

Background CPM: ____

Reference Standard: ____ %

Operator Initial: BZ

Sample Control

Collected: 3/2/95

Received: 3/2/95

Analyzed: 3/2/95

Returned P.I.: ____

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
2	03020000	1	NA	PAPER	18 ml	OPTI	38.3	~~CPM~~ BLANK
2	03020001	2	"	"	"	"	36.8	L142
2	03020002	3	"	"	"	"	31.7	"
2	03020003	4	"	"	"	"	35.3	"
2	03020004	5	"	"	"	"	34.4	"
2	03020005	6	"	"	"	"	35.1	"
2	03020006	7	"	"	"	"	33.4	"
2	03020007	8	"	"	"	"	33.3	"
	8	9	"	"	"	"	35.6	L108 HOOD
	9	10	"	"	"	"	32.5	L108 FLOOR
	10	11	"	"	"	"	39.6	L108 SINK
	11	12	"	"	"	"	34.0	L108 LSC SCALED SOURCE
	12	13	"	"	"	"	33.7	QC SCALED SOURCE

SCINTILLATION COUNTER DATA SHEET page 1 of 1

Sampler's Init: TF
Sample desc: C-14

Swipes in Room L-142 Post-Experiment

Machine Q.A.

Background CPM: _____
Reference Standard: _____ %

Operator Initial: TF

Sample Control

Collected: 1-5-95
Received: _____
Analyzed: _____
Returned P.I.: _____

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	~~DPM~~/CPM	REMARKS
2	0105000	1	NA	Rapid	18ml	OPTI	38.2	~~1000~~ Blank
2	0105001	2					37.5	Hood
2	0105002	3					35.3	Counter Top
2	0105003	4					38.6	Counter Top
2	0105004	5					35.8	Vented Box
2	0105005	6					37.1	Floor At Hood
2	0105006	7					36.0	Floor At Box

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 22, 2005**
Subject: **Room Survey: Newport L-143 Final Contamination Survey.**

Description and Historic Use:

Double lab (250 ft^2). Carbon-14 tracers. No isotopes present in this area since 2003. There is no record of a leaking sealed source or major spill in this area.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in L-143 in December 2005. The five points for the fixed survey indicated that any contamination was below the lower limits of detection. Likewise, the removable contamination survey demonstrates that the area is clean and free from any significant contamination. Ten swipes were taken and counted for hydrogen-3 and carbon-14. Two swipes indicated a contamination level of 9 and 11 dpm (0.15 and 0.18 Bq/100 cm^2). All other points were below the lower limits of detection. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

Records for this room clearly demonstrate that the area was not subject to any significant contamination events. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area.

Removable contamination swipes were counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

03 pm

NHEERL-WED

LOG NO. 05-04

RADIATION AREA SURVEY

REMOVABLE

DATE 12/13/05 LOCATION L143 ROOM L143

INSTRUMENT PACKARD 2200CA

SERIAL NO.

3H

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²
1	19	LLDs	ND*
2	20		
3	15		
4	16		
5	14		
6	16		
7	22		
8	17		
9	18		
10	14		

$LLD_{95} = \left\{\left(\frac{\sqrt{19}}{3}\right) \times 2.96\right\} + = 24$ CPM

BACKGROUND STANDARD (58,978 dpm) 19 / 66,360 dpm

255,200 dpm (11/79) Packard 113%

14C

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²
	27	LLD	ND*
	25		
	25		
	23		
	33	9	0.15
	26	LLD	ND
	29	LLD	ND
	33	11	0.18
	29	LLD	ND
	23	LLD	ND

$LLD_{95} = \left\{\left(\frac{\sqrt{26}}{3}\right) \times 2.96\right\} + = 31$ CPM

BACKGROUND STANDARD (84,000 dpm) 26 / 86,511

NEN 103%

COMMENTS: *ND = NOT DETERMINED. BELOW THE DETECTION Limits.

RADIATION SPCL.

12/22/05
DATE

04 9am

NHEERL-WED
RADIATION AREA SURVEY
FIXED

LOG NO. 05-05

DATE 12/13/05 LOCATION ________ ROOM L-143

INSTRUMENT Technical Associates TBM-3 GM
SERIAL NO. #11434

SWIPE #	GROSS CPM	NET DPM *	ACTIVITY Bq/100 CM^2
A	75	<LLD95	ND*
B	100	↓	↓
C	100	↓	↓
D	75	↓	↓
E	75	↓	↓

$LLD_{95} = \left\{\left(\frac{\sqrt{150}}{1}\right) \times 2.96\right\} + = $ CPM   36+150= 186 CPM

BACKGROUND 150 CPM**
STANDARD ( ) ________

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM^2

$LLD_{95} = \left\{\left(\text{--------}\right) \times 2.96\right\} + = $ CPM

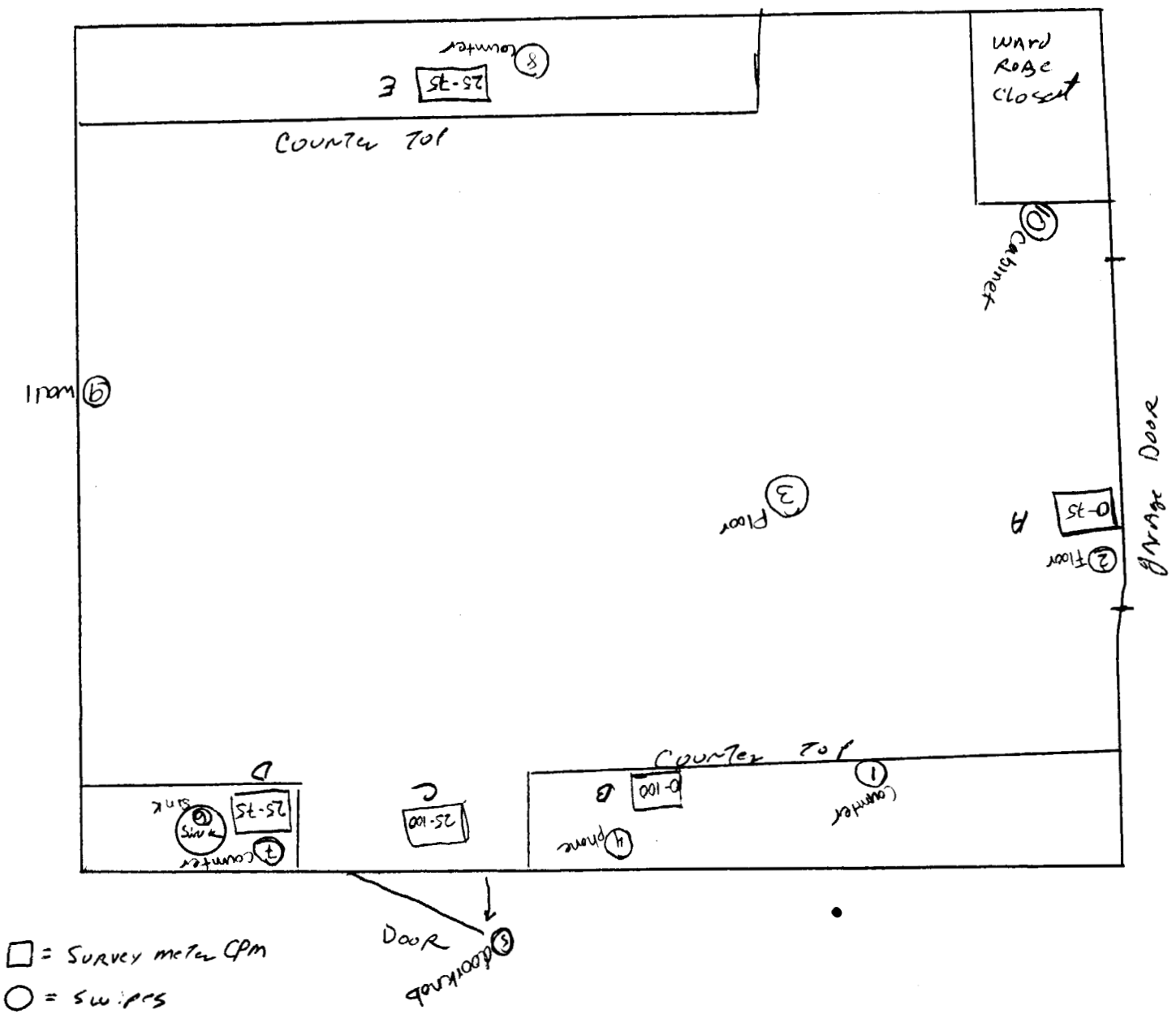
BACKGROUND ________
STANDARD ( ) ________

COMMENTS: * ND = NOT DETERMINED. Below the lower limits of detection.
** Based upon historical background.

D A Moran
RADIATION SPCL.

12-21-05
DATE

143



□ = Survey meter CPM

○ = swipes

12/13/05

Brent Bar

SCINTILLATION COUNTER DATA SHEET page 1 of 1

Sampler's Init: B2
Sample desc: C-14
WIPP Test Dec 2003
CP/Cal Sources
Waste Disposal & Shutdown Areas
Oxidizer - Decom
HAH WAYS

Machine Q.A.
Background DPM: 19.88
Reference Standard: 97 %
Operator Initial: B2

Sample Control
Collected: 12/22/04
Received: 12/23
Analyzed: 12/23
Returned P.I.: 12/23

03

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
2	00	1	NA	PAPER	18mL	ULTIMA gold	27.41	BLANK
	01	2					27.39	LSC CP/Cal Source L108
	02	3					28.61	Floor By Door L108
	03	4					24.69	Freezer N. Wall "
	04	5					27.11	Refrig N. Wall "
	05	6					33.25	Hood Floor "
	06	7					38.28	Hood Lip "
	07	8					26.93	Floor @ Hood "
	08	9					30.01	Oxidizer PT Coil "
	09	10					39.58	Oxidizer Wall Opposite "
	10	11					28.93	Oxidizer Waste Door "
	11	12					36.76	Disposal Shaft Side "
	12	13					25.92	-80 Freezer
	13	14					28.67	Floor by L443
W	14	15					25.69	LSC Waste Basket
W	15	16					23.55	Solid Waste Basket
	16	17					26.32	Wall Near Waste Basket

Laboratory Wing Floor Plan

Sample	Location	Net DPM	Beq
11	Disposal Sink L117	3.35	< LLD
12	-80 Freezer Lid	0.0	< LLD
13	Floor L143	1.3	< LLD

155

C1

LLD = 4.9 DPM = 0.082 Beq

-80°C Freezer

12/22/03

SCINTILLATION COUNTER DATA SHEET page 1 of 1

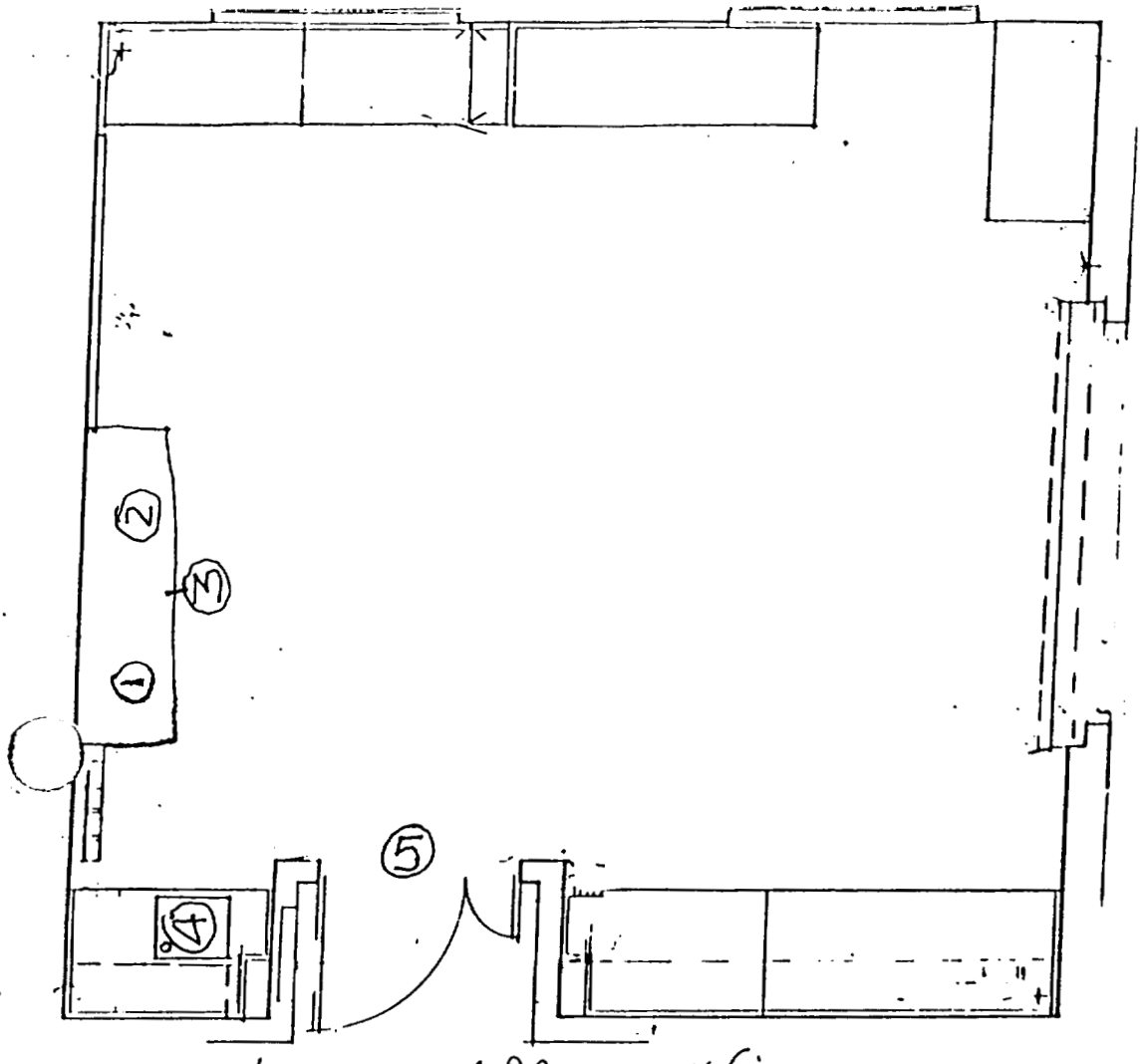
Sampler's Init:
Sample desc: C-14 Lab 143 Swipes 14C
UV Chamber, sink + floors

Machine Q.A.
Background CPM: 2345
Reference Standard: 97 %
Operator Initial: KRDZ

Sample Control
Collected: 05-12-92
Received: "
Analyzed: "
Returned P.I.: BZ

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
2	051200 0	1	Paper		18ml	Opti-fluor		
	1	2					0.0	LAB 143 Left inside
	2	3					0.0	Right "
	3	4					0.0	floor
	4	5					0.0	sink
	051205	6	↓		↓	↓	0.0	floor

19



Site	Sample #	Net DPM	uCi
1	0512001	0.0	<LLD
2	0512002	0.0	<LLD
3	0512003	0.0	<LLD
4	0512004	0.0	<LLD
5	0512005	0.0	<LLD

Phy/Chem Processes-A / L143 (M18)

N

Date of Survey: 05-12-92

Surveyor: KRRUKAVINA

RSO Signature: Bruce J Bean

LLD = 6 Net DPM = $2.7 * 10^{-6}$

19

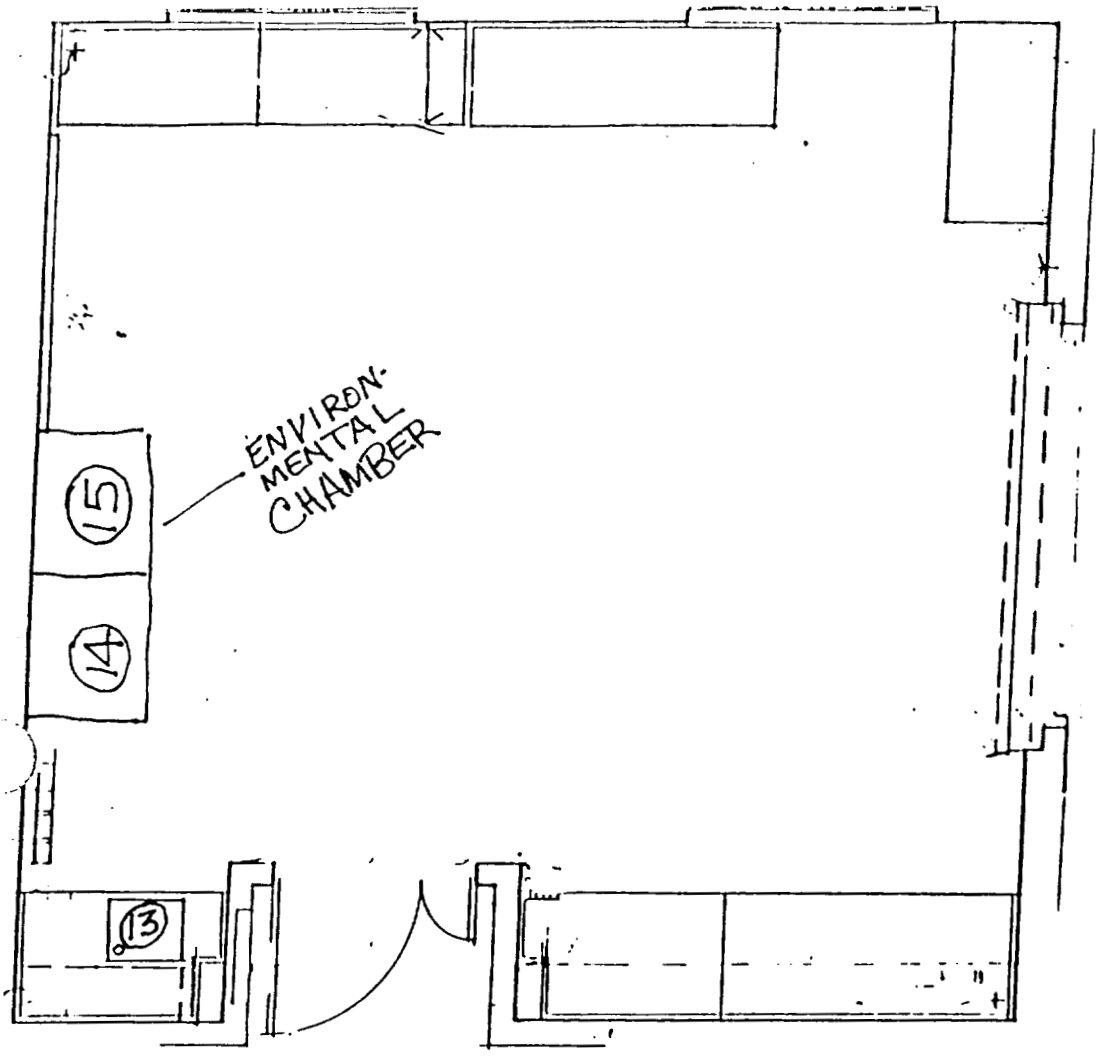
SCINTILLATION COUNTER DATA SHEET page 1 of 2

Sampler's Init:
Sample desc: C-14 MONTHLY SWIPES
108 + L143-A KDR

Machine Q.A.
Background CPM:
Reference Standard: 97 %
Operator Initial: KDR

Sample Control
Collected: 03-24-92
Received: "
Analyzed: "
Returned P.I.: B2

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
2	03240000	1	PAPER		18ML	OPTI-FLUOR		BLANK
	1	2					7.5	LAB 108 HOOD LIP
	2	3					0.6	L WALL
	3	4					0.0	R WALL
	4	5					0.0	REAR WALL
	5	6					3.2	FLOOR
	6	7					2.3	OXIDIZER
	7	8					0.0	FLOOR
	8	9					0.0	FLOOR
	9	10					0.0	FLOOR
	10	11					0.5	FLOOR
	11	12					1.2	FLOOR
	12	13					2.4	SINK
	13	14					0.0	LAB 143-A SINK
	14	15					0.0	" U-V CHAMBER
	03240015	16	↓		↓	↓	0.0	" "



Smallest Net DPM
(13) 0324013 24 LLD
(14) 0324014 0.0 LLD
(15) 0324015 0.0 LLD

Phy/Chem Processes-A / L143 (M18)

N

11

Date of Survey: 032492

Surveyor: KDR

RSO Signature: Bruce L Boer

LLD = 6 Net DPM = $2.7 * 10^{-6}$

SCINTILLATION COUNTER DATA SHEET page 1 of 1

Sampler's Init:
Sampl desc: C-14 Lab 143 Swipes 14C
UV Chamber, sink + floors

Machine Q.A.
Background CPM: 2345
Reference Standard: 97 %
Operator Initial: KRDZ

Sample Control
Collected: 05-12-92
Received: "
Analyzed: "
Returned P.I.: BZ

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
2	051200 0	1	Paper		18ml	Opti-fluor		
	1	2	↓		↓	↓	0.0	LAB 143 Left inside
	2	3					0.0	" Right "
	3	4					0.0	" floor
	4	5					0.0	" sink
	051200 5	6					0.0	" floor

19

SCINTILLATION COUNTER DATA SHEET page 1 of 2

Sampler's Init:
Sample desc: C-14 MONTHLY SWIPES
L108 + L143-A
KRR

Machine Q.A.
Background CPM:
Reference Standard: 97 %
Operator Initial: KRR

Sample Control
Collected: 03-24-92
Received: "
Analyzed: "
Returned P.I.: B2

PROT #	SAMPLE #	SLOT#	SAMPLE VOLUME	SAMPLE SOLVENT	FLUOR VOLUME	FLUOR TYPE	DPM/CPM	REMARKS
2	03240000	1	PAPER		18ML	OPTI-FLUOR		BLANK
	1	2					7.5	LAB 108 HOOD LIP
	2	3					0.6	L WALL
	3	4					0.0	R " WALL
	4	5					0.0	REAR " WALL
	5	6					3.2	FLOOR
	6	7					2.3	OXIDIZER
	7	8					0.0	FLOOR
	8	9					0.0	FLOOR
	9	10					0.0	FLOOR
	10	11					0.5	FLOOR
	11	12					1.2	FLOOR
	12	13					2.4	SINK
	13	14					0.0	LAB 143-A SINK
	14	15					0.0	" U-V CHAMBER
	03240015	16	↓		↓	↓	0.0	" "

11

U.S. Environmental Protection Agency
Western Ecology Division

NRC Radioactive Materials License No. 36-12343-02 Termination and Facility Decommissioning

Date: **December 22, 2005**
Subject: **Room Survey: Newport CT 2-3 Final Contamination Survey.**

Description and Historic Use:

Walk-in Cold Room (80 ft^2). Hydrogen-3 and/or Carbon-14 tracers. We could not find a historical record when isotopes were last used or stored in the area. There is no record of a leaking sealed source or major spill in this room.

Surveys:

Total (fixed or static) and removable contamination surveys were conducted in CT 2-3 in December 2005. The five points for the fixed survey indicated that any contamination was below the lower limits of detection. Likewise, the removable contamination survey demonstrates that the area is clean and free from any significant contamination. Ten swipes were taken and counted for hydrogen-3 and carbon-14. One swipe indicated a contamination level of 10 dpm (0.17 Bq/100 cm^2). All other points were below the lower limits of detection. This area meets the contamination criteria for unrestricted use based upon the isotopes used at our facilities.

Records for this room clearly demonstrate that the area was not subject to any significant contamination events. We determined it was unnecessary to conduct further contamination surveys in this area given these survey results and the Western Ecology Division's historic management of radioactive material use in this area.

Removable contamination swipes were counted in a Packard 2200 CA dual channel Liquid Scintillation Counter.

NHEERL-WED

LOG NO. 05-07

RADIATION AREA SURVEY

REMOVABLE

DATE 12/13/05 LOCATION CT 2-3 ROOM CT-2-3

INSTRUMENT PACKARD 2200CA

SERIAL NO. _____

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM^2
11	15	LLD	ND*
12	15		
13	14		
14	18		
15	13		
16	16		
17	16		
18	18		
19	15		
20	17		

$LLD_{95} = \left\{\left(\frac{\sqrt{19}}{3}\right) \times 2.96\right\} + = 24$ CPM

BACKGROUND STANDARD (58,978 dpm) 19 / 64,560 dpm

255,200 dpm Source 11/79 113%

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM^2
	30	LLD	ND*
	26		
	24		
	23		
	22		
	30		
	24		
	34	10	0.17
	25	LLD	ND
	31	LLD	ND

$LLD_{95} = \left\{\left(\frac{\sqrt{26}}{3}\right) \times 2.96\right\} + = 31$ CPM

BACKGROUND STANDARD (84,000 dpm) 26 / 86511

BKGEN 103%

COMMENTS: ND* = NOT DETERMINED, Below the Detection Limits

RADIATION SPCL. _____ DATE 12/22/05

NHEERL-WED

RADIATION AREA SURVEY

LOG NO. 05-08

FIXED

DATE 12/13/05 LOCATION _____ ROOM CT 2-3

INSTRUMENT Technical Associates TBM-3 GM
SERIAL NO. # 11434

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²
A	75	<LLD95	ND*
B	100	↓	↓
C	100		
D	125		
E	50		

$LLD_{95} = \{(\sqrt{150}/1) \times 2.96\}^{36+150} + = 186$ CPM

BACKGROUND STANDARD (150 cpm**)

SWIPE #	GROSS CPM	NET DPM	ACTIVITY Bq/100 CM²

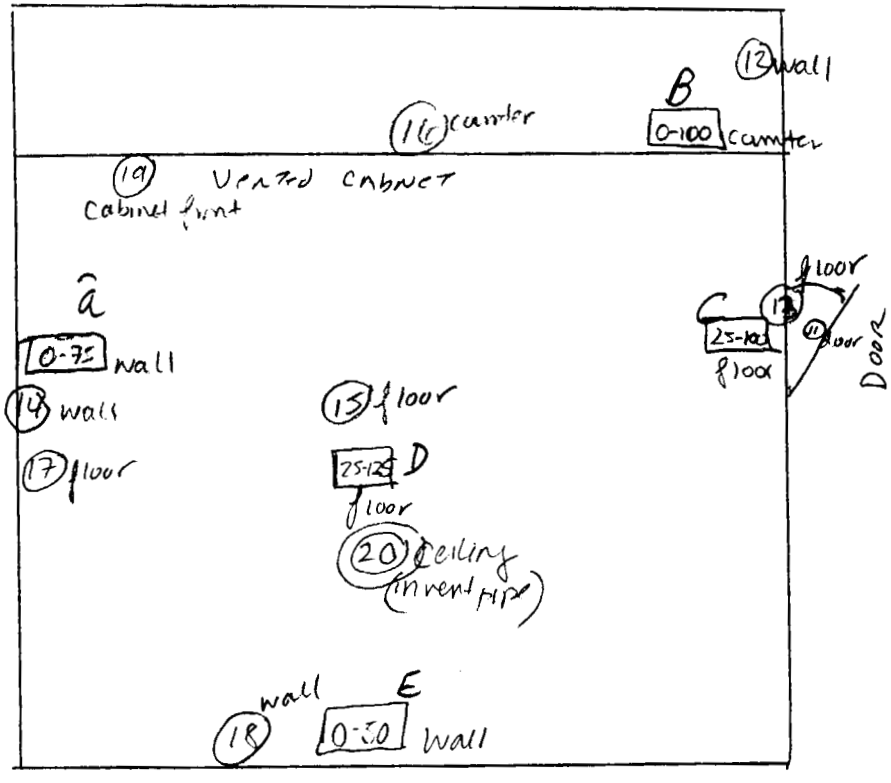
$LLD_{95} = \{(\quad) \times 2.96\} + =$ CPM

BACKGROUND STANDARD ( )

COMMENTS: *ND = NOT DETERMINED. Below the lower limit of detection.

**Bkground based upon the historical background.

RADIATION SPCL. 12-21-05 DATE



□ = Survey meter CPM

○ = swipes

12/13/05

NHEERL-WED
RADIATION AREA SURVEY

LOG NO. 05-01

DATE 5/3/05 LOCATION MB ROOM 190 INSTRUMENT GM #3 SN 77176

		Isotope FIXED			Isotope		
Swipe No.	Description	Gross CPM	Net DPM	Activity Bq/100 cm²	Gross CPM	Net DPM	Activity Bq/100 cm²
1	Air Duct — West } inside	70	LLD95	ND*			
2	Air Duct — Middle } inside	65	LLD95	ND*			
3	Air Duct — EAST } inside	65	LLD95	ND*			
		LLD95=((√65) X 2.96) + 65 = 89 CPM BACKGROUND 65 CPM COUNT TIME 1 STANDARD (137Cs ≈ 1μCi) 10,500 cpm			LLD95=((———) X 2.96) + = CPM BACKGROUND ——— COUNT TIME ——— STANDARD ( ) ———		

Comments: ND* = NOT DETERMINED Below the detection Limits.

D.A. Mercer 5/3/05
Radiation Safety Specialist Date

Spcl. Exhaust Air + Pipe

NHEERL-WED
RADIATION AREA SURVEY

LOG NO. 04-74

DATE 11-15-04 LOCATION _____ ROOM _____ INSTRUMENT Packard LSC 2200CA SN Ø36755

Swipe No.	Description	Isotope 3H Gross CPM	Net DPM	Activity Bq/100 cm²	Isotope 14C Gross CPM	Net DPM	Activity Bq/100 cm²
	190 Sink, Tailpiece	1634	6202	103.4	4923	7321	122
	190 Vent, Exhaust	8	< LLD_{95}	ND	38	22	0.37
	CSB 1 Vent, Exhaust	5	< LLD_{95}		24	< LLD_{95}	— —
	TERF 113 VENT, Exhaust	7	< LLD_{95}		31	22	0.37
	WRS 10 VENT, Exhaust	9	< LLD_{95}		35	13	0.22
	[illegible] 11 VENT, Exhaust	7	< LLD_{95}		37	[illegible]	[illegible]
	WRS 12 VENT, Exhaust	2	< LLD_{95}		36	21	[illegible]
	MB 126 VENT, Exhaust	10	< LLD_{95}		36	22	0.37
	MB 130 VENT, Exhaust	8	< LLD_{95}		41	28	0.47
	MB 132 VENT, Exhaust	12	Ø	ND	54	50	[illegible]
	MB 138 VENT, Exhaust	13	89	1.48	41	33	0.55
	MB 228 VENT, Exhaust	7	< LLD_{95}	ND	38	25	0.42
		$LLD_{95}=\{(\frac{\sqrt{9}}{3}) \times 2.96\} +$ = (12 CPM)			$LLD_{95}=\{(\frac{\sqrt{27}}{3}) \times 2.96\} +$ = (32 CPM)		
		BACKGROUND 9 CPM			BACKGROUND 27		
		COUNT TIME 3 min			COUNT TIME 3 min		
		STANDARD (64,179 DPM) 56,106			STANDARD (84,000 DPM) 85,392		
		87% eff			102% eff		

Comments:

D Munn 11/24/04
Radiation Safety Specialist Date

NHEERL-WED
RADIATION AREA SURVEY

LOG NO. 04-24
2/2

DATE 11-15-04 LOCATION _____ ROOM _____ INSTRUMENT _____ SN _____

		Isotope _____			Isotope _____		
Swipe No.	Description	Gross CPM	Net DPM	Activity Bq/100 cm²	Gross CPM	Net DPM	Activity Bq/100 cm²
	MB 246 VENT, Exhaust	7	<LLD95	ND	31	<LLD95	ND
	MB 256 VENT, Exhaust	4	<LLD95	↓	39	27	0.45
	MB 258 Vent, Exhaust	5	<LLD95	↓	27	<LLD95	ND
	MB 266 Vent, Exhaust	8	<LLD95	↓	31	[illegible]	ND
	MB 270 Vent, Exhaust	10	<LLD95	↓	47	41	0.68
		LLD_{95}={(----------) X 2.96} + = CPM BACKGROUND _____ COUNT TIME _____ STANDARD ( ) _____			LLD_{95}={(----------) X 2.96} + = CPM BACKGROUND _____ COUNT TIME _____ STANDARD ( ) _____		

Comments:

Radiation Safety Specialist 11-29-04 Date

NHEERL-WED
RADIATION AREA SURVEY

LOG NO. 04-27

DATE 12/2/04 LOCATION MB ROOM 190 INSTRUMENT Packard 2200 CA SN 03670

		Isotope 3H			Isotope 14C		
Swipe No.	Description	Gross CPM	Net DPM	Activity Bq/100 cm²	Gross CPM	Net DPM	Activity Bq/100 cm²
	Plexiglass plenum MB190	4	<LLD95	ND*	21	<LLD95	ND*
	" " "	8	14	0.23	23	7	0.17
	Vent Hose MB190	7	8	0.13	28	16	0.27
	Vent Duct MB190	112	364	6	317	428	7
	Main Duct MB190	48	115	1.9	140	163	27
	Vent Duct Deswipe MB190	—	—	—	—	—	
	after Cleaning	13	25	0.42	46	40	0.67
		LLD95={(√(3x3) X 2.96} + = 6 CPM BACKGROUND COUNT TIME STANDARD (3H 62,396 dpm) 62,823 dpm: 3 CPM / 3'			LLD95={(√(16x3) X 2.96} + = 23 CPM BACKGROUND COUNT TIME STANDARD (14C 84 000 dpm) 86,315 dpm: 16 CPM / 3'		

* NDE NOT DETERMINED Below the detection limits.

Comments:

D. A. Mann — 12/6/04
Radiation Safety Specialist Date

LOG NO. 04-75

NHEERL-WED
RADIATION AREA SURVEY

DATE 11-24-04 LOCATION _____ ROOM _____ INSTRUMENT Packard 2200 CA SN 0036755

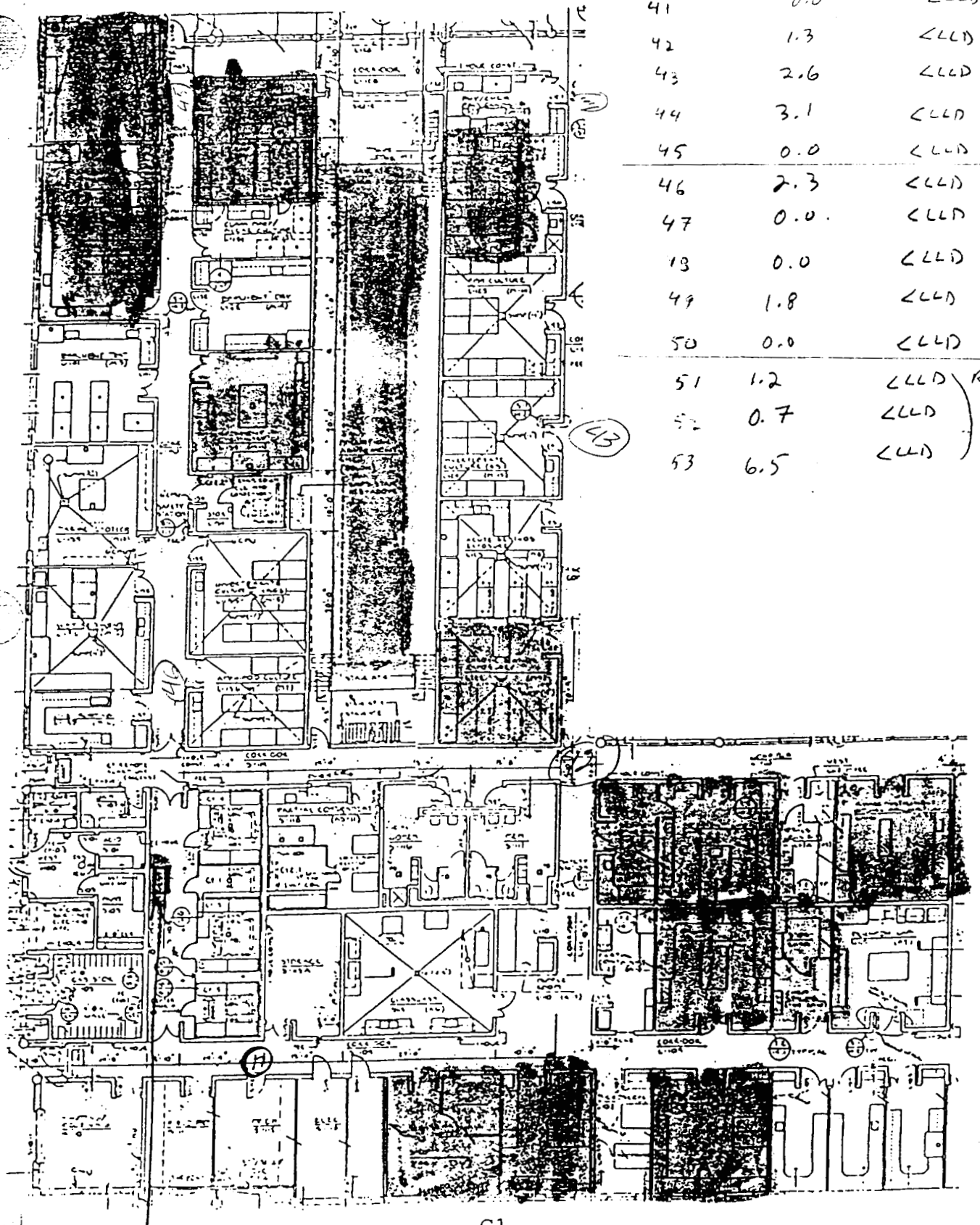
		Isotope 3H			Isotope 14C		
Swipe No.	Description	Gross CPM	Net DPM	Activity Bq/100 cm²	Gross CPM	Net DPM	Activity Bq/100 cm²
1	HVAC exhaust TERF 105	5	LLD95	ND	36	3	0.05
2	HVAC Exhaust MB 284	3	LLD95	ND	33	0	0
	Background						
	NDE = NOT DETERMINED. Below the detection limits.	$LLD_{95}=\{(\frac{\sqrt{15}}{3}) \times 2.96\} + = 9$ CPM BACKGROUND 5 CPM COUNT TIME 3' STANDARD (3H 64,779 dpm) 60,012 DPM			$LLD_{95}=\{(\frac{\sqrt{24 \times 3}}{3}) \times 2.96\} + = 32$ CPM BACKGROUND 24 COUNT TIME 3' STANDARD (14C 84,000 dpm) 85,008 dpm		

Radiation Safety Specialist 11-24-04 Date

Comments:

Decomm. Survey

Laboratory Wing Floor Plan



Sample #	Net DPM	Bq
41	0.0	< LLD
42	1.3	< LLD
43	2.6	< LLD
44	3.1	< LLD
45	0.0	< LLD
46	2.3	< LLD
47	0.0	< LLD
48	0.0	< LLD
49	1.8	< LLD
50	0.0	< LLD
51	1.2	< LLD
52	0.7	< LLD
53	6.5	< LLD

Roof Hood Vents. No MMP

C1

-80°C Freezer

LLD = 12.5 DPM = 0.21 Bq

Bruce Lee 6/10/04

4-14-05

NHEERL-WED
RADIATION AREA SURVEY

LOG NO. 05-02

DATE 4-13-05 LOCATION MB ROOM 190 INSTRUMENT Ludlum #3 SN 77176

		Isotope FIXED			Isotope		
Swipe No.	Description	Gross CPM	Net DPM	Activity Bq/100 cm²	Gross CPM	Net DPM	Activity Bq/100 cm²
1	Floor by South Drain	125	$< LLD_{95}$	ND*			
2	open pipe	125	$< LLD_{95}$	ND*			
4-14-05							
1	Pipes Section 1-east	150	$< LLD_{95}$	ND*			
2	" " 1-west	125	$< LLD_{95}$	ND*			
3	Pipe Section 2-east	125	$< LLD_{95}$	ND*			
4	" " 2-west	125	$< LLD_{95}$	ND*			
0	Background & Check source						
	Same as 4-13-05						
	ND* = NOT DETERMINED Below the Detection Limits	$LLD_{95} = \{(\frac{\sqrt{125}}{\quad}) \times 2.96\} + = 158$ CPM BACKGROUND 125 CPM COUNT TIME 1 STANDARD (^{137}Cs & Link) 19500 CPM			$LLD_{95} = \{(\frac{\quad}{\quad}) \times 2.96\} + =$ CPM BACKGROUND COUNT TIME STANDARD ( )		

Comments:

Radiation Safety Specialist

4-14-05
Date

04-

LOG NO. 24-

NHEERL-WED
RADIATION AREA SURVEY

DATE 11-17-04 LOCATION MB ROOM 190 INSTRUMENT Packard LSC 2200 CA SN Ø36755

		Isotope 3H			Isotope 14C		
Swipe No.	Description	Gross CPM	Net DPM	Activity Bq/100 cm²	Gross CPM	Net DPM	Activity Bq/100 cm²
1	190 DRAIN PIPE - SINK						
R2	190 DRAIN PIPE - SINK	258	357	5.95	1,124	1,695	28.25
R3	190 DRAIN PIPE - SINK	125	208	3.47	522	735	12.25
		$LLD_{95}=\{(\frac{\sqrt{27}}{3}) \times 2.96\} + 9 =$ 14 CPM			$LLD_{95}=\{(\frac{\sqrt{105}}{3}) \times 2.96\} +$ = 45 CPM		
		BACKGROUND COUNT TIME: 9 CPM / 3'			BACKGROUND COUNT TIME: 35 CPM / 3'		
		STANDARD (3H 64,179 dpm) 56,084 dpm 87% eff.			STANDARD (14C 84,000 dpm) 85,380 dpm 102% eff.		

Comments:

O Mora 11-29-04

Radiation Safety Specialist Date