



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL HEALTH AND ENVIRONMENTAL EFFECTS
RESEARCH LABORATORY
GULF ECOLOGY DIVISION
1 SABINE ISLAND DRIVE • GULF BREEZE, FL 32561-5299
850-934-9200

OFFICE OF
RESEARCH AND DEVELOPMENT

September 28, 2016

NRC License No. 09-10672-03

C/N 591718

Mr. Dennis Lawyer
Division of Nuclear Material Safety
U. S. Nuclear Regulatory Commission
Region 1
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

SUBJECT: Removal of BLDG 45 from NRC license no. 09-10672-03 *103032959*

In reference to the letter sent on August 9, 2016 (attachment E) requesting an amendment to our Nuclear Regulatory Commission License for removal of Building 45, we submit the following response.

1. Two portable Geiger counters were used to scan 100% of surfaces in the areas where licensed material was used/stored. Vertical surfaces were scanned in rooms 1A, 1B, 4, 5, 5A, 5B, 5C, and 5D to a height of 72" (6'). Horizontal surfaces (benchtops and floors) were also scanned in the same rooms.

Smear samples were collected on the surfaces as indicated on Attachment A. Additionally, samples were collected in associated sink traps (Attachment B) and hoods (Attachment C). Sink traps were cut free of the plumbing and wiped internally. Hood smears were collected from inside the exhaust duct, on the work surface within the hood, and inside the base cabinet or on the floor directly in front of the hood.

An additional set of smears were conducted for 10% of the samples collected. Three blanks and twelve samples were collected randomly adjacent to the original smear samples.

Internet Address (URL) • <http://www.epa.gov>

Recycled/Recyclable • Printed on Recycled Paper (Minimum 50% Postconsumer content)

REC'D IN LAT *10/04/2016*

591718
NRC/RGNI MATERIALS-002

Sample collection was performed by David Beddick (Radiation Safety Officer, RSO) and Tripp Boone (Safety, Health, & Environmental Management, SHEM). David Beddick has served as the RSO at the US EPA's Gulf Ecology Division (GED) since July 2013 after completing the Harvard School of Public Health's Radiation Safety Officer Training for Laboratory Professionals in June 2013. David Beddick has extensive field and laboratory experience working with radioisotopes over his 10 years at GED. Tripp Boone has completed the IRSC Radiation Safety Officer course and worked as the RSO for over 8 years at US EPA's Environmental Chemistry Laboratory. Melissa Overton assisted with the sampling by verifying location of wipes and assuring proper labeling of samples and areas.

2. Smear results as quantified from the liquid scintillation counter are included in Attachment D and are compiled in Excel for review (file sent by e-mail to Dennis Lawyer, 09/30/2016). Results are in 5 parts:
 - a. B45 (Rooms 4, 1B, & 1A)
 - b. B45 (Room 5)
 - c. Hoods & Sinks
 - d. Follow up of Sink Traps
 - e. 10% QC samples
3. No radioisotope spills were recorded in BLDG45 while research was being conducted. Surface scans did not indicate any detectible contamination. Removable radiation was not detected from the smear tests on floors, benchtops, and within the exhaust vents, however, two sink traps (Sink 2 and Sink 5) were measured to have higher (130 and 100 DPM, respectively) than background detection (7-16 DPM). Both traps were removed and will be disposed via proper solid radioactive waste disposal. Additional sampling was conducted on the pipes going into and out of the sink trap with no measurable detection. Any contamination appears to have been isolated within the two sink traps. Information from smears can be reviewed in Attachments B and D.

Mr. Dennis Lawyer
Page Three
September 28, 2016

BLDG45 has not been used for radioisotope work over the previous 5 years. Our records corroborate that staff utilized good laboratory practices and handled radioisotopes with caution, observing all regulations. Records pertaining to past usage will be maintained. The agency will retain possession of the facility to be used for federal and contractor support and field staging activities.

Please contact David Beddick, (850) 934-9312 or Beddick.David@epa.gov, with any questions or concerns regarding the survey of B45. At this time, I am requesting that BLDG45 be removed from the GED Materials License.

Sincerely,

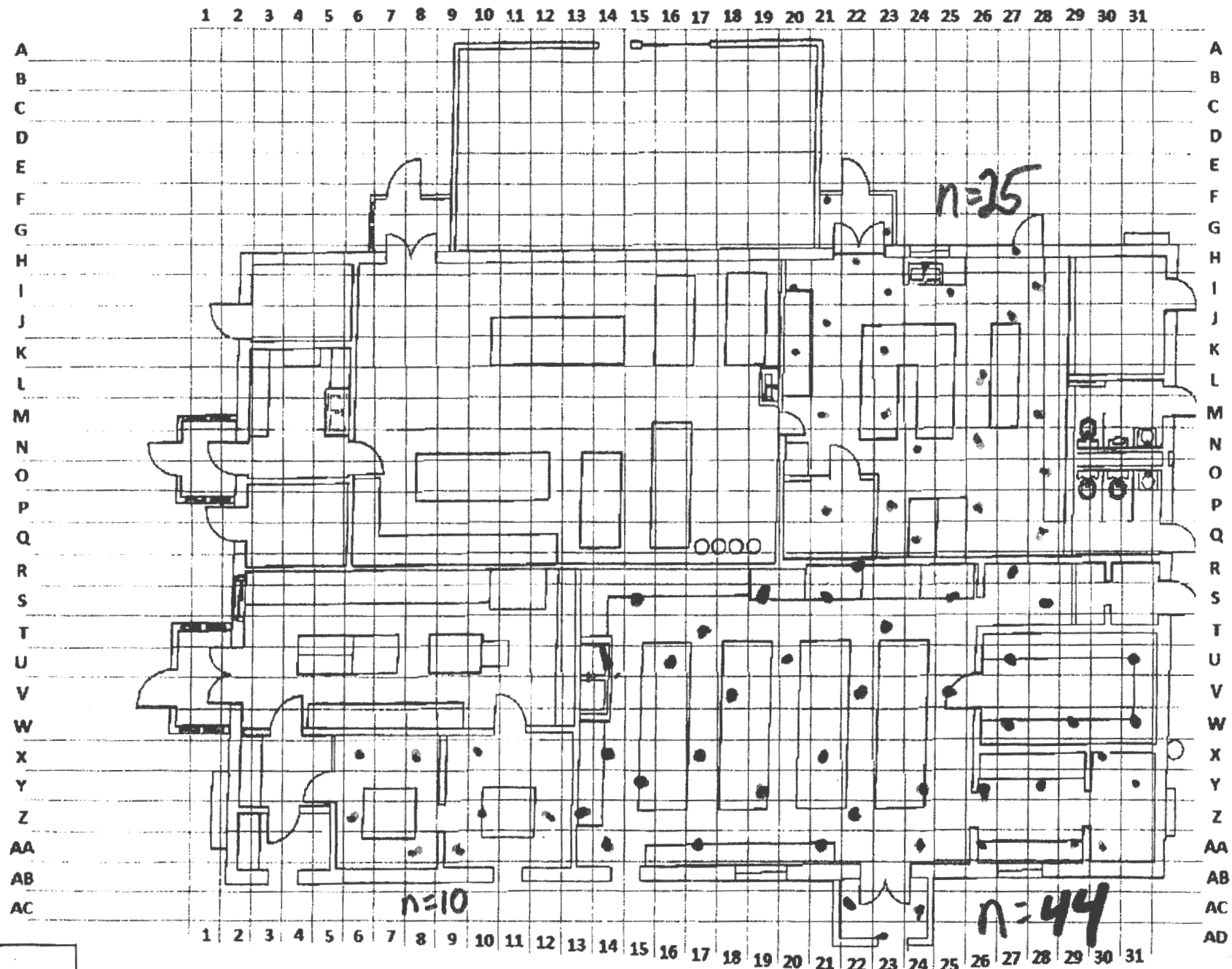


Sandy Raimondo, Ph.D.
Director, Acting
U.S. State Environmental Protection Agency
Gulf Ecology Division
Gulf Breeze, Florida 32561
(850) 934-2424
Raimondo.Sandy@epa.gov

Attachments:

- A-Grid Layout for sampling
- B- Layout for sink sampling
- C- Layout for hood sampling
- D-Data from sampling
- E-Letter sent on 9 AUG 16
- F-Radiation use in BLDG 45

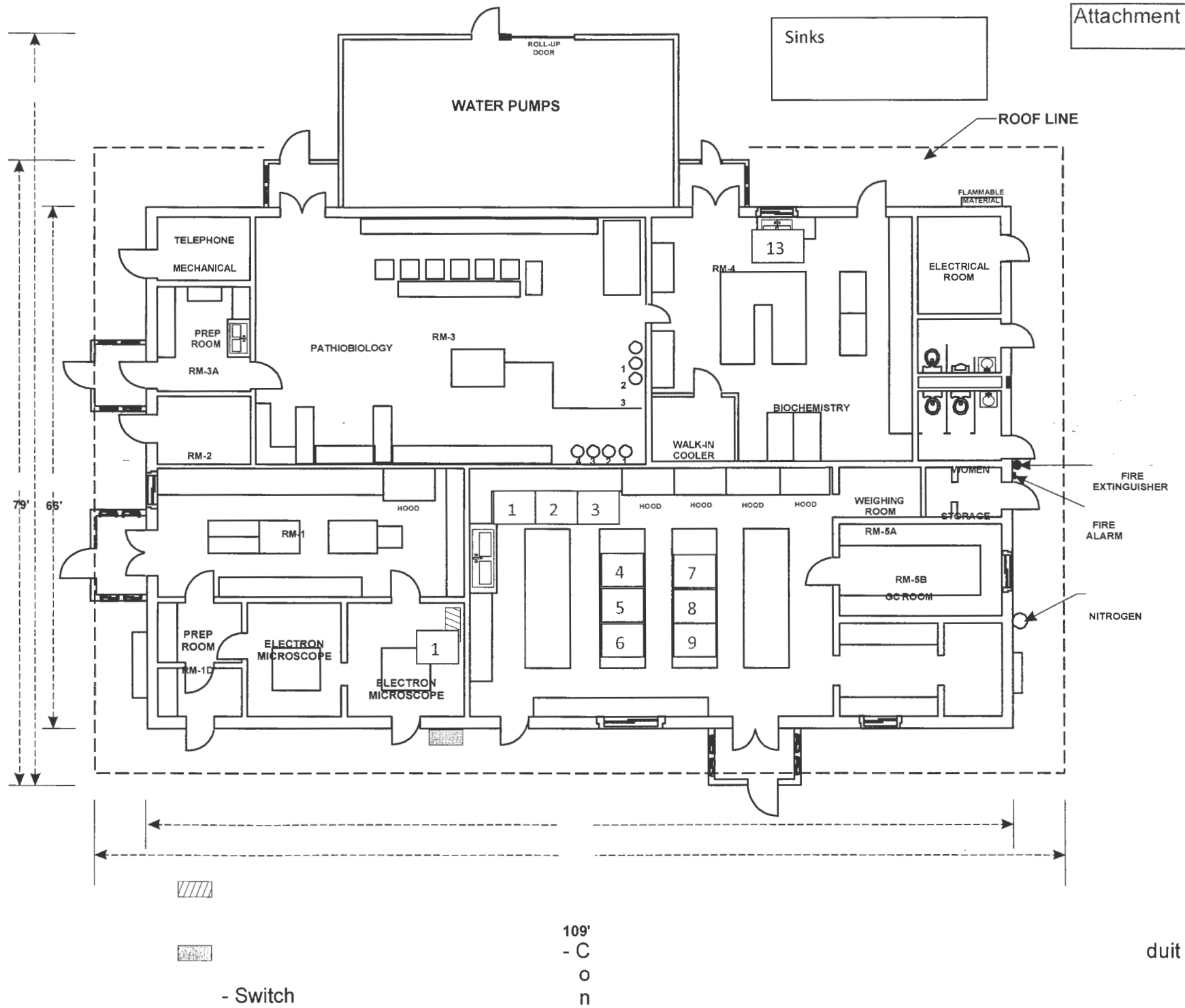
Building 45 - Sample Site Selection

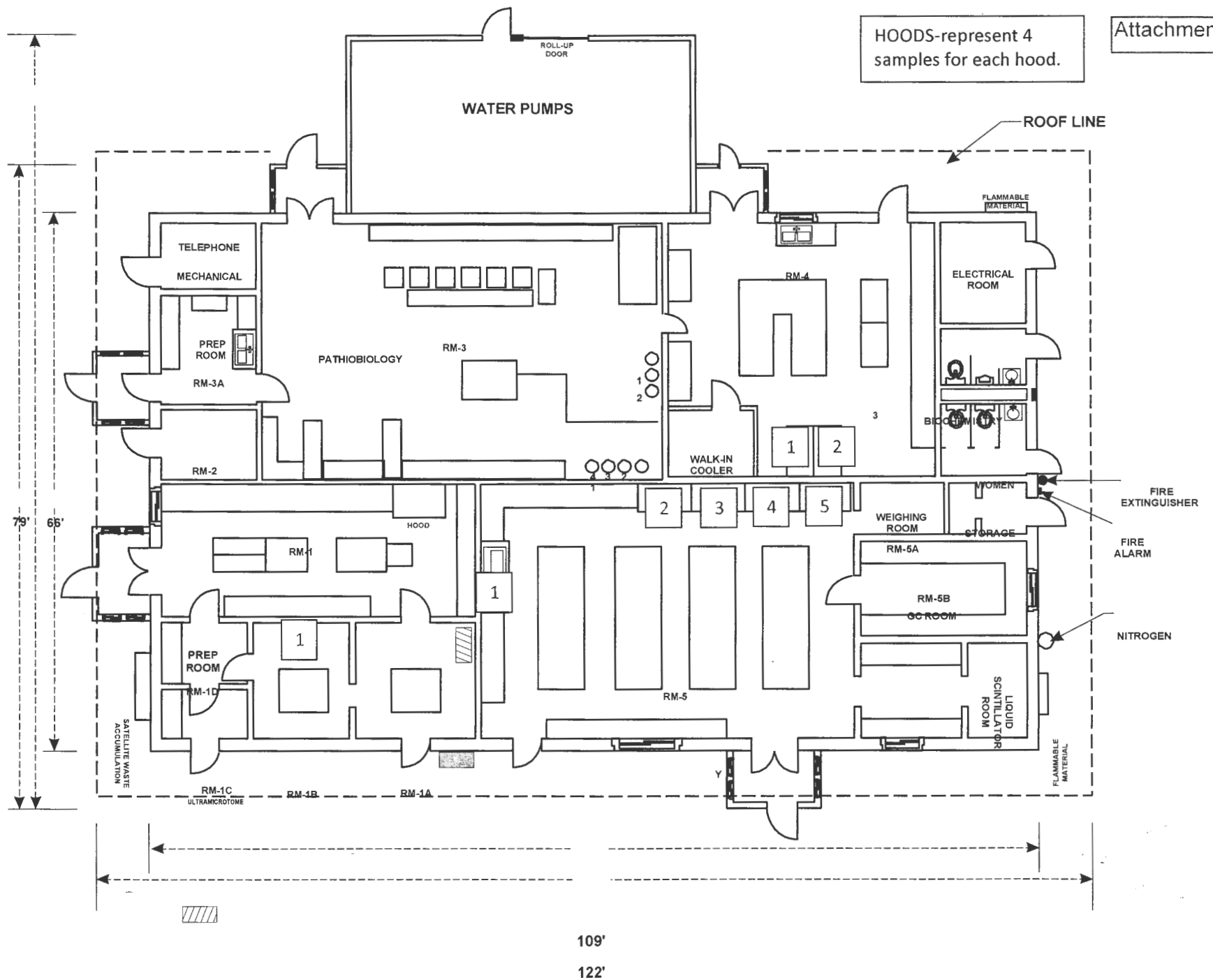


Legend

— 1 meter grid

• radioisotope samples





- Switch
- Conduit

6/1/2016 2:45:24 PM

QuantaSmart (TM) - 3.00 - Serial# 072384

Page # 1

SNC Protocol

All Clear -
DLB
6/2/16

Calibration Information

Software Version IC: 2.12

Software Version EC: 3.00

Instrument Model: Tri-Carb 2900TR

Instrument Serial Number: 072384

3H Chi Square: 27.77 Date Processed: 12/10/2015 8:39:18 AM

14C Chi Square: 21.49 Date Processed: 12/10/2015 8:39:18 AM

3H E²/B (1-18.6 keV): 333.42 Date Processed: 6/1/2016 2:45:24 PM14C E²/B (4-156 keV): 612.17 Date Processed: 6/1/2016 2:45:24 PM

3H Efficiency (1-18.6 keV): 64.86 Date Processed: 6/1/2016 2:45:24 PM

14C Efficiency (4-156 keV): 92.91 Date Processed: 6/1/2016 2:45:24 PM

IPA Background Date Processed: 6/1/2016 2:45:24 PM

3H Background CPM (1-18.6 keV): 12.62 Date Processed: 6/1/2016 2:45:24 PM

14C Background CPM (4-156 keV): 14.10 Date Processed: 6/1/2016 2:45:24 PM

3H Calibration DPM: 276500

3H Reference Date: 11/10/2006

14C Calibration DPM: 130900

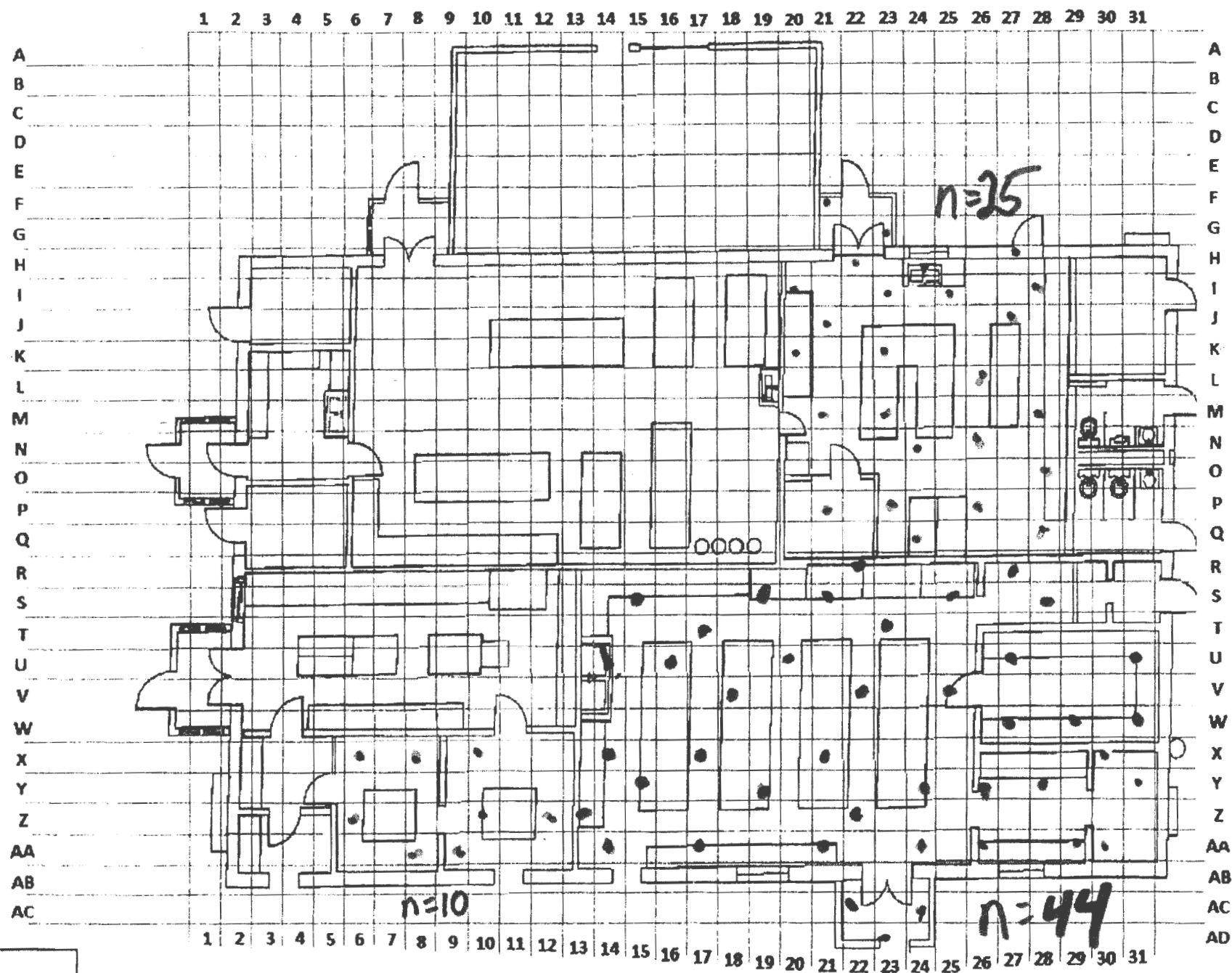
SURVEY OF B45

Rooms 4, 1B, & 1A

on 6/1/16

DLB

Building 45 - Sample Site Selection



Legend

— 1 meter grid

* radioisotope samples

Assay Definition

Assay Description:

Assay Type: DPM (Dual)

Report Name: Quarterly swipes RSO

Output Data Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160601_1445

Raw Results Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160601_1445
\20160601_1445.results

Assay File Name: C:\Packard\TriCarb\Assays\quarterly swipe.lsa

Count Conditions

Nuclide: 3H-14C

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Sets:

Low Energy: 3H-UG

Mid Energy: 14C-UG

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

Repeat Sample Count: 1

#Vials/Sample: 1

Calculate % Reference: Off

Background Subtract

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	12.0
B	12.0	156.0
C	0.0	0.0

Count Corrections

Static Controller: On

Luminescence Correction: n/a

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

Cycle 1 Results

S#	Count Time	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES
1	1.00	9	18	12	21	792.28	628.77	Blank Rm1
2	1.00	12	11	22	12	461.64	525.56	K21
3	1.00	4	8	6	9	1617.70	475.84	K23
4	1.00	12	10	24	11	1015.76	469.70	H22
5	1.00	12	12	20	13	842.69	605.06	I23
6	1.00	14	12	26	13	822.05	516.07	I25
7	1.00	12	17	26	19	417.86	361.68	H27
8	1.00	12	12	21	14	888.89	532.24	I28
9	1.00	14	17	25	19	820.05	484.76	J27
10	1.00	17	19	29	21	438.46	572.28	L26
11	1.00	19	16	31	18	843.04	624.16	K23
12	1.00	13	11	25	12	738.64	502.88	J21
13	1.00	17	6	31	6	1341.82	621.93	I20

Protocol# 13 - quarterly swipe.lsa

User: Default

14	1.00	16	12	27	13	802.57	643.76	K20
15	1.00	13	11	24	12	702.41	523.15	M21
16	1.00	13	7	30	7	959.07	405.72	P21
17	1.00	19	10	35	10	670.52	606.25	M23
18	1.00	12	13	21	15	891.71	541.57	N24
19	1.00	16	9	29	9	596.26	578.63	N26
20	1.00	10	8	28	9	922.78	302.71	P23
21	1.00	16	9	31	9	489.83	526.06	Q24
22	1.00	13	12	23	13	1084.30	534.31	P26
23	1.00	11	17	17	20	862.86	570.78	Q28
24	1.00	9	14	14	16	457.71	600.57	Q28
25	1.00	17	13	30	14	861.92	584.97	M28
26	1.00	12	9	20	10	1073.48	632.86	BANK RM18
27	1.00	13	6	33	6	804.35	349.50	X6
28	1.00	14	13	27	14	723.65	492.31	X8
29	1.00	11	10	20	11	851.11	528.99	Z6
30	1.00	18	13	34	14	767.12	520.79	AAB
31	1.00	8	14	11	16	671.19	626.34	BANK RM 1A
32	1.00	9	12	14	14	1440.83	576.64	X10
33	1.00	10	13	16	15	915.24	591.31	Z10
34	1.00	16	11	28	12	782.05	606.87	AAA
35	1.00	9	16	13	19	864.37	571.87	Z12

SNC Protocol

All Clear
6/3/16
RB

Calibration Information

Software Version IC: 2.12

Software Version EC: 3.00

Instrument Model: Tri-Carb 2900TR

Instrument Serial Number: 072384

3H Chi Square: 27.77 Date Processed: 12/10/2015 8:39:18 AM

14C Chi Square: 21.49 Date Processed: 12/10/2015 8:39:18 AM

3H E²/B (1-18.6 keV): 325.75 Date Processed: 6/3/2016 11:11:41 AM14C E²/B (4-156 keV): 635.62 Date Processed: 6/3/2016 11:11:41 AM

3H Efficiency (1-18.6 keV): 64.36 Date Processed: 6/3/2016 11:11:41 AM

14C Efficiency (4-156 keV): 93.32 Date Processed: 6/3/2016 11:11:41 AM

IPA Background Date Processed: 6/3/2016 11:11:41 AM

3H Background CPM (1-18.6 keV): 12.72 Date Processed: 6/3/2016 11:11:41 AM

14C Background CPM (4-156 keV): 13.70 Date Processed: 6/3/2016 11:11:41 AM

3H Calibration DPM: 276500

3H Reference Date: 11/10/2006

14C Calibration DPM: 130900

SURVEY OF B45
Room 5
6/2/16

Protocol# 13 - quarterly swipe.lsa

User: Default

Assay Definition

Assay Description:

Assay Type: DPM (Dual)

Report Name: Quarterly swipes RSO

Output Data Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160603_1111

Raw Results Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160603_1111
\20160603_1111.results

Assay File Name: C:\Packard\TriCarb\Assays\quarterly swipe.lsa

Count Conditions

Nuclide: 3H-14C

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s

Pre-Count Delay (min): 0.00

Quench Sets:

Low Energy: 3H-UG

Mid Energy: 14C-UG

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

Repeat Sample Count: 1

#Vials/Sample: 1

Calculate % Reference: Off

Background Subtract

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	12.0
B	12.0	156.0
C	0.0	0.0

Count Corrections

Static Controller: On

Luminescence Correction: n/a

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

Cycle 1 Results

S#	Count Time	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES
1	1.00	13	14	21	16	472.36	633.39	BLANK SA
2	1.00	11	12	18	14	651.83	584.73	AA30
3	1.00	16	7	28	7	1030.62	628.80	Y31
4	1.00	12	8	21	9	673.09	619.84	X30
5	1.00	13	12	21	13	565.95	631.08	AA29
6	1.00	10	10	16	11	550.54	633.13	AA26
7	1.00	14	11	25	12	676.41	600.37	Y24
8	1.00	15	18	25	20	344.39	588.60	Y28
9	1.00	16	14	27	16	907.80	567.48	AA24
10	1.00	11	10	28	11	772.65	323.89	AA24
11	1.00	10	8	20	9	1317.50	441.59	AD23
12	1.00	12	10	28	11	1009.20	350.16	AC22
13	1.00	14	12	23	13	747.04	638.47	Y24

Protocol# 13 - quarterly swipe.lsa

User: Default

14	1.00	11	5	20	5	1662.36	612.37	W27
15	1.00	16	11	28	12	830.87	615.39	W29
16	1.00	11	9	18	10	1363.53	615.92	W31
17	1.00	15	7	27	7	1140.93	604.17	U31
18	1.00	10	8	18	9	723.05	586.55	U27
19	1.00	14	16	23	18	1147.39	569.72	V25
20	1.00	7	11	12	13	669.81	483.62	S28
21	1.00	7	9	15	10	1216.72	360.14	R27
22	1.00	4	12	6	14	1278.57	391.32	S25
23	1.00	8	21	10	25	878.85	587.74	T23
24	1.00	9	9	21	10	1158.27	349.54	R22
25	1.00	7	8	11	9	1098.41	630.31	BLANK SB
26	1.00	9	13	17	15	611.77	450.79	S21
27	1.00	8	12	14	14	944.24	482.72	S19
28	1.00	10	8	17	9	1067.33	596.12	T17
29	1.00	9	12	16	14	416.31	508.11	S15
30	1.00	8	11	13	13	1209.68	593.33	V22
31	1.00	8	6	14	7	1443.89	596.79	X21
32	1.00	14	11	25	12	767.40	552.19	Z22
33	1.00	10	16	15	19	972.54	626.91	AA21
34	1.00	13	19	21	22	951.66	562.52	V20
35	1.00	19	17	33	18	655.54	597.84	Y19
36	1.00	14	13	22	15	689.12	610.51	AA17
37	1.00	6	14	8	16	885.51	579.80	V18
38	1.00	14	11	25	12	852.96	577.66	X17
39	1.00	10	6	18	6	830.79	604.39	V16
40	1.00	11	13	18	14	507.34	607.64	Y15
41	1.00	11	11	19	12	895.27	591.04	AA14
42	1.00	10	10	17	11	1291.12	600.87	Z13
43	1.00	12	12	22	13	1025.30	554.24	X14
44	1.00	11	16	21	18	575.68	428.88	V14

SNC Protocol

Calibration Information

Software Version IC: 2.12

Software Version EC: 3.00

Instrument Model: Tri-Carb 2900TR

Instrument Serial Number: 072384

3H Chi Square: 27.77 Date Processed: 12/10/2015 8:39:18 AM

14C Chi Square: 21.49 Date Processed: 12/10/2015 8:39:18 AM

3H E²/B (1-18.6 keV): 335.79 Date Processed: 7/21/2016 2:52:42 PM14C E²/B (4-156 keV): 647.87 Date Processed: 7/21/2016 2:52:42 PM

3H Efficiency (1-18.6 keV): 64.61 Date Processed: 7/21/2016 2:52:42 PM

14C Efficiency (4-156 keV): 93.00 Date Processed: 7/21/2016 2:52:42 PM

IPA Background Date Processed: 7/21/2016 2:52:42 PM

3H Background CPM (1-18.6 keV): 12.43 Date Processed: 7/21/2016 2:52:42 PM

14C Background CPM (4-156 keV): 13.35 Date Processed: 7/21/2016 2:52:42 PM

3H Calibration DPM: 276500

3H Reference Date: 11/10/2006

14C Calibration DPM: 130900

Sample# BLDG 45 Sinks Hoods A=Duct B=Surface C=Underne D=Sink

RM1A
1 Sink 1
Rm 1B
Hood 1
2 A
3 B
4 C
5 D
Rm 4
Hood 1
6 A
7 B
8 C
9 D
Hood 2
10 A
11 B
12 C
43 D
Rm 4
13 Sink
Rm 5
Hood 1
14 A
15 B
16 C
17 D
Hood 2
18 A
19 B
20 C
21 D
Hood 3
22 A
23 B
24 C
25 D
Hood 4
26 A
27 B
28 C
29 D
Hood 5
30 A
31 B
32 C
33 D
34 Sink 1
35 Sink 2
36 Sink 3
37 Sink 4
38 Sink 5
39 Sink 6
40 Sink 7
41 Sink 8
42 Sink 9

1

1

2

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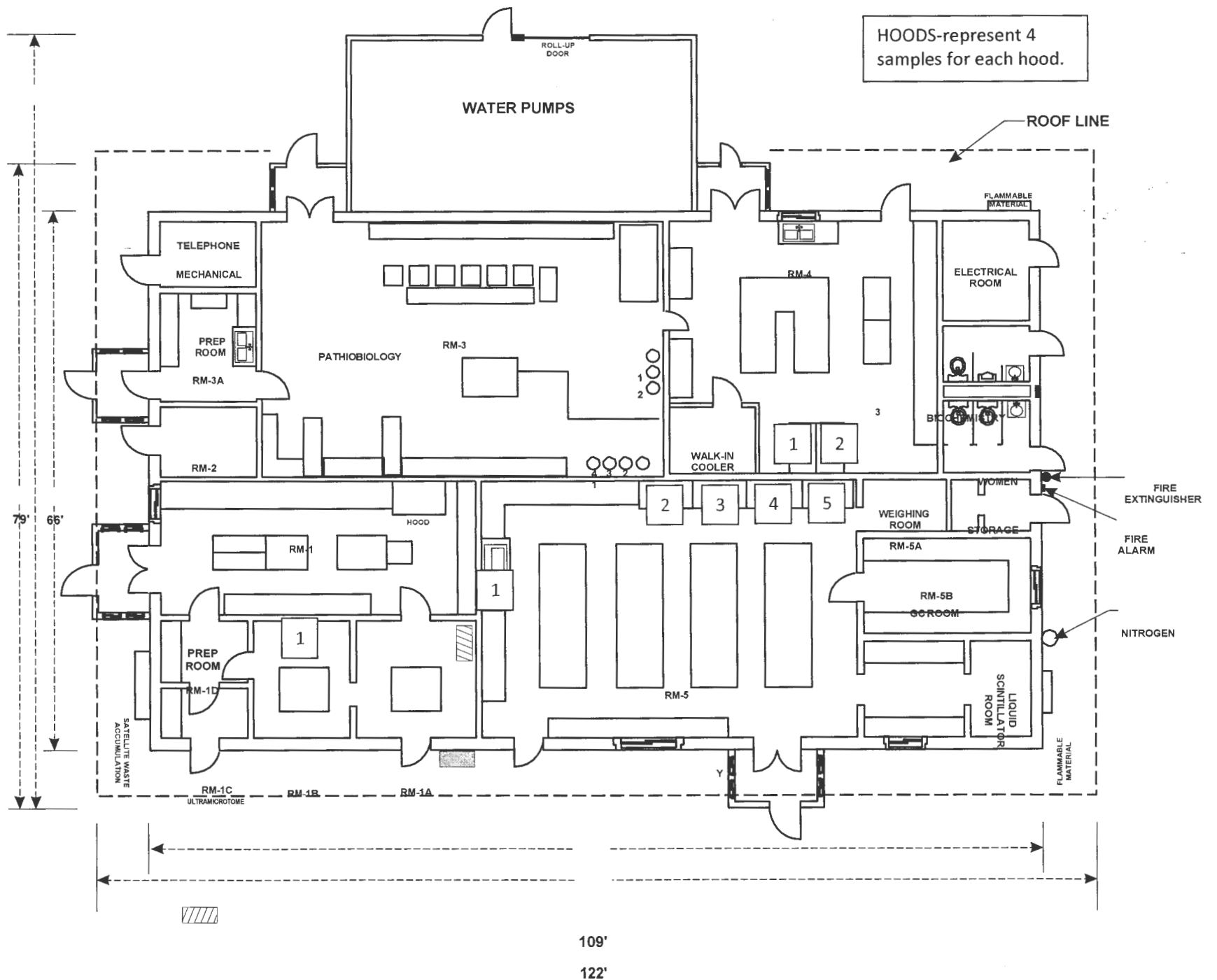
17

18

19

7/11/2011





- Switch
- Conduit

Protocol# 13 - quarterly swipe.lsa

User: Default

Assay Definition

Assay Description:

Assay Type: DPM (Dual)

Report Name: Quarterly swipes RSO

Output Data Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160720_1416

Raw Results Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160720_1416
\20160720_1416.results

Assay File Name: C:\Packard\TriCarb\Assays\quarterly swipe.lsa

Count Conditions

Nuclide: 3H-14C

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Sets:

Low Energy: 3H-UG

Mid Energy: 14C-UG

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate % Reference: Off

Background Subtract

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	12.0
B	12.0	156.0
C	0.0	0.0

Count Corrections

Static Controller: On

Luminescence Correction: n/a

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

Cycle 1 Results

S#	Count Time	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES
1	1.00	7	15	10	18	1036.94	560.05	RNA SINK 1
2	1.00	11	13	21	15	778.40	464.58	RNA A
3	1.00	14	12	28	13	1026.91	453.31	B > Hood 1
4	1.00	12	10	23	11	517.88	503.44	C
5	1.00	13	11	33	12	314.83	332.99	D SINK 1
6	1.00	12	13	27	15	840.86	349.62	RNA A
7	1.00	5	8	8	9	1068.83	546.18	B > Hood 1
8	1.00	9	17	16	20	575.39	400.93	C
9	1.00	12	7	21	8	532.99	569.85	D SINK 2
10	1.00	14	13	28	15	700.72	442.97	RNA A
11	1.00	10	13	23	15	1064.23	341.94	B > Hood 2
12	1.00	13	18	21	21	531.51	547.93	C
13	1.00	17	11	31	12	519.65	572.63	D SINK 3

14	1.00	12	9	22	10	916.76	535.64	RM5	A	> Hood 1
15	1.00	13	19	25	22	600.97	405.71		B	
16	1.00	10	13	17	15	815.23	554.94		C	
17	1.00	10	10	17	11	760.40	603.70		D	SINK 6
18	1.00	6	9	10	10	1107.11	519.38		A	> Hood 2
19	1.00	12	12	32	13	355.16	292.25		B	
20	1.00	3	13	5	15	1062.99	327.70		C	
21	1.00	12	19	19	21	672.66	604.52		D	SINK 7
22	1.00	5	11	10	13	1542.09	363.16		A	> Hood 3
23	1.00	18	13	37	14	928.01	449.84		B	
24	1.00	13	18	24	21	951.67	440.65		C	
25	1.00	12	8	21	9	776.24	621.47		D	SINK 8
26	1.00	8	10	14	11	821.23	496.05		A	> Hood 4
27	1.00	10	13	19	15	938.67	423.79		B	
28	1.00	11	10	21	11	880.25	505.77		C	
29	1.00	11	4	20	4	785.05	623.09		D	SINK 9
30	1.00	5	17	7	20	1080.86	387.54		A	> Hood 5
31	1.00	8	8	22	9	705.03	290.45		B	
32	1.00	6	11	9	13	1182.14	548.07		C	
33	1.00	8	9	13	10	993.33	581.52		D	SINK 10
34	1.00	24	41	36	48	342.87	562.19			SINK 1
35	1.00	83	109	130	125	283.22	611.44			SINK 2
36	1.00	27	30	47	33	288.20	559.07			SINK 3
37	1.00	39	50	63	57	266.43	588.69			SINK 4
38	1.00	69	124	100	144	229.96	595.90			SINK 5
39	1.00	24	47	34	55	575.19	567.01			SINK 6
40	1.00	20	10	37	11	832.41	566.48			SINK 7
41	1.00	17	19	29	21	882.49	566.18			SINK 8
42	1.00	8	13	12	15	461.38	530.91			SINK 9
43	1.00	12	10	23	11	734.85	504.41			ROOM 4 HOOD 2 & SINK 4
44	1.00	10	13	16	15	912.18	614.71			BLANK R4
45	1.00	6	14	7	17	679.18	622.48			BLANK R5

SNC Protocol

Calibration Information

Software Version IC: 2.12

Software Version EC: 3.00

Instrument Model: Tri-Carb 2900TR

Instrument Serial Number: 072384

3H Chi Square: 27.77 Date Processed: 12/10/2015 8:39:18 AM

14C Chi Square: 21.49 Date Processed: 12/10/2015 8:39:18 AM

3H E²/B (1-18.6 keV): 348.64 Date Processed: 7/20/2016 2:16:26 PM14C E²/B (4-156 keV): 640.75 Date Processed: 7/20/2016 2:16:26 PM

3H Efficiency (1-18.6 keV): 64.46 Date Processed: 7/20/2016 2:16:26 PM

14C Efficiency (4-156 keV): 93.24 Date Processed: 7/20/2016 2:16:26 PM

IPA Background Date Processed: 7/20/2016 2:16:26 PM

3H Background CPM (1-18.6 keV): 11.92 Date Processed: 7/20/2016 2:16:26 PM

14C Background CPM (4-156 keV): 13.57 Date Processed: 7/20/2016 2:16:26 PM

3H Calibration DPM: 276500

3H Reference Date: 11/10/2006

14C Calibration DPM: 130900

Follow Up Wipe Test

DBEDDLOCK KSO
7/21/16 13:30

A BLANK

B In Trap

C Out Trap ^{km} 5 Sink 5

D In Pipe

E In Trap

F Out Trap ^{km} 5 Sink 2

G In Pipe

H Sump West In

I | Lower Out

J Sump West Lower Pipe

5(2)
5(5)

Protocol# 13 - quarterly swipe.lsa

User: Default

Assay Definition

Assay Description:

Assay Type: DPM (Dual)

Report Name: Quarterly swipes RSO

Output Data Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160721_1452

Raw Results Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160721_1452\20160721_1452.results

Assay File Name: C:\Packard\TriCarb\Assays\quarterly swipe.lsa

Count Conditions

Nuclide: 3H-14C

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Sets:

Low Energy: 3H-UG

Mid Energy: 14C-UG

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate % Reference: Off

Background Subtract

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	12.0
B	12.0	156.0
C	0.0	0.0

Count Corrections

Static Controller: On

Luminescence Correction: n/a

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

Cycle 1 Results

S#	Count Time	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES
1	1.00	10	14	15	16	968.18	632.30	RMS Blank
2	1.00	154	196	243	224	161.73	604.76	RMS Sink 2
3	1.00	98	139	154	160	140.42	589.14	RMS Sink 5
4	1.00	61	67	99	76	261.04	606.25	RMS Sink 2 DUP
5	1.00	96	161	142	186	145.23	601.72	RMS Sink 5 DUP
6	1.00	9	13	13	15	1045.84	660.01	BLANK
7	1.00	28	31	46	35	462.08	605.27	RMS In to Trap
8	1.00	14	11	24	12	836.93	608.33	SINK 5 Out of Trap
9	1.00	27	44	41	51	369.99	572.49	ED Into Drain Pipe
10	1.00	17	12	29	13	689.06	611.40	RM 5 In to Trap
11	1.00	17	16	28	18	752.27	626.35	SINK 2 Out of Trap
12	1.00	21	23	35	25	361.54	609.17	HG Into Drain Pipe
13	1.00	21	12	37	13	1089.06	614.50	TH SUM IN

Protocol# 13 - quarterly swipe.lsa

User: Default

14	1.00	19	25	31	29	463.94	567.88	I	Sump West Lower Out
15	1.00	44	43	83	48	250.23	499.11	J	Sump West Lower Drain Pipe

SNC Protocol

Calibration Information

Software Version IC: 2.12

Software Version EC: 3.00

Instrument Model: Tri-Carb 2900TR

Instrument Serial Number: 072384

3H Chi Square: 27.77 Date Processed: 12/10/2015 8:39:18 AM

14C Chi Square: 21.49 Date Processed: 12/10/2015 8:39:18 AM

3H E²/B (1-18.6 keV): 343.72 Date Processed: 9/1/2016 1:50:57 PM14C E²/B (4-156 keV): 624.26 Date Processed: 9/1/2016 1:50:57 PM

3H Efficiency (1-18.6 keV): 64.45 Date Processed: 9/1/2016 1:50:57 PM

14C Efficiency (4-156 keV): 92.82 Date Processed: 9/1/2016 1:50:57 PM

IPA Background Date Processed: 9/1/2016 1:50:57 PM

3H Background CPM (1-18.6 keV): 12.08 Date Processed: 9/1/2016 1:50:57 PM

14C Background CPM (4-156 keV): 13.80 Date Processed: 9/1/2016 1:50:57 PM

3H Calibration DPM: 276500

3H Reference Date: 11/10/2006

14C Calibration DPM: 130900

10% GC samples

Protocol# 13 - quarterly swipe.lsa

User: Default

Assay Definition

Assay Description:

Assay Type: DPM (Dual)

Report Name: Quarterly swipes RSO

Output Data Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160901_1351

Raw Results Path: C:\Packard\Tricarb\Results\Default\quarterly swipe\20160901_1351\20160901_1351.results

Assay File Name: C:\Packard\TriCarb\Assays\quarterly swipe.lsa

Count Conditions

Nuclide: 3H-14C

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s

Pre-Count Delay (min): 0.00

Quench Sets:

Low Energy: 3H-UG

Mid Energy: 14C-UG

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

Repeat Sample Count: 1

#Vials/Sample: 1

Calculate % Reference: Off

Background Subtract

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	12.0
B	12.0	156.0
C	0.0	0.0

Count Corrections

Static Controller: On

Luminescence Correction: n/a

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

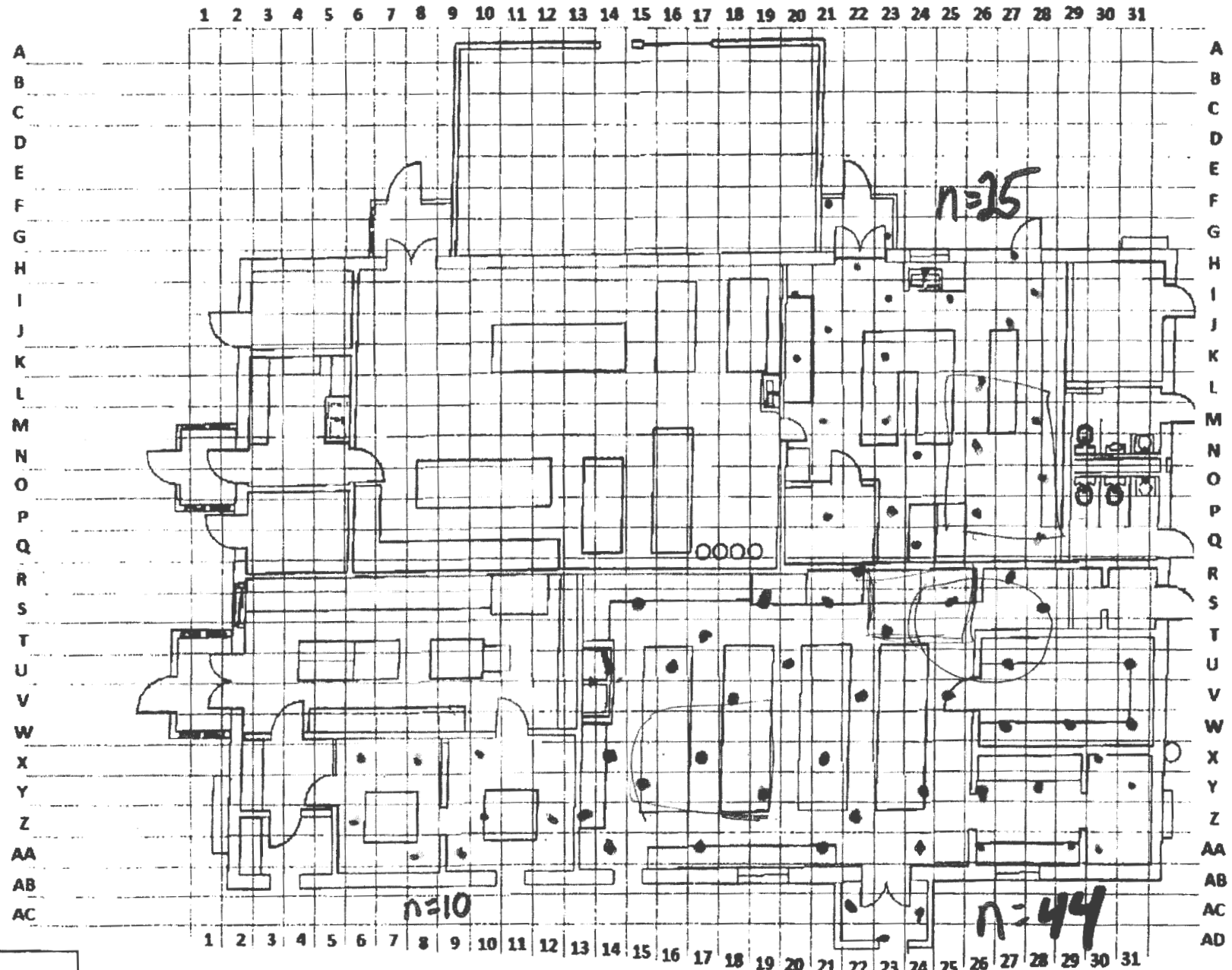
Delay Before Burst (nsec): 75

Cycle 1 Results

S#	Count Time	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES
1	1.00	11	13	17	15	821.98	645.97	Rm 5 BLANK
2	1.00	7	4	13	4	1187.39	564.09	222
3	1.00	13	20	20	23	492.02	576.98	W29
4	1.00	11	9	22	10	1297.04	480.13	S25
5	1.00	8	13	14	15	1242.38	482.75	S19
6	1.00	10	16	17	19	719.02	492.17	U14
7	1.00	14	13	25	14	476.31	556.83	U17
8	1.00	12	10	20	11	1033.94	640.11	Rm 1 BLANK
9	1.00	5	11	8	12	1725.63	556.80	X10
10	1.00	15	9	30	9	933.18	502.50	A18
11	1.00	13	14	21	16	947.52	635.96	Rm 4 BLANK
12	1.00	9	8	17	9	1022.69	509.13	H22
13	1.00	13	12	23	14	719.52	528.97	J21

A

Building 45 - Sample Site Selection



radioactive samples

QC SWIPES 9/1/16
J.L. BEDDICK, JR (KSO)

1. RM 5 BLANK
2. Z22
3. W29
4. S25
5. S19
6. U14
7. X17

8. RM | BLANK
9. X10
10. AA8 ^{AS}

11. BLANK RM4
12. H22
13. J21
14. J27
15. O28

Wipe Survey Quantification

Survey of B45 Rooms 4, 1B, & 1A

Assay Definition

Assay Description:

Assay Type: DPM (Dual)
 Report Name: Quarterly swipes RSO
 Output Data Path: C:\\Packard\\swipe\\20160601_1445\\Replay_20160816_112618
 Raw Results Path: C:\\Packard\\swipe\\20160601_1445\\20160601_1445.results
 Comma-Delimited File Name: C:\\Packard\\swipe\\20160601_1445\\Replay_20160816_112618\\Report1.txt
 Assay File Name: C:\\Packard\\swipe.lsa

Additional Data Files Generated with this Protocol:
 Quarterly swipes RSO
 \\tab\\tab [Text]\\tab Report1.txt

\\ul\\b Count Conditions
 \\ulnone\\b0
 Nuclide: 3H-14C
 Quench Indicator: tSIE/AEC
 External Std Terminator (sec): 0.5 2s%
 Pre-Count Delay (min): 0
 Quench Sets:
 Low Energy: 3H-UG
 Mid Energy: 14C-UG
 Count Time (min): 1
 Count Mode: Normal
 Assay Count Cycles: 1 Repeat Sample Count: 1
 #Vials/Sample 1 Calculate % Reference: Off

Background Subtract

Background Subtract: Off
 Low CPM Threshold: Off
 2 Sigma % Terminator Off

Regions	LL	UL
A	0	12
B	12	156
C	0	0

Count Corrections

Static Controller: On Luminescence Correction: n/a
 Colored Samples: Off Heterogeneous Monitor: n/a
 Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Cycle	1 Results								
S#	CountTime	CPMA	CPMB	DPM1	DPM2	SIS	tsIE	MESSAGES	
1	1	9	18	12	21	792.28	628.77	BLANK RM1	
2	1	12	11	22	12	461.64	525.56	F21	
3	1	4	8	6	9	1617.7	475.84	G23	
4	1	12	10	24	11	1015.76	469.7	H22	
5	1	12	12	20	13	842.69	605.06	I23	
6	1	14	12	26	13	822.05	516.07	I25	
7	1	12	17	26	19	417.86	361.68	H27	
8	1	12	12	21	14	888.89	532.24	I28	
9	1	14	17	25	19	820.05	484.76	J27	
10	1	17	19	29	21	438.46	572.28	L26	
11	1	19	16	31	18	843.04	624.16	K23	
12	1	13	11	25	12	738.64	502.88	J21	
13	1	17	6	31	6	1341.82	621.93	I20	
14	1	16	12	27	13	802.57	643.76	K20	
15	1	13	11	24	12	702.41	523.15	M21	
16	1	13	7	30	7	959.07	405.72	P21	
17	1	19	10	35	10	670.52	606.25	M23	
18	1	12	13	21	15	891.71	541.57	N24	
19	1	16	9	29	9	596.26	578.63	N26	
20	1	10	8	28	9	922.78	302.71	P23	
21	1	16	9	31	9	489.83	526.06	Q24	
22	1	13	12	23	13	1084.3	534.31	P26	
23	1	11	17	17	20	862.86	570.78	Q28	
24	1	9	14	14	16	457.71	600.57	O28	
25	1	17	13	30	14	861.92	584.97	M28	
26	1	12	9	20	10	1073.48	632.86	BLANK RM1B	
27	1	13	6	33	6	804.35	349.5	X6	
28	1	14	13	27	14	723.65	492.31	X8	
29	1	11	10	20	11	851.11	528.99	Z6	
30	1	18	13	34	14	767.12	520.79	AA8	
31	1	8	14	11	16	671.19	626.34	BLANK RM1A	
32	1	9	12	14	14	1440.83	576.64	X10	
33	1	10	13	16	15	915.24	591.31	Z10	
34	1	16	11	28	12	782.05	606.87	AA9	
35	1	9	16	13	19	864.37	571.87	Z12	

}

Wipe Survey Quantification

Survey of B45 Room 5

Assay Definition

Assay Description:

Assay Type: DPM (Dual)
 Report Name: Quarterly swipes RSO
 Output Data Path: C:\\Packard\\swipe\\20160603_1111\\Replay_20160816_112515
 Raw Results Path: C:\\Packard\\swipe\\20160603_1111\\20160603_1111.results
 Comma-Delimited File Name: C:\\Packard\\swipe\\20160603_1111\\Replay_20160816_112515\\Report1.csv
 Assay File Name: C:\\Packard\\swipe.lsa

Additional Data Files Generated with this Protocol:
 Quarterly swipes RSO
 [Excel]\\tab Report1.csv

Count Conditions

Nuclide: 3H-14C
 Quench Indicator: tSIE/AEC
 External Std Terminator(sec): 0.5 2s%
 Pre-Count Delay (min): 0
 Quench Sets:
 Low Energy: 3H-UG
 Mid Energy: 14C-UG
 Count Time (min): 1
 Count Mode: Normal
 Assay Count Cycles: 1 Repeat Sample Count: 1
 #Vials/Sam 1 Calculate % Reference: Off

Background Subtract

Background Subtract: Off
 Low CPM Threshold: Off
 2 Sigma % Terminator Off

Regions	LL	UL
A	0	12
B	12	156
C	0	0

Count Corrections

Static Controller: On Luminescence Correction n/a
 Colored Samples: Off Heterogeneous Monitor: n/a
 Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Cycle S#	1 Results CountTime	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES
1	1	13	14	21	16	472.36	633.39	BLANK 5A
2	1	11	12	18	14	651.83	584.73	AA30
3	1	16	7	28	7	1030.62	628.8	Y31
4	1	12	8	21	9	673.09	619.84	X30
5	1	13	12	21	13	565.95	631.08	AA29
6	1	10	10	16	11	550.54	633.13	AA26
7	1	14	11	25	12	676.41	600.37	Y26
8	1	15	18	25	20	344.39	588.6	Y28
9	1	16	14	27	16	907.8	567.48	AA24
10	1	11	10	28	11	772.65	323.89	AC24
11	1	10	8	20	9	1317.5	441.59	AD23
12	1	12	10	28	11	1009.2	350.16	AC22
13	1	14	12	23	13	747.04	638.47	Y24
14	1	11	5	20	5	1662.36	612.37	W27
15	1	16	11	28	12	830.87	615.39	W29
16	1	11	9	18	10	1363.53	615.92	W31
17	1	15	7	27	7	1140.93	604.17	U31
18	1	10	8	18	9	723.05	586.55	U27
19	1	14	16	23	18	1147.39	569.72	V25
20	1	7	11	12	13	669.81	483.62	S28
21	1	7	9	15	10	1216.72	360.14	R27
22	1	4	12	6	14	1278.57	391.32	S25
23	1	8	21	10	25	878.85	587.74	T23
24	1	9	9	21	10	1158.27	349.54	R22
25	1	7	8	11	9	1098.41	630.31	BLANK 5B
26	1	9	13	17	15	611.77	450.79	S21
27	1	8	12	14	14	944.24	482.72	S19
28	1	10	8	17	9	1067.33	596.12	T17
29	1	9	12	16	14	416.31	508.11	S15
30	1	8	11	13	13	1209.68	593.33	V22
31	1	8	6	14	7	1443.89	596.79	X21
32	1	14	11	25	12	767.4	552.19	Z22
33	1	10	16	15	19	972.54	626.91	AA21
34	1	13	19	21	22	951.66	562.52	U20
35	1	19	17	33	18	655.54	597.84	Y19
36	1	14	13	22	15	689.12	610.51	AA17
37	1	6	14	8	16	885.51	579.8	V18
38	1	14	11	25	12	852.96	577.66	X17
39	1	10	6	18	6	830.79	604.39	U16

40	1	11	13	18	14	507.34	607.64	Y15
41	1	11	11	19	12	895.27	591.04	AA14
42	1	10	10	17	11	1291.12	600.87	Z13
43	1	12	12	22	13	1025.3	554.24	X14
44	1	11	16	21	18	575.68	428.88	V14

}

Wipe Survey Quantification

Sinks and Hoods of B45

Assay Definition

Assay Description:

Assay Type: DPM (Dual)
 Report Name: Quarterly swipes RSO
 Output Data Path: C:\\Packard\\swipe\\20160720_1416\\Replay_20160816_111955
 Raw Results Path: C:\\Packard\\swipe\\20160720_1416\\20160720_1416.results
 Comma-Delimited File Name: C:\\Packard\\swipe\\20160720_1416\\Replay_20160816_111955\\07.20.16.txt
 Assay File Name: C:\\Packard\\swipe.lsa

Additional Data Files Generated with this Protocol:

Quarterly swipes RSO

[Text]\\tab 07.20.16.txt

Count Conditions

Nuclide: 3H-14C
 Quench Indicator: tSIE/AEC
 External Std Terminator (sec): 0.5 2s%
 Pre-Count Delay (min): 0
 Quench Sets:
 Low Energy: 3H-UG
 Mid Energy: 14C-UG
 Count Time (min): 1
 Count Mode: Normal
 Assay Count Cycles: 1 Repeat Sample Count: 1
 #Vials/Sam 1 Calculate % Reference: Off

Background Subtract

Background Subtract: Off
 Low CPM Threshold: Off
 2 Sigma % Terminator Off

Regions	LL	UL
A	0	12
B	12	156
C	0	0

Count Corrections

Static Controller: On Luminescence Correction: n/a
 Colored Samples: Off Heterogeneous Monitor: n/a
 Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Cycle	1 Results								
S#	Count	Time	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES
1	1		7	15	10	18	1036.94	560.05	Sink 1 Room 1A
2	1		11	13	21	15	778.4	464.58	Hood 1 A

3	1	14	12	28	13	1026.91	453.31	Hood 1	Room 1B	B
4	1	12	10	23	11	517.88	503.44	Hood 1		C
5	1	13	11	33	12	314.83	332.99	Sink 1		D
6	1	12	13	27	15	840.86	349.62	Hood 1	Room 4	A
7	1	5	8	8	9	1068.83	546.18	Hood 1		B
8	1	9	17	16	20	575.39	400.93	Hood 1		C
9	1	12	7	21	8	532.99	569.85	Sink 2	Room 4	D
10	1	14	13	28	15	700.72	442.97	Hood 2		A
11	1	10	13	23	15	1064.23	341.94	Hood 2		B
12	1	13	18	21	21	531.51	547.93	Hood 2	Room 5	C
13	1	17	11	31	12	519.65	572.63	Sink 3		D
14	1	12	9	22	10	916.76	535.64	Hood 1		A
15	1	13	19	25	22	600.97	405.71	Hood 1	Room 5	B
16	1	10	13	17	15	815.23	554.94	Hood 1		C
17	1	10	10	17	11	760.4	603.7	Sink 6		D
18	1	6	9	10	10	1107.11	519.38	Hood 2	Room 5	A
19	1	12	12	32	13	355.16	292.25	Hood 2		B
20	1	3	13	5	15	1062.99	327.7	Hood 2		C
21	1	12	19	19	21	672.66	604.52	Sink 7	Room 5	D
22	1	5	11	10	13	1542.09	363.16	Hood 3		A
23	1	18	13	37	14	928.01	449.84	Hood 3		B
24	1	13	18	24	21	951.67	440.65	Hood 3	Room 5	C
25	1	12	8	21	9	776.24	621.47	Sink 8		D
26	1	8	10	14	11	821.23	496.05	Hood 4		A
27	1	10	13	19	15	938.67	423.79	Hood 4	Room 5	B
28	1	11	10	21	11	880.25	505.77	Hood 4		C
29	1	11	4	20	4	785.05	623.09	Sink 9		D
30	1	5	17	7	20	1080.86	387.54	Hood 5	Room 5	A
31	1	8	8	22	9	705.03	290.45	Hood 5		B
32	1	6	11	9	13	1182.14	548.07	Hood 5		C
33	1	8	9	13	10	993.33	581.52	Sink 10	Room 5	D
34	1	24	41	36	48	342.87	562.19	Sink 1		
35	1	83	109	130	125	283.22	611.44	Sink 2		
36	1	27	30	47	33	288.2	559.07	Sink 3	Room 5	
37	1	39	50	63	57	266.43	588.69	Sink 4		
38	1	69	124	100	144	229.96	595.9	Sink 5		
39	1	24	47	34	55	575.19	567.01	Sink 6	Room 5	
40	1	20	10	37	11	832.41	566.48	Sink 7		
41	1	17	19	29	21	882.49	566.18	Sink 8		
42	1	8	13	12	15	461.38	530.91	Sink 9	Room 4	
43	1	12	10	23	11	734.85	504.41	Hood 2		D
44	1	10	13	16	15	912.18	614.71	Blank		R4
45	1	6	14	7	17	679.18	622.48	Blank	R5	

Wipe Survey Quantification

Resurvey of Sink 2 & Sink 5 Test of adjacent areas to Sink 2 & 5

Assay Definition

Assay Description:

Assay Type: DPM (Dual)
 Report Name: Quarterly swipes RSO
 Output Data Path: C:\Packarc swipe\20160721_1452\Replay_20160816_112253
 Raw Results Path: C:\Packarc swipe\20160721_1452\20160721_1452.results
 Comma-De File Name: C:\Packarc swipe\20160721_1452\Replay_20160816_112253\Report1.csv
 Assay File Name: C:\Packarc swipe.lsa

Additional Data Files Generated with this Protocol:
 Quarterly swipes RSO
 [Excel]\tab Report1.csv

Count Conditions

Nuclide: 3H-14C
 Quench Indicator: tSIE/AEC
 External Std Terminator (sec): 0.5 2s%
 Pre-Count Delay (min): 0
 Quench Sets:
 Low Energy: 3H-UG
 Mid Energy: 14C-UG
 Count Time (min): 1
 Count Mode: Normal
 Assay Count Cycles: 1 Repeat Sample Count: 1
 #Vials/Sam 1 Calculate % Reference: Off

Background Subtract

Background Subtract: Off
 Low CPM Threshold: Off
 2 Sigma % Terminator Off

Regions	LL	UL
A	0	12
B	12	156
C	0	0

Count Corrections

Static Controller: On Luminescence Correction: n/a
 Colored Samples: Off Heterogeneous Monitor: n/a
 Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Cycle	1 Results								MESSAGES	
S#	Count	Time	CPMA	CPMB	DPM1	DPM2	SIS	tSIE		
1	1		10		14	15	16	968.18	632.3	Blank
2	1		154		196	243	224	161.73	604.76	Sink 2
3	1		98		139	154	160	140.42	589.14	Sink 5
4	1		61		67	99	76	261.04	606.25	Sink 2 DUP
5	1		96		161	142	186	145.23	601.72	Sink 5 DUP
6	1		9		13	13	15	1045.84	660.01	Blank
7	1		28		31	46	35	462.08	605.27	In Trap
8	1		14		11	24	12	836.93	608.33	Out Trap
9	1		27		44	41	51	369.99	572.49	In Pipe
10	1		17		12	29	13	689.06	611.4	In Trap
11	1		17		16	28	18	752.27	626.35	Out Trap
12	1		21		23	35	25	361.54	609.17	In Pipe
13	1		21		12	37	13	1089.06	614.5	Sump West
14	1		19		25	31	29	463.94	567.88	Sump West
15	1		44		43	83	48	250.23	499.11	Sump West

}

Wipe Survey Quantification

Resampling of 10% of smear samples for QC.

Assay Definition

Assay Description:

Assay	Type:	DPM	(Dual)
Report	Name:	Quarterly swipes	RSO
Output	Data	Path:	C:\\Packard\\swipe\\20160901_1351\\Replay_20160927_082647
Raw	Results	Path:	C:\\Packard\\swipe\\20160901_1351\\20160901_1351.results
Comma-Delimited File	Name:	C:\\Packard\\swipe\\20160901_1351\\Replay_20160927_082647\\QCswipes.txt	
Assay	File	Name:	C:\\Packard\\swipe.lsa

Additional Data	Files	Generated with	this	Protocol:
Quarterly swipes	RSO			
\\tab\\tab [Text]\\tab	QCswipes.txt			

Count Conditions

Nuclide:	3H-14C				
Quench Indicator:	tSIE/AEC				
External Std	Terminator (sec):	0.5	2s%		
Pre-Count Delay	(min):	0			
Quench Sets:					
Low Energy:	3H-UG				
Mid Energy:	14C-UG				
Count Time	(min):	1			
Count Mode:	Normal				
Assay Count	Cycles:	1 Repeat	Sample	Count:	1
#Vials/Sam	1 Calculate %	Reference: Off			

Background Subtract

Background Subtract:	Off
Low CPM	Threshold: Off
2 Sigma	% Terminator: Off

Regions	LL	UL
A	0	12
B	12	156
C	0	0

Count Corrections

Static	Controller:	On	Luminescence Correction:	n/a
Colored	Samples:	Off	Heterogeneous Monitor:	n/a
Coincidence Time	(nsec):	18 Delay	Before Burst	(nsec): 75

Cycle 1 Results

S#	CountTime	CPMA	CPMB	DPM1	DPM2	SIS	tSIE	MESSAGES	
1	1	11	13	17	15	821.98	645.97	BLANK, RM5	
2	1	7	4	13	4	1187.39	564.09	Z22	
3	1	13	20	20	23	492.02	576.98	W29	
4	1	11	9	22	10	1297.04	480.13	S25	RM 5
5	1	8	13	14	15	1242.38	482.75	S19	
6	1	10	16	17	19	719.02	492.17	U14	
7	1	14	13	25	14	476.31	556.83	X17	
8	1	12	10	20	11	1033.94	640.11	BLANK, RM1	
9	1	5	11	8	12	1725.63	556.8	X10	RM 1
10	1	15	9	30	9	933.18	502.5	AA8	
11	1	13	14	21	16	947.52	635.96	BLANK, RM4	
12	1	9	8	17	9	1022.69	509.13	H22	
13	1	13	12	23	14	719.52	528.97	J21	RM 4
14	1	12	16	20	18	971.04	554.44	J27	
15	1	5	14	7	16	760.36	511.1	O28	

}



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL HEALTH AND ENVIRONMENTAL EFFECTS
RESEARCH LABORATORY
GULF ECOLOGY DIVISION
1 SABINE ISLAND DRIVE • GULF BREEZE, FL 32561-5299
850-934-9200

Attachment E

August 9, 2016

OFFICE OF
RESEARCH AND DEVELOPMENT

NRC License No. 09-10672-02

Betsy Ullrich, MS, CHP
Division of Nuclear Material Safety
U. S. Nuclear Regulatory Commission
Region 1
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

SUBJECT: Removal of BLDG 45 from NRC license no. 09-10672-02

We are requesting approval of a survey plan to have Building 45 removed from our NRC license and be released for unrestricted use. Once the survey is completed, we will submit an amendment request to remove Building 45 from our NRC license. Although the Agency, the U.S.E.P.A., will retain possession of the facility to be used for contractor support and field staging activities.

SITE IDENTIFICATION - Building 45 is located at 1 Sabine Island Drive, Gulf Breeze, FL, 32561. The Building is located on an island which is owned and operated by U.S.E.P.A. Gulf Ecology Division.

SITE HISTORY - The US EPA's Gulf Ecology Division (GED) located in Gulf Breeze, Florida houses both wet and dry laboratories for aquatic research in the Gulf of Mexico. The Gulf Ecology Division's mission is to conduct ecological effects research to assess sustainability of estuarine and coastal systems, determine factors causing impacts to degraded or declining systems, predict future risks to populations and ecosystems, and support development of criteria to protect ecosystems near the Gulf of Mexico and within the southeastern United States. GED Laboratory staff activities typically involve field trips to collect samples and monitor ecological parameters, computer-based modeling, and laboratory work - both chemical and biological.

Historically, GED conducted some research using radioactive materials in BLDG 45 and continues to conduct research in other laboratories and buildings on-site. GED's research directives no longer require the use of radioactive material in BLDG 45 and will not have the need for radioactive material in the future in that location. Therefore, GED intends to decommission BLDG 45 and have it removed from

the current Nuclear Regulatory (NRC) license, in accordance with NRC Guidance in the support documentation included with this request you will find an Excel file, Rad_Mat_used_at_GED_BLDG_45. This is a synopsis of the radioactive materials used in BLDG 45 until the present. As of this date, no radioactive materials are either stored or in use at the BLDG 45. All radioactive materials are currently used in BLDG 49. There has never been a spill of radioactive material in this building.

The GED is located on a site of approximately 16 acres on Sabine Island. The island is situated in the Santa Rosa Sound off the northern end of Pensacola Beach, the facility was first constructed in the early 1900s. The facility has been substantially modified over the years, with additional buildings and laboratories built during EPA's time on the island.

The GED-Laboratory campus is an EPA-owned and managed facility, with maintenance provided by an on-site operations and maintenance contractor. The primary structure is a main Office Building, which houses scientific, administrative and support staff, laboratories, a water tempering facility, greenhouse and storage space. Other structures include the Support Services Building, containing various workshops, a fitness facility, and wet/analytical laboratories; the marine ecology laboratory and stockroom; multiple office buildings; library; security; the Field Operations Building and boat dock which includes storage for boats; four piers and associated Pump House that provides sea water to the laboratory; and the Hazardous Materials Building containing segregated waste and bulk storage of chemicals.

SURVEY - It was decided to complete a multi-approach survey of BLDG 45. For the actual survey, the interior of the building, to be evaluated, was divided into 306 grids approximately 1 meter grid, not accounting for walls. Please see the attached Building45 radioisotope attachment. The exterior dimension of the building is 109' X 79'. Two portable instruments will be used to conduct the interior scans, a Ludlum model 2401-P (s/n 184209) calibrated March 17, 2016, and a Ludlum Model 3 (s/n 42138) GM counter with a model 44-9 pancake probe (s/n PR164550) calibrated on December 22, 2015. We have a Perkin Elmer Tri-carb 2900TR Liquid Scintillation Counter (s/n DG03072384) calibrated on December 10, 2015. This instrument will be used for the wipe samples.

GM scans will be made in each grid scanning at a rate of approximately one grid a minute at approximately ½" from the surface.


In addition to the scans, 75-100 cm² wipe samples will be taken in randomly chosen grids and counted for two minutes each on a Perkin Elmer Tri-carb 2900TR Liquid Scintillation Counter liquid scintillation counter. Additionally, 100 cm² wipe samples will be taken in the exhaust duct, the surface, and the underneath cabinet for each hood. There are eight (8) hoods in the associated area, representing 24-wipe samples. Also, 100 cm² wipe samples will be taken for each drain. There are 19 drains, representing 19-100 cm² wipe samples. In addition to these, we will wipe an exhaust in RM 1A and a storage cabinet in RM 4. The counter will be standardized daily. Blank samples and unquenched standards will be counted with each set of samples.

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Ms. Betsy Ullrich
August 9, 2016

After the completion of the initial survey an additional survey of 12 randomly selected areas will be performed. This is approximately 10% of all the areas surveyed. The field data sheet, grid, and accompanying LSC results will be included on the disk so that the process can be seen.

ANALYSIS OF SURVEY RESULTS – Survey results will be packaged in a spreadsheet by room number and reported after the final tabulation.

Please contact me at 850-934-9424 or raimondo.sandy@epa.gov if you have any questions or require further information.

A handwritten signature in black ink, appearing to read "Sandy Raimondo". The signature is fluid and cursive, with the first name "Sandy" and last name "Raimondo" clearly distinguishable.

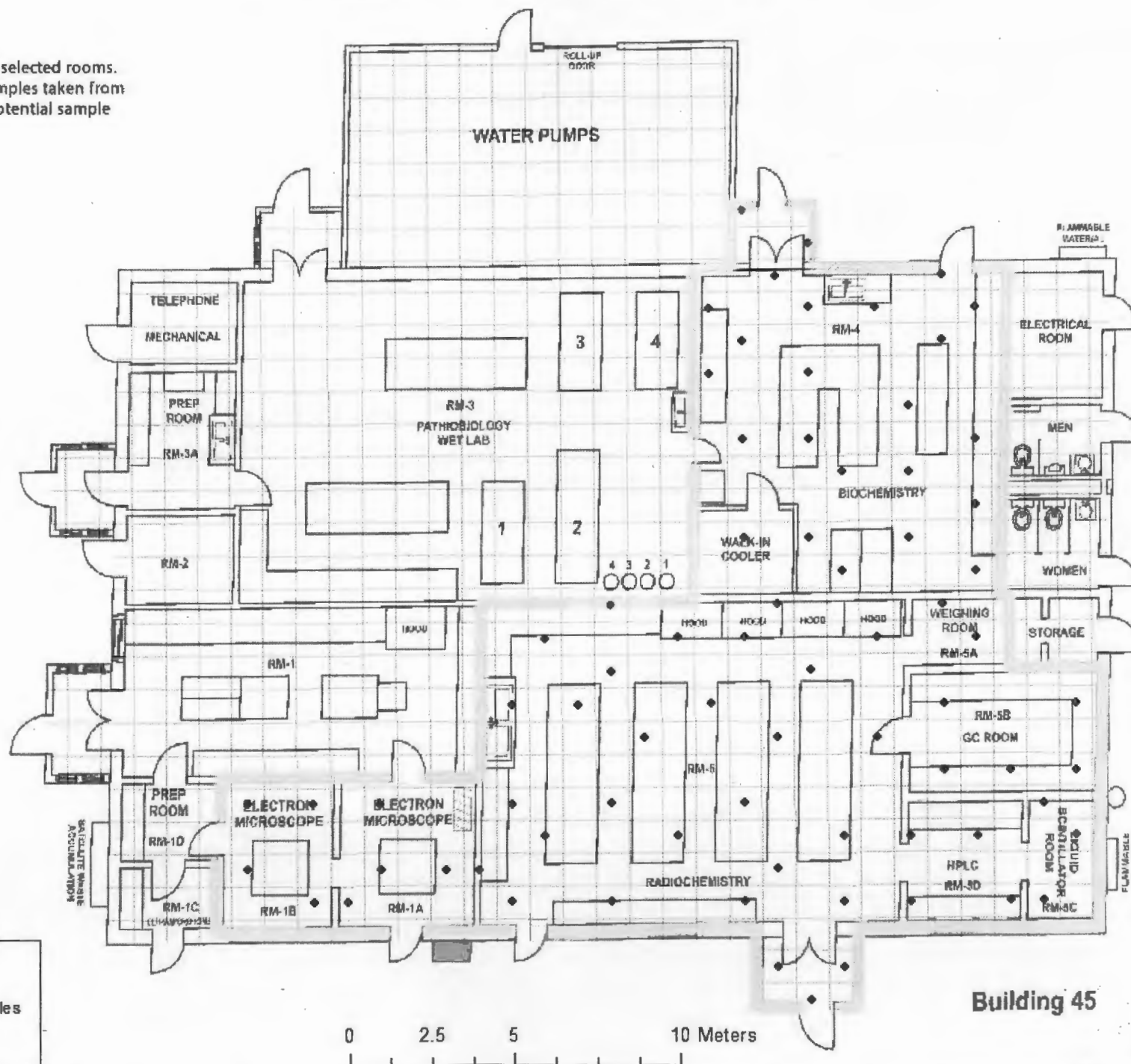
Sandy Raimondo, Ph.D.
Acting Division Director
USEPA/ORD/NHEERL/GED
1 Sabine Island Drive
Gulf Breeze, FL 32561

Radioactive Materials Used at Gulf Breeze EPA ORD Lab BLDG 45

Date	Isotope/Form	Area Used							
		RM1A	RM1B	RM4	RM5	RM5A	RM5B	RM5C	RM5D
Since 1985	H-3/liq		X	X	X	X		X	X
	C-14/liq		X		X	X		X	X
	Ni-63/ECD foil						X	X	X
	S-35/liq		X		X	X		X	X
	Uranyl Acetate/liq	X	X						

Building 45 - Sample Site Selection

Radioisotope sample in selected rooms.
75 random stratified samples taken from
1 meter grid with 306 potential sample
sites.



Radioactive Materials Used at Gulf Breeze EPA ORD Lab BLDG 45

Date	Isotope/Form	Area Used							
		RM1A	RM1B	RM4	RM5	RM5A	RM5B	RM5C	RM5D
Since 1985	H-3/liq		X	X	X	X		X	X
	C-14/liq		X		X	X		X	X
	Ni-63/ECD foil						X	X	X
	S-35/liq		X		X	X		X	X
	Uranyl Acetate/liq	X	X						