

August 1, 2015

United States Nuclear Regulatory Commission
Region 1, DNMS
2100 Renaissance Blvd.
King of Prussia, PA 19406

Br. 2

License # 06-30460-01

03034773

Gentlemen:

Ambios Labs, Inc. requests the termination of all activities involving radioactive materials under this license. Enclosed is the decommissioning survey documentation to support the unrestricted release of equipment and the facility.

I request an expedited review of this submission. Please contact me by phone at 860-953-0897 or Jim Fomenko at 860-589-8432, or by e-mail: ambioslabs@ambioslabs.com if you require further information.

Sincerely,



Victor Sidorov, Ph.D., CEO
Ambios Labs, Inc.
Newington Office and Conference Center
705 North Mountain Road, Room C-115A
Newington, CT 06111

20150801 10:53:01 AM

588476

NMSS/RGN1 MATERIALC-002

Final Decommissionary Survey Report
for Ambios Labs, Inc.
(8/1/2015)

Ambios Labs, Inc., room C-115A is an approximate 600 sq. ft. rented facility located on the ground floor of a two story commercial office complex. Tritium was the only radionuclide used at the facility. Tritium was used in the manufacturing of custom labeled tritium labeled compounds. The tritium was primarily used in the two fume hoods shown on the attached floor plan. Tritium was used on bench surfaces that were covered with plastic backed absorbent paper. Tritium was not used/stored in the office area.

Attached is:

- 1) "Lab Decommissioning Swipe Survey Locations" floor plan
- 2) "Ambios Lab Numbered Key" that provides additional detailed information on the items/areas that were swipe surveyed and the
- 3) Swipe survey results using a liquid scintillation counter following decontamination efforts.

Tritium efficiency was calculated as follows:

Tritium standard:

255,500 dpm on 5/7/1982

Decay corrected to 39,431 dpm on 7/24/2015

Standard counted in the LSC = 22,398 cpm (sample #87)

Average Background = $(131 + 112 + 119)/3 = 121$ cpm

Standard = $22,398 - 121 = 22,277$ net cpm

Tritium LSC counter efficiency = $22,277/39,431 = 0.56$ cts./dis. Or 56%

The critical count for determining if a wipe contains radioactivity is:

$$CC = 2.32 * \text{SQRT}(B) + B$$

Where B = the background count in 1 minute

$$CC = (2.32)(11) + 121 = 147 \text{ cpm}$$

The minimum detectable removable activity on a wipe test is:

$$MDC = \frac{3 + 4.65 * \text{SQRT}(B)}{T * Et * A} = \text{dpm/cm}^2$$

Where: T = count time = 1 min

Et = tritium efficiency = 0.56 cts./dis.

A = wipe test area = 100 cm²

$$MDC (\text{tritium}) = 0.97 \text{ dpm/cm}^2$$

NRC Regulatory Guide 8.23, Radiation Safety Surveys at Medical Institutions was used for determining acceptable contamination levels for unrestricted release of equipment and areas. The recommended

action level for removable surface contamination, from Table 2, for release of unrestricted areas is <2,200 dpm/100cm². The removable surface contamination limit for equipment, from Table 3, for release to unrestricted areas is < 1,000 dpm/100 cm².

The highest survey result of 422 cpm was for a sink trap (swipe #70). The average background was 121 cpm. Therefore:

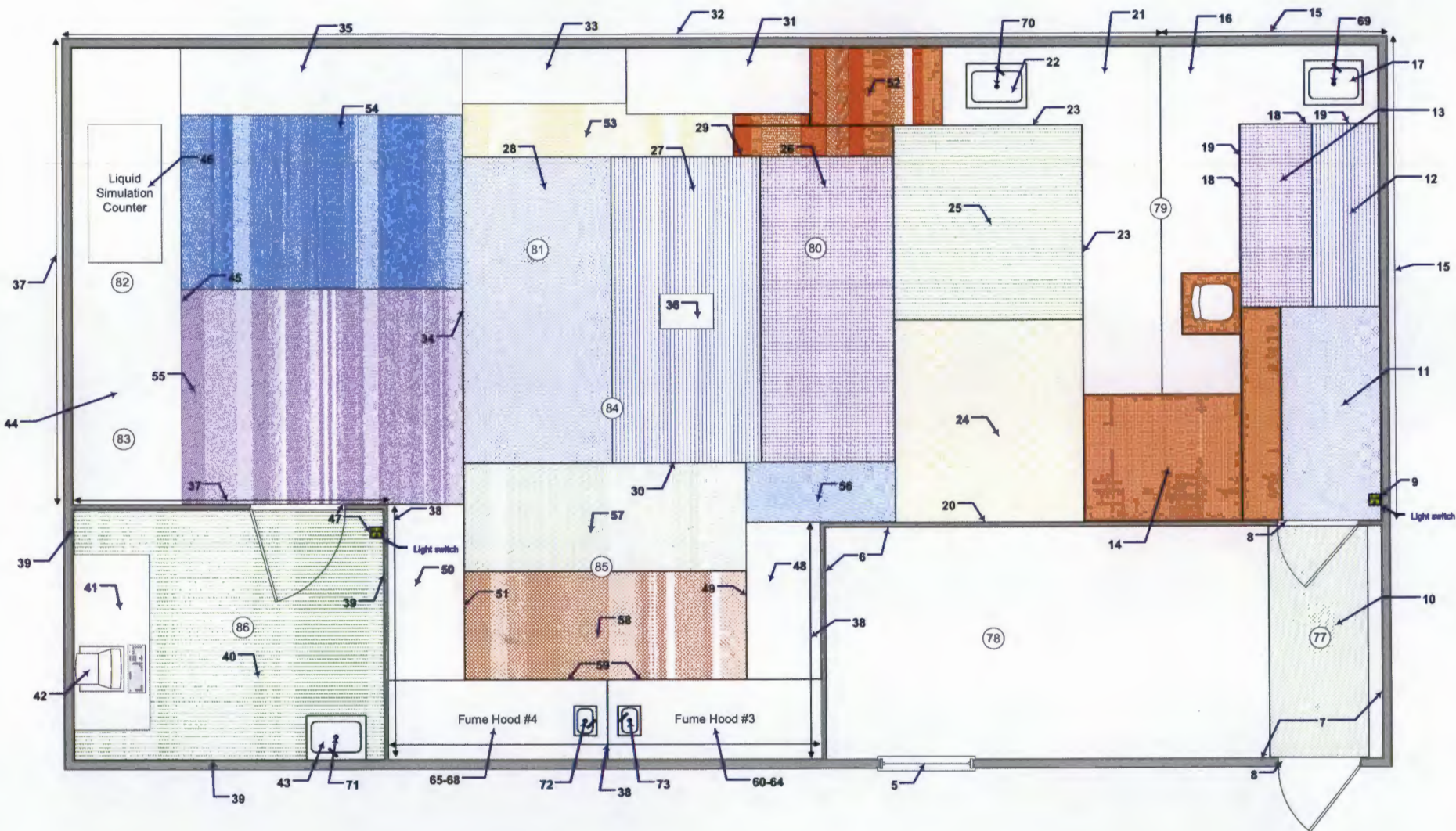
$$\text{Sink trap} = \frac{(422 \text{ cpm}) - (121 \text{ cpm})}{\left(0.56 \frac{\text{counts}}{\text{disintegration}}\right)} = 538 \text{ dpm}/100 \text{ cm}^2$$

And all items/areas < 1,000 dpm/100 cm² release limit.

All radioactive materials, other than the LSC unit, have been removed from the facility.



Victor Sidorov, Ph.D., CEO
Ambios Labs, Inc.



Lab Decommissioning
Swipe Survey Locations

Facility: **Ambios Labs, Inc.**
Newington Office and Conference Center
705 North Mountain Rd, Room C-115A
Newington, CT 06111

Surveyed by: **Jim Fomenko, C.H.P.**
 Date of survey: **Saturday, July 18, 2015**

GROUND FLOOR

Page 1 of 1
 DRAWING NOT TO SCALE

Ambios Lab Numbered Key

- | | | |
|---|---|--|
| 1. Interior duct fume hood 4 (on roof) | 25. Floor | 47. Door, door handle, and light switch |
| 2. Interior duct fume hood 3 (on roof) | 26. Bench | 48. Surface of table |
| 3. Exterior AC unit (on roof) | 27. Bench | 49. Interior and exterior of cabinetry |
| 4. Interior duct fume hood 3 (on roof) | 28. Bench | 50. Surface of table |
| 5. Office Window and Wall | 29. Exterior and interior of cabinetry | 51. Interior and exterior of cabinetry |
| 6. Wall | 30. Exterior and interior of cabinetry | 52. Floor |
| 7. Wall | 31. Exterior and interior of cabinetry | 53. Floor |
| 8. Door handles | 32. Wall | 54. Floor |
| 9. Light switch | 33. Interior and Exterior of table | 55. Floor |
| 10. Rug | 34. Interior and Exterior of cabinetry | 56. Floor |
| 11. Floor | 35. Interior and Exterior of bench/table | 57. Floor |
| 12. Floor | 36. Interior duct | 58. Floor |
| 13. Floor | 37. Wall | 59. Interior and exterior of Fume Hood cabinetry |
| 14. Floor | 38. Wall | 60. Fume Hood 3 Exterior, Sill and Exterior of glass |
| 15. Wall | 39. Wall | 61. Fume Hood 3 bench surface |
| 16. Countertop | 40. Floor | 62. Fume Hood 3 cup sink |
| 17. Inside of sink basin | 41. Exterior and Interior of bench/table | 63. Fume Hood 3 interior wall surface |
| 18. Exterior Surface of cabinetry (handles) | 42. Packard Top Count NXT (Interior and Exterior) | 64. Fume Hood 3 interior of glass |
| 19. Interior Surface of cabinetry | 43. Inside of sink | 65. Fume Hood 4 exterior (including glass) and sill |
| 20. Wall | 44. Surface of counter | 66. Fume Hood 4 bench surface |
| 21. Countertop | 45. Interior and Exterior of cabinetry | 67. Fume Hood 4 cup sink |
| 22. Inside of sink | 46. Liquid Scintillation Counter Tri-Carb 1600 TR (interior and exterior) | 68. Fume Hood 4 interior wall surface and glass |

69. Sink trap
70. Sink trap
71. Sink trap
72. Sink trap (fume hood 3)
73. Sink trap (fume hood 4)
74. Background (Cotton tipped applicators)
75. Background (Cotton tipped applicators)
76. Background (Cotton tipped applicator)
77. Air inlet
78. Air inlet
79. Air inlet
80. Air inlet
81. Air inlet
82. Air inlet
83. Air inlet
84. Air inlet
85. Air inlet
86. Air inlet
87. Tritium standard

Ambios Labs, Inc. Swipe Survey Results

Assay Definition

Assay Description:
Decommissioning surveys
Assay Type: CPM
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\
Raw Results Path: C:\Packard\Tricarb\Results\RS\DECOM\20150724_1648\20150724_1648.results
Assay File Name: C:\Packard\TriCarb\Assays\DECOM.lsa

Count Conditions

Nuclide: Decom
Quench Indicator: tSIE
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set: n/a
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	18.6

Count Corrections

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

Cycle 1 Results

S#	Count Time	CPMA	MESSAGES	tSIE
1	1.00	191		250.92
2	1.00	220		307.34
3	1.00	175		261.53
4	1.00	285		300.87
5	1.00	99		274.03
6	1.00	109		338.03
7	1.00	138		331.66
8	1.00	166		311.39
9	1.00	151		305.80
10	1.00	173		308.70
11	1.00	114		264.06
12	1.00	178		343.51
13	1.00	144		342.82
14	1.00	180		320.28
15	1.00	157		312.82
16	1.00	114		334.15

Protocol# 3 - DECOM.lsa

17	1.00	137	304.20
18	1.00	210	301.65
19	1.00	109	336.50
20	1.00	235	308.44
21	1.00	63	285.19
22	1.00	158	333.62
23	1.00	139	332.25
24	1.00	163	286.76
25	1.00	139	295.16
26	1.00	154	339.33
27	1.00	161	354.37
28	1.00	157	354.21
29	1.00	121	345.26
30	1.00	97	341.33
31	1.00	143	342.28
32	1.00	149	363.32
33	1.00	199	296.88
34	1.00	262	317.51
35	1.00	170	323.96
36	1.00	130	342.43
37	1.00	169	341.69
38	1.00	177	357.52
39	1.00	171	263.71
40	1.00	181	326.65
41	1.00	111	346.48
42	1.00	100	345.48
43	1.00	249	298.81
44	1.00	172	305.46
45	1.00	115	330.88
46	1.00	125	407.36
47	1.00	202	298.84
48	1.00	245	321.16
49	1.00	108	513.79
50	1.00	193	313.64
51	1.00	95	416.15
52	1.00	143	272.74
53	1.00	138	311.46
54	1.00	147	334.30
55	1.00	172	336.27
56	1.00	230	293.88
57	1.00	230	303.37
58	1.00	131	293.65
59	1.00	130	344.03
60	1.00	258	267.76
61	1.00	414	261.83
62	1.00	228	305.03
63	1.00	463	317.78
64	1.00	103	335.29
65	1.00	129	341.84
66	1.00	119	324.01
67	1.00	218	311.38
68	1.00	116	325.23
69	1.00	261	331.20
70	1.00	422	310.61
71	1.00	174	325.65
72	1.00	103	344.55
73	1.00	319	328.76
74	1.00	131	322.02
75	1.00	112	316.90
76	1.00	119	384.46
77	1.00	121	348.99

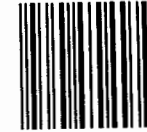
Protocol# 3 - DECOM.lsa

78	1.00	128	348.37
79	1.00	113	218.33
80	1.00	118	237.32
81	1.00	108	344.82
82	1.00	106	352.33
83	1.00	89	356.29
84	1.00	103	359.79
85	1.00	149	240.26
86	1.00	129	197.26
87	1.00	22398	757.07

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