



Tritium Laboratory
31 August 2015

SWAB REPORT #786

SWAB DATE: 24 August 2015

R/V Hugh Sharp

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COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for ^3H and ^{14}C are 2 and 5 cpm, respectively. The LSC is a Tricarb 2910 TR with the low level counting option.

All samples are counted for 60 minutes, the instrument background is subtracted, and activities are reported in dpm/m^2 . Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in dpm/m^2 . An error larger than the activity indicates that the activity is not significantly different from zero.

Criteria for SWAB Results

Category	^3H (dpm/m^2)	^{14}C (dpm m^2)	Recommendations
A	<500	<50	No action
B*	500-10,000	50-10,000	Needs cleaning before any natural tracer work. Decks in radiation vans with activities above $1000 \text{ dpm}/\text{m}^2$ should be cleaned.
C**	10,000-100,000	10,000-50,000	Must be cleaned before any use.
D***	>100,000	>50,000	May be a health hazard. Notify local radiation safety official.

Note: ^{14}C and ^{35}S have peak energies of 156 and 167 KeV, respectively; thus ^{35}S will be registered as ^{14}C by our counting techniques. Categories A, B and C are not a health hazard.

Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

^3H : Wash and scrub with radioactive cleanup detergent such as COUNT-OFF (50 ml COUNT-OFF to 4 liters of water), using sponges to distribute solution and reabsorb it.

^{14}C : Wash with 1% sulfuric or 2% hydrochloric (muriatic) acid with good ventilation (will dissolve carbonates, releasing $^{14}\text{CO}_2$). Follow up with wash as if for ^3H .

Disposal of Cleaning Materials (gloves, sponges, etc)

Categories A & B dispose as ordinary garbage, C & D contact your institution's radiation safety office.

Note: If category C or D is encountered, we try to notify the insitution promptly by phone or email.

REPORT FOR SWAB # 786

LOCATION: Lewes, DE
VESSEL/LAB: R/V Hugh Sharp and vans

DATE: 24 August 2015
TECHNICIAN: Jim Happell

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	21	± 30	22	± 32
	<u>Radiation Van 625502.0 (Figure 1)</u>				
3	Benchtop left of sink	496	± 66	*149	± 33
4	Benchtop right of fume hood	*1080	± 93	*186	± 32
5	Inside fume hood	*658	± 75	*145	± 32
6	Top of LSC	*2098	± 120	*623	± 47
7	Benchtop left of LSC	435	± 65	*96	± 30
8	Benchtop opposite of sink	331	± 59	*68	± 29
9	Inside refrigerator	***126535	± 936	*2776	± 51
10	Inside freezer	55	± 14	*371	± 46
11	Deck in front of fume hood at van	*969	± 85	*357	± 41
12	Deck center of van	*514	± 68	*113	± 31
13	Sink area	*603	± 74	*95	± 28
14	Deck in front of sink at forward entrance	152	± 47	*58	± 31
	<u>General Purpose Van 625.2.01-1 (Figure 2)</u>				
15	Inside fume hood	23	± 49	-6	± 33
16	Benchtop adjacent to fume hood	16	± 24	30	± 33
17	Benchtop adjacent to sink	11	± 20	28	± 33
18	Benchtop opposite of small Danby	0	± 2	23	± 34
19	Benchtop opposite of sink	6	± 12	35	± 34
20	Inside small Kenmore	46	± 45	0	± 0
21	Inside small Danby	37	± 38	14	± 29
22	Deck at entrance in front of fume hood	182	± 48	*115	± 35
23	Sink area	21	± 40	4	± 25
24	Benchtop next to fire extinguisher station	3	± 15	12	± 33
25	Deck in front of sink inside forward entrance	75	± 36	*67	± 34
26	Intermediate bucket blank	38	± 37	16	± 30
	<u>Main Lab (Figure 3)</u>				
27	Inside whirlpool freezer top	-2	± 8	29	± 34
28	Inside whirlpool refrigerator bottom	31	± 33	26	± 32
29	Inside Holiday freezer	4	± 17	15	± 33
30	Top of Thermo freezer	22	± 36	12	± 30
31	Port benchtop across from freezers	23	± 36	11	± 30

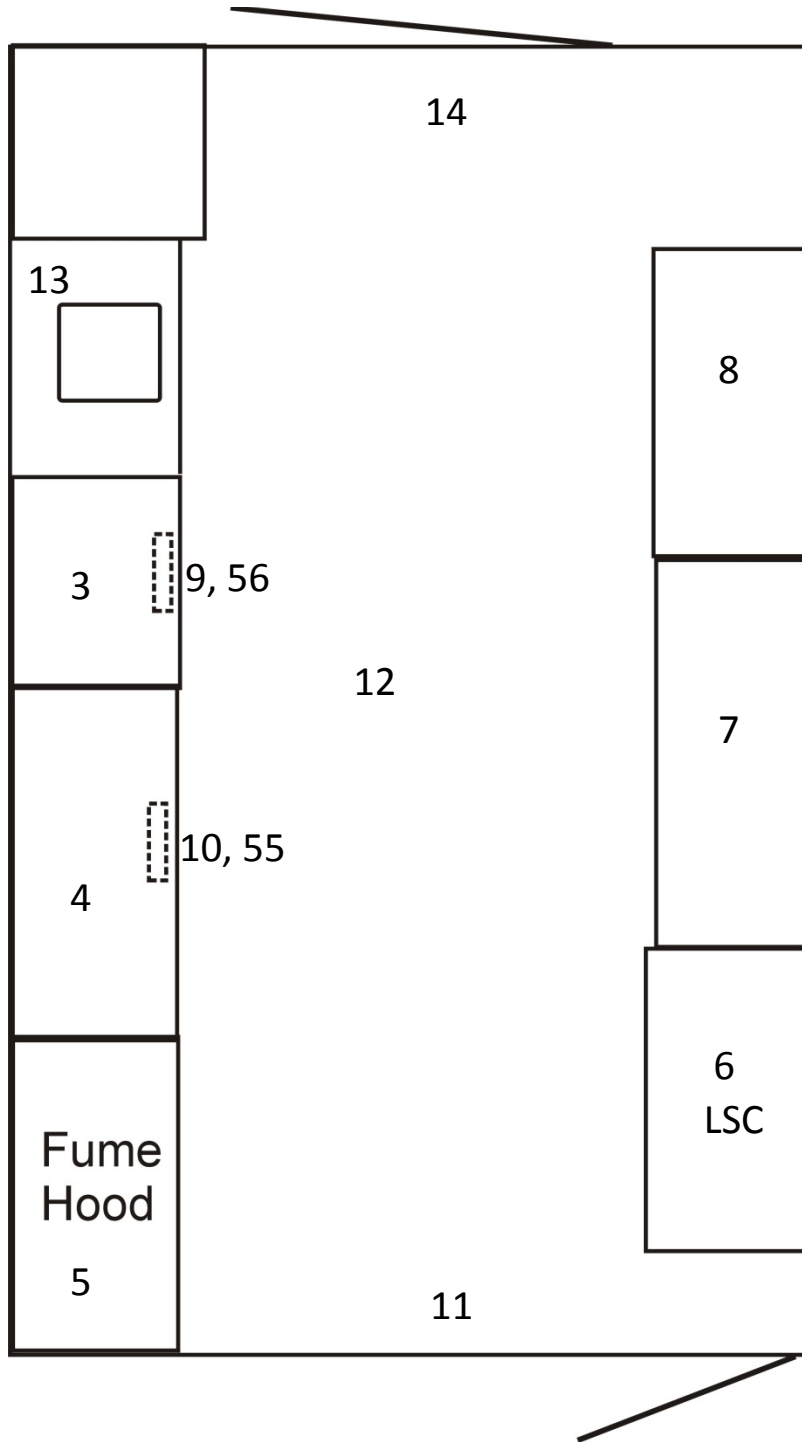
Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
32	Port benchtop across from Whirlpool	33	± 40	9	± 28
33	Forward starboard benchtop	48	± 42	10	± 26
34	Center starboard benchtop	25	± 38	9	± 29
35	Aft starboard benchtop	50	± 45	3	± 17
36	Aft benchtop across from spill control s	18	± 39	5	± 28
37	Aft benchtop across from sink	90	± 44	24	± 28
38	Sink area	22	± 31	21	± 32
39	Deck below sink	97	± 43	46	± 31
40	Deck at entrance to Wet Lab	71	± 44	24	± 29
41	Deck in front of freezers	57	± 45	9	± 24
42	Deck between forward & aft port bench	27	± 30	33	± 33
43	Deck between starboard & port bench	57	± 38	37	± 32
	<u>Wet Lab (Figure 3)</u>				
44	Forward port benchtop	-30	± 34	21	± 36
45	Mid port benchtop	8	± 183	-13	± 34
46	Forward starboard benchtop next to CTD	23	± 37	11	± 30
47	Deck at aft entrance	-9	± 17	19	± 34
48	Deck in front of aft sink	34	± 54	-11	± 29
49	Aft benchtops	22	± 32	20	± 32
50	Inside Whirlpool freezer	32	± 40	8	± 27
51	Inside Whirlpool fridge	9	± 16	35	± 34
52	Inside Holiday freezer	7	± 21	16	± 33
53	Aft sink area	-11	± 22	-3	± 19
54	Starboard sink area	33	± 40	11	± 28
	<u>Radiation Van 625502.0 (Figure 1)</u>				
55	Rad van freezer after cleaning	54	± 30	74	± 34
56	Rad van refrigerator after cleaning	*3551	± 161	*118	± 17
57	Final bucket blank	36	± 39	12	± 28

Comments

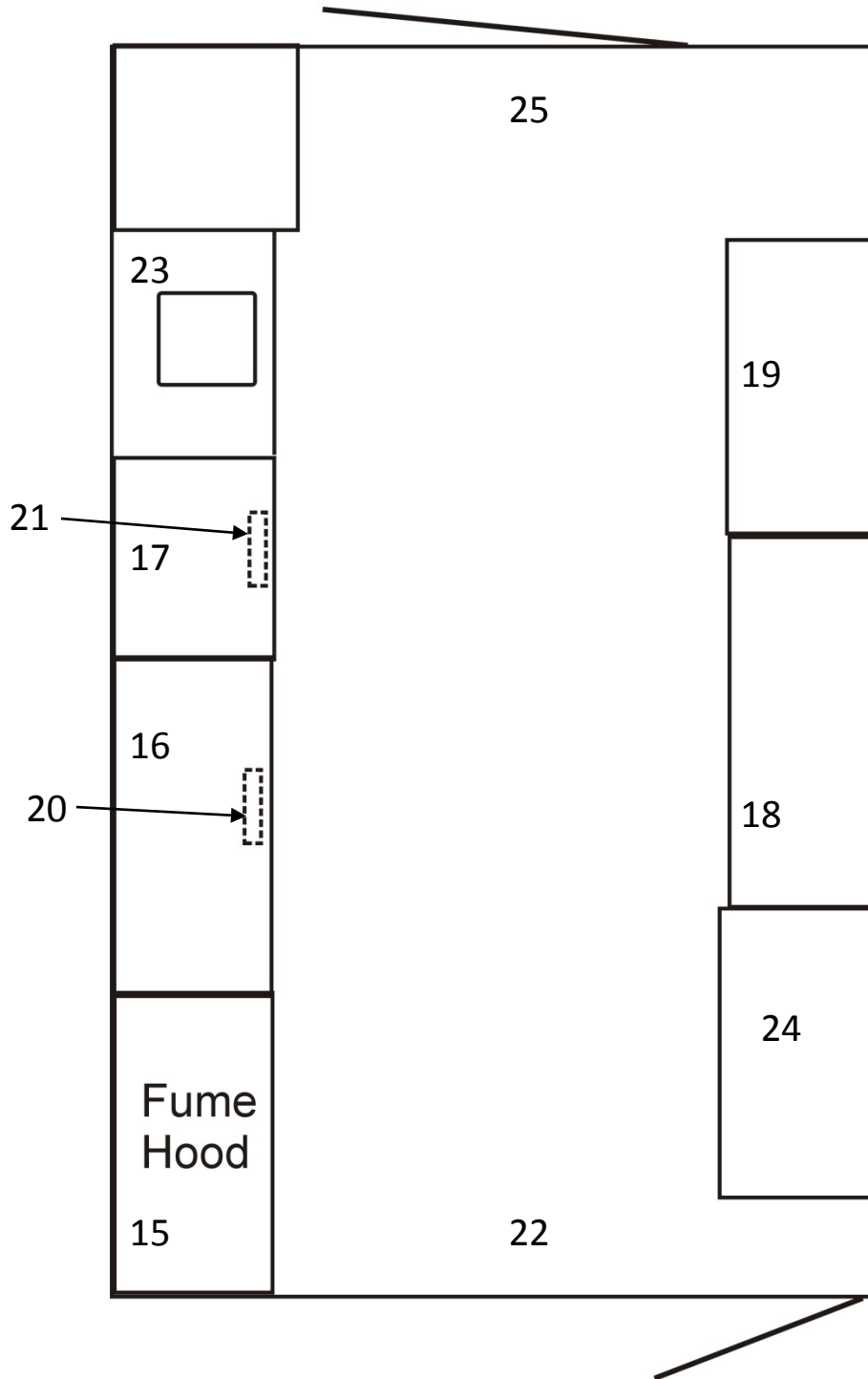
Please note that the error reported for each isotope is the two-standard deviation counting error. The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. All areas on tested in the ship were free from radioisotope contamination that requires cleaning. General Purpose Van 625.2.01-1 had two areas with minor ^{14}C contamination. These areas should be cleaned before any further use. Radiation Van 62550.0 had many areas of minor ^{14}C and ^3H contamination. No action is required for these areas. The refrigerator in the rad van initially had major ^3H contamination, but after cleaning by a rad van user the refrigerator had acceptable levels of ^3H

UNOLS Van 625502.0

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24 August 2015
Figure 1



UNOLS VAN 625.2.01-1



RV High Sharp Lab Spaces

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Figure 3

