



Tritium Laboratory
21 September 2015

SWAB REPORT #791

SWAB DATE: 14 September 2015

R/V Kilo Moana

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Scott Ferguson
Craig Nosse

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 # 791

LOCATION: Honolulu, Hawaii
VESSEL/LAB: R/V Kilo Moana

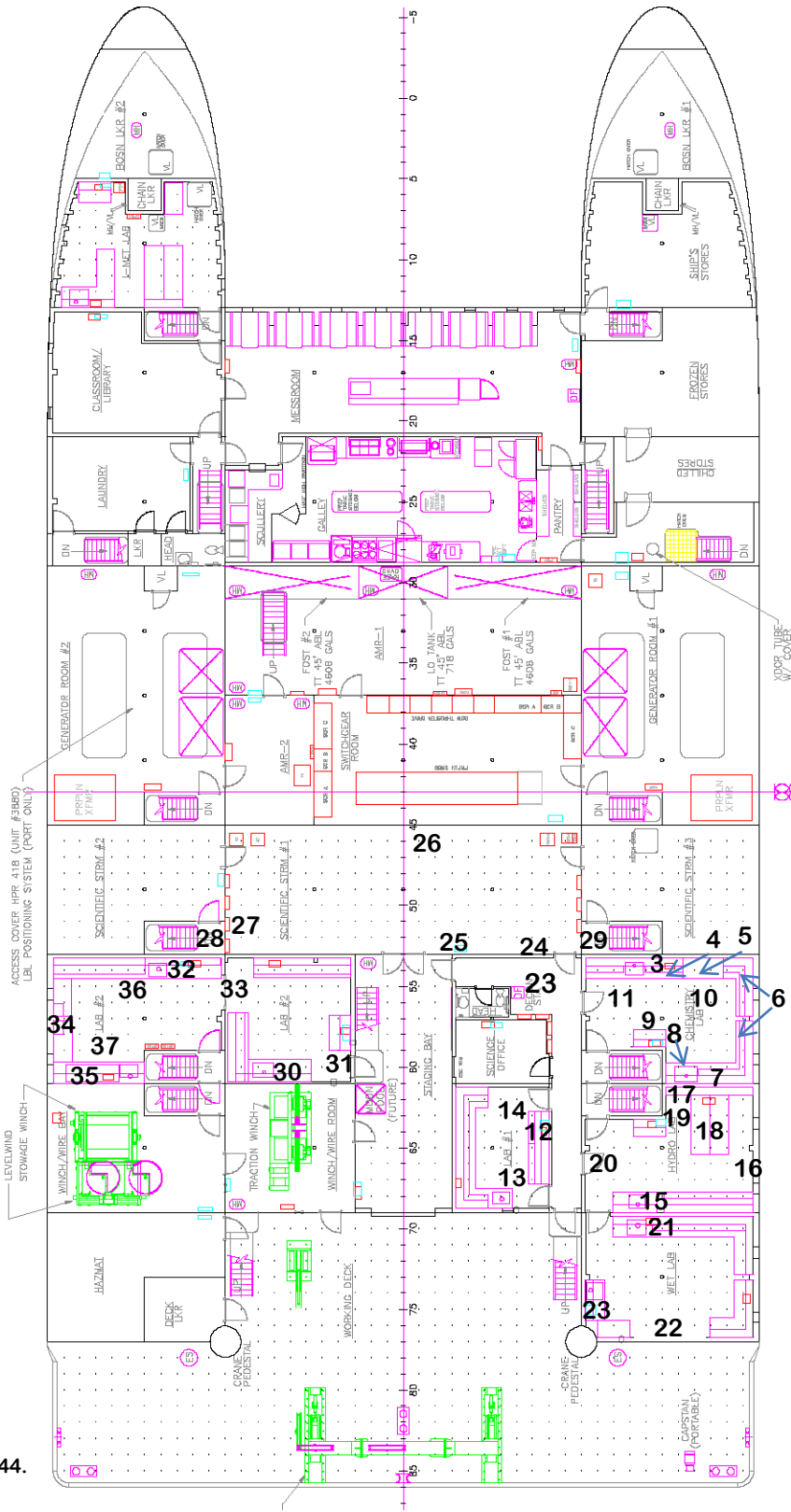
DATE: 14 September 2015
TECHNICIAN: Charlene Grall

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	9	± 21	22	± 33
	<u>Chemistry Lab (Figure 1)</u>				
3	Forward sink area	20	± 30	22	± 33
4	Inside small Kenmore refrigerator	19	± 34	13	± 31
5	Inside fume hood	7	± 14	31	± 34
6	Starboard benchtop next to fume hood	15	± 44	1	± 14
7	Starboard benchtop forward section	21	± 29	26	± 33
8	Aft sink area	35	± 39	16	± 30
9	Benchtop across from forward sink	7	± 21	16	± 33
10	Deck between aft sink and fume hood	23	± 32	22	± 32
11	Deck at port entrance	16	± 30	18	± 33
	<u>Lab #1 (Figure 1)</u>				
12	Starboard benchtop	26	± 39	16	± 31
13	Deck below aft sink	24	± 36	15	± 31
14	Deck at forward entrance	5	± 9	42	± 35
	<u>Hydro Lab (Figure 1)</u>				
15	Aft sink area	5	± 11	35	± 35
16	Starboard benchtop mid-section	55	± 49	-3	± 23
17	Forward benchtop	29	± 41	7	± 28
18	Port benchtop	28	± 39	11	± 30
19	Deck in front of forward bench	20	± 29	28	± 33
20	Deck inside port entrance	-12	± 59	44	± 36
	<u>Wet lab (Figure 1)</u>				
21	Sink area	31	± 40	16	± 31
22	Deck inside aft hanger door entrance	8	± 24	16	± 33
23	Inside port fume hood	2	± 12	11	± 34

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
<u>Scientific Storage Area (Figure 1)</u>					
24	Inside Cospolich refrigerator #1	3	± 12	18	± 34
25	Inside Cospolich refrigerator #3	0	± 2	15	± 34
26	Deck below Kenmore freezer	5	± 19	15	± 33
27	Deck aft of entrance to Science Store #2	8	± 38	7	± 32
28	Deck at stair down to Science Store #4	18	± 29	23	± 33
29	Deck at stair down to Science Store #3	3	± 22	7	± 33
<u>Lab #2 (Figure 1)</u>					
30	Aft sink area	-2	± 21	13	± 34
31	Deck inside entrance	15	± 26	25	± 33
32	Forward sink area	11	± 53	-4	± 32
33	Deck at bulkhead between lab spaces	-6	± 26	37	± 35
34	Port benchtop center section	12	± 24	22	± 33
35	Port aft sink area	33	± 45	2	± 19
36	Benchtop opposite of port aft sink	-15	± 26	2	± 54
37	Deck in front of port aft sink	26	± 39	12	± 30
<u>01 Deck (No Figure)</u>					
38	Companionway inside exit to aft port weatherdeck	15	± 27	23	± 33
39	Deck where rad van door opened	31	± 48	-4	± 34
40	Deck where HOTS van door opened	29	± 59	-13	± 27
41	Companionway directly aft of vans	8	± 21	20	± 34
<u>02 Deck (No Figure)</u>					
42	Deck at top of stairs to 02 deck	18	± 40	5	± 28
43	Starboard aft deck where incubators sat	8	± 22	18	± 33
44	Final bucket blank	-21	± 37	19	± 36

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 tested on the ship were free from contamination that requires cleaning.



No figures for samples 38-44.

MAIN DECK