

UNIVERSITY OF MIAMI  
ROSENSTIEL  
SCHOOL of MARINE &  
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Tritium Laboratory  
4 March 2019

SWAB REPORT #933

SWAB DATE: 25 February 2019

*R/V Kilo Moana and Hawaii Van #23*

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Distribution:  
SWAB Committee  
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## COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for  $^3\text{H}$  and  $^{14}\text{C}$  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  $\text{dpm}/\text{m}^2$ . Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in  $\text{dpm}/\text{m}^2$ . An error larger than the activity indicates that the activity is not significantly different from zero.

### Criteria for SWAB Results

Category	$^3\text{H}$ ( $\text{dpm}/\text{m}^2$ )	$^{14}\text{C}$ ( $\text{dpm m}^2$ )	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:  $^{14}\text{C}$  and  $^{35}\text{S}$  have peak energies of 156 and 167 KeV, respectively; thus  $^{35}\text{S}$  will be registered as  $^{14}\text{C}$  by our counting techniques. Categories A, B and C are not a health hazard.

### Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

$^3\text{H}$ : 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.

$^{14}\text{C}$ : 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  $^3\text{H}$ .

### 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 # 933

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

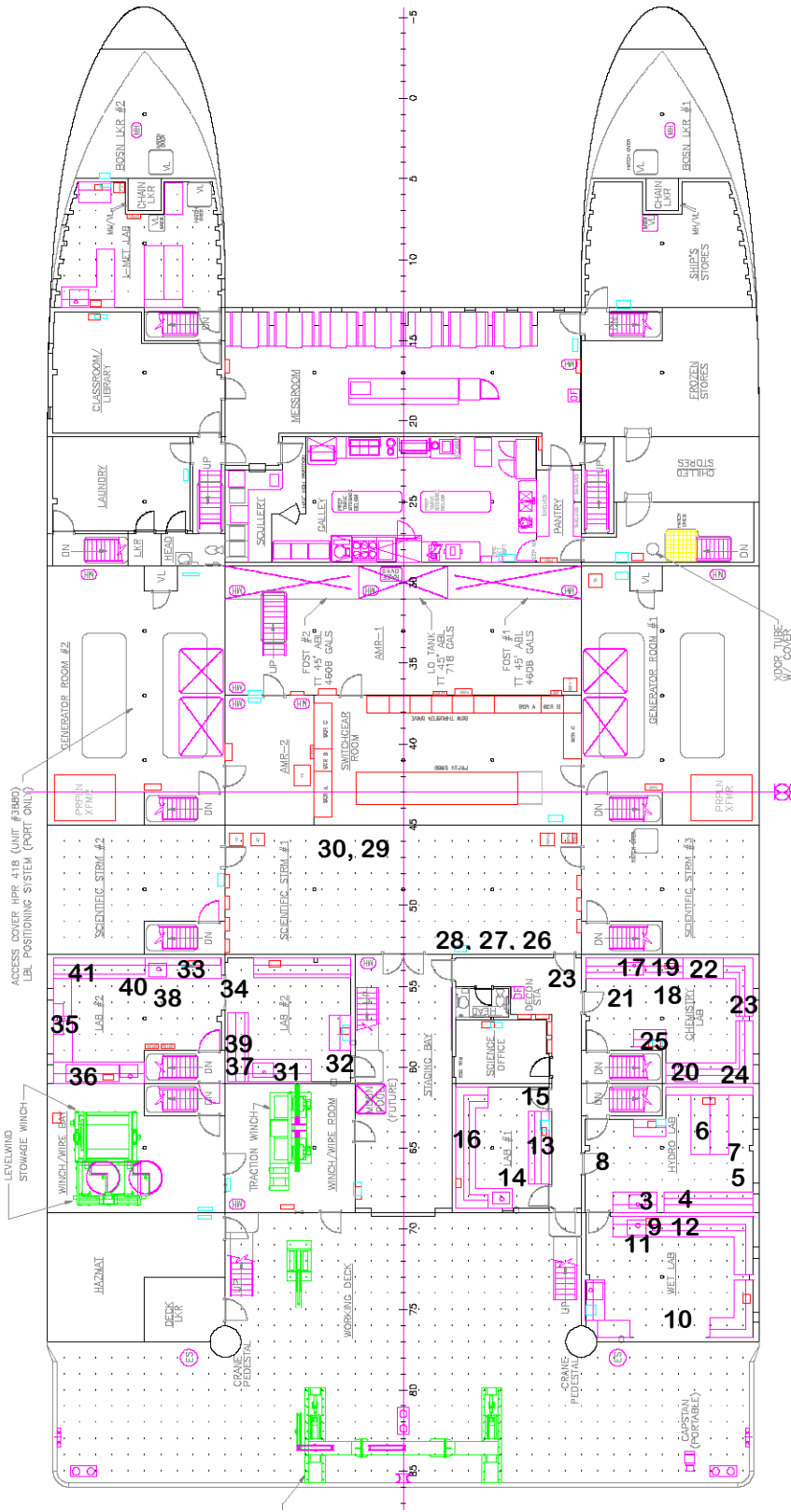
DATE: 25 February 2019  
TECHNICIAN: Jim Happell

Sample #	Sample Identification	<sup>3</sup> H dpm/m <sup>2</sup>		<sup>14</sup> C dpm/m <sup>2</sup>	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	28	± 29	34	± 34
	<u>Hydro Lab (Figure 1)</u>				
3	Aft sink area	40	± 36	25	± 33
4	Forward benchtop	1	± 2	35	± 36
5	Starboard benchtop aft section	56	± 38	21	± 31
6	Port benchtop	4	± 11	29	± 35
7	Deck in front of starboard bench	13	± 20	33	± 35
8	Deck inside port entrance	40	± 43	9	± 28
	<u>Wet Lab (Figure 1)</u>				
9	Sink area	-24	± 29	4	± 54
10	Deck inside aft hanger door entrance	33	± 38	18	± 32
11	Port benchtop	-7	± 35	30	± 36
12	Starboard benchtop	10	± 21	22	± 35
	<u>Lab #1 (Figure 1)</u>				
13	Starboard benchtop	33	± 40	15	± 31
14	Deck below aft sink	29	± 35	16	± 32
15	Deck at forward entrance	1	± 3	24	± 35
16	Port benchtop	48	± 36	34	± 33
	<u>Chemistry Lab (Figure 1)</u>				
17	Forward sink area	2	± 5	34	± 36
18	Deck in front of Kenmore refrigerator	9	± 24	17	± 34
19	Benchtop between sink and fume hood	39	± 44	3	± 19
20	Aft sink area	44	± 43	13	± 30
21	Deck at port entrance	11	± 22	25	± 35
22	Inside fume hood	52	± 46	1	± 6
23	Starboard benchtop	-8	± 142	23	± 36
24	Aft benchtop	65	± 47	0	± 2
25	Center benchtop	-9	± 711	21	± 36

Sample #	Sample Identification	$^3\text{H}$ dpm/m <sup>2</sup>		$^{14}\text{C}$ dpm/m <sup>2</sup>	
		activity	error	activity	error
<u>Scientific Storage Area (Figure 1)</u>					
26	Inside Cospolich refrigerator 1	37	± 36	23	± 33
27	Inside Cospolich refrigerator 2	34	± 34	25	± 33
28	Inside Cospolich refrigerator 3	23	± 39	6	± 29
29	Top of center GE chest freezer	5	± 29	4	± 33
30	Top of Kenmore chest freezer	30	± 34	19	± 33
<u>Lab #2 (Figure 1)</u>					
31	Aft sink area	10	± 19	29	± 35
32	Deck inside entrance	2	± 6	31	± 36
33	Forward sink area	-12	± 20	16	± 37
34	Deck at bulkhead between lab spaces	14	± 23	29	± 35
35	Port benchtop center section	17	± 26	27	± 34
36	Port aft sink area	-4	± 30	20	± 36
37	Benchtop opposite of aft sink	74	± 47	9	± 24
38	Deck in front of port aft sink	10	± 26	14	± 34
39	Benchtop against center bulkhead	34	± 39	14	± 31
40	Center benchtop	37	± 39	15	± 31
41	Forward benchtop	31	± 28	40	± 35
<u>Hawaii Van #23 (Figure #2)</u>					
42	Benchtop to left of door	31	± 40	11	± 30
43	Sink area	77	± 42	32	± 32
44	Benchtop across from and left of door	205	± 53	*66	± 32
45	Benchtop across from and right of door	254	± 65	*52	± 30
46	Benchtop to right of door	245	± 69	28	± 25
47	Inside refrigerator left of door	*801	± 86	*83	± 26
48	Inside refrigerator right of door	385	± 67	*51	± 27
49	Center deck	*949	± 96	*50	± 19
50	Final bucket blank	27	± 40	6	± 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 tested on the ship were free from contamination that requires cleaning. Radioisotope Van #23 had minor  $^3\text{H}$  and  $^{14}\text{C}$  contamination. No action is required.



MAIN DECK

# Hawaii Van #23

