

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Tritium Laboratory
4600 Rickenbacker Causeway
Miami, Florida 33149-1031

Ph: 305-421-4100
Fax: 305-421-4112
E-mail: Tritium@rsmas.miami.edu

28 September 2011

SWAB REPORT # 596

SWAB DATE: 22 September 2011

R/V Kilo Moana

James D. Happell

Distribution:
SWAB Committee
Dan Fitzgerald

COMMENTS TO SWAB REPORTS

23 November 2010

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 dpm/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 dispose in radiation waste system.

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

REPORT FOR SWAB # 593

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

DATE: 22 September 2011
TECHNICIAN: Charlene Grall

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	10	± 44	3	± 32
	<u>Hydro Lab (Figure 1)</u>				
3	Center benchtop	0	± 0	7	± 45
4	Deck stbd of center benchtop	29	± 46	11	± 33
5	Deck in front of sink area	0	± 0	0	± 0
6	Aft benchtop	394	± 74	3	± 4
	<u>Lab #1 (Figure 1)</u>				
7	Deck inside aft entrance	0	± 0	0	± 0
8	Deck inside fwd entrance	6	± 39	4	± 34
	<u>Ships Office (Figure 1)</u>				
9	Deck inside entrance of ship office	14	± 85	0	± 0
	<u>Chemistry Lab (Figure 1)</u>				
10	Deck inside entrance	0	± 0	0	± 0
11	Inside fume hood	51	± 61	0	± 0
12	Fwd sink area	0	± 0	0	± 0
13	Aft sink area	0	± 0	0	± 0
14	Deck center of lab	0	± 0	15	± 39
	<u>Lab #2 (Figure 1)</u>				
15	Deck inside entrance	10	± 66	0	± 0
16	Aft sink area	0	± 0	0	± 0
17	Deck below hydro monitor	31	± 64	0	± 0
18	Port sink area	0	± 0	0	± 0
19	Aft sink area	0	± 0	0	± 0
20	Benchtop near aft sink	0	± 0	0	± 0
21	Deck near port sink	9	± 295	0	± 0
22	Deck near aft sink	0	± 0	9	± 42

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
	<u>Wet Lab (Figure 1)</u>				
23	Deck between port sink & CTD	93	± 44	26	± 31
24	Deck below fwd sink	220	± 51	6	± 12
25	Deck between stbd bench & CTD	120	± 45	29	± 30
	<u>Scientific Storage #1 (Figure 1)</u>				
26	Top of Gibson chest freeze	0	± 0	0	± 0
27	Top of Thermo chest freezer	0	± 0	15	± 40
28	Inside stbd Cospolich refrigerator #1	53	± 52	6	± 25
29	Inside middle Cospolich refrigerator #2	159	± 60	17	± 25
30	Inside port. Cospolich refrigerator #3	74	± 61	0	± 0
	<u>01 Deck (No Figure)</u>				
31	Port passage used by Rad people	31	± 76	0	± 0
32	Passage outside ET Locker	1	± 0	0	± 0
	<u>Miscellaneous areas (Figure 1)</u>				
33	Deck in Mess below drink machine	0	± 0	9	± 38
34	Deck inside library entrance	0	± 0	3	± 43
35	Final Bucket blank C.O.#1	0	± 0	0	± 0
	<u>Radiation Van</u>				
36	Initial bucket blank C.O.#2	0	± 0	0	± 0
37	Inside fume hood	385	± 72	22	± 20
38	Deck by entrance across from hood	**74499	± 760	*1526	± 36
39	Inside refrig under bench next to entrance	*3084	± 158	*90	± 16
40	Benchtop above refer	*2690	± 142	*598	± 48
41	Benchtop across from LSC	630	± 84	33	± 19
42	Inside refrigerator across from LSC	**12838	± 312	*572	± 32
43	Sink area	*4441	± 193	*256	± 27
44	Deck at entrance next to sink	**13972	± 338	*311	± 20
45	Final bucket blank	0	± 0	0	± 0

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. All areas tested on the ship were free of radioisotope contamination.

Minor ¹⁴C and minor to moderate ³H contamination was found in the radiation van.

The deck and the refrigerator in the radiation van need to be cleaned before any additional use.

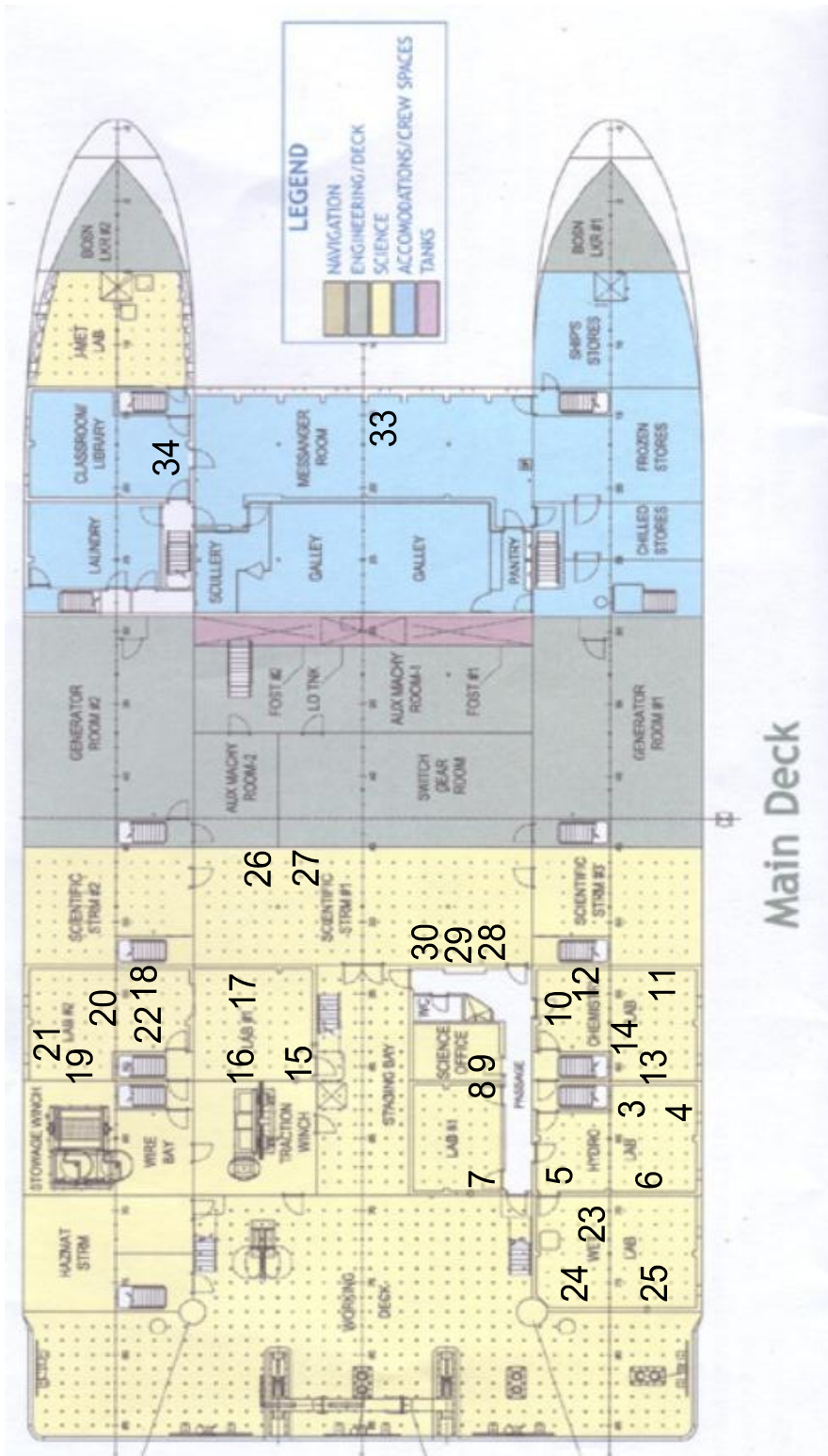


Figure 1
 SWAB # 596
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University of Hawaii
Ocean Technology Group
Radiation Van Floor Plan

Figure 2
SWAB# 596
22 September 2011

