

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

Tritium Laboratory
2 March 2020

SWAB REPORT #993

SWAB DATE: 23 February 2021

R/V Kilo Moana and Hawaii Van #23

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Barry Choy
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 # 993

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

DATE: 23 February 2021
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 <u>Hydro Lab (Figure 1)</u>	9	± 82	-7	± 49
3	Aft sink area	-56	± 351	-10	± 28
4	Aft Benchtop	-9	± 55	-37	± 106
5	Deck in front of aft benchtop	19	± 66	-6	± 27
6	Port benchtop	-18	± 113	-5	± 25
7	Deck in front of starboard bench	11	± 139	-13	± 37
8	Deck inside port entrance	5	± 31	-18	± 52
9	Forward benchtop	12	± 74	-8	± 22
10	Starboard benchtop forward section <u>Wet Lab (Figure 1)</u>	-9	± 58	-13	± 36
11	Sink area	-19	± 60	5	± 23
12	Deck inside aft hanger door entrance	-19	± 61	-6	± 26
13	Forward benchtop	-33	± 35	-15	± 42
14	Starboard benchtop	-5	± 31	-20	± 58
15	Aft benchtop <u>Lab #1 (Figure 1)</u>	-16	± 99	-16	± 45
16	Starboard benchtop	-50	± 53	-21	± 59
17	Deck below aft benchtop	0	± 3	-8	± 39
18	Deck at forward entrance	-13	± 80	-37	± 106
19	Port benchtop	-30	± 32	-4	± 18
20	Aft benchtop <u>Chemistry Lab (Figure 1)</u>	-11	± 68	-19	± 55
21	Forward sink area	-27	± 28	-20	± 57
22	Deck in front of aft sink	-33	± 35	-41	± 115
23	Aft sink area	-42	± 44	-1	± 6
24	Deck at port entrance	-1	± 8	-24	± 70
25	Inside fume hood	45	± 110	-39	± 111
26	Starboard benchtop between portholes	-37	± 39	-19	± 54
27	Aft benchtop <u>Science Storeroom (Figure 1)</u>	0	± 2	-20	± 58
28	Inside Cospolich refrigerator 1	*527	± 81	-33	± 94
29	Inside Cospolich refrigerator 2	56	± 77	-37	± 106
30	Inside Cospolich refrigerator 3	-27	± 29	-1	± 6

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
	<u>Lab #2 (Figure 1)</u>				
31	Deck inside entrance	-17	± 104	-19	± 55
32	Forward sink area and starboard adjacent bench	-51	± 54	-12	± 33
33	Port aft sink area and adjacent benchtop	-9	± 57	-16	± 46
34	Benchtop opposite of port aft sink	-36	± 38	-19	± 54
35	Deck in center of port lab area	3	± 16	-34	± 97
36	Forward bench under monitor on starboard	3	± 18	-29	± 83
37	Deck in front of forward sink	-7	± 45	-17	± 49
38	Starboard sink area and adjacent benchtop	-44	± 46	-15	± 44
39	Port benchtop between portholes	-60	± 64	-42	± 120
40	Intermediate bucket blank	8	± 50	-50	± 143
	<u>Hawaii Rad Van #23 (Figure 2)</u>				
41	Benchtop left of entrance	-31	± 33	-36	± 103
42	Benchtop on opposite wall right side	-69	± 72	-26	± 74
43	Benchtop on opposite wall left side	55	± 72	-17	± 48
44	Inside freezer	*573	± 72	*305	± 44
45	Inside refrigerator	*832	± 92	*177	± 36
46	Sink area and adjacent benchtop	50	± 52	11	± 30
47	Benchtop right of entrance	16	± 49	7	± 34
48	Deck in front of sink area	289	± 70	32	± 26
49	Deck inside entrance door	*1295	± 120	20	± 9
50	Final bucket blank	-34	± 36	-18	± 50

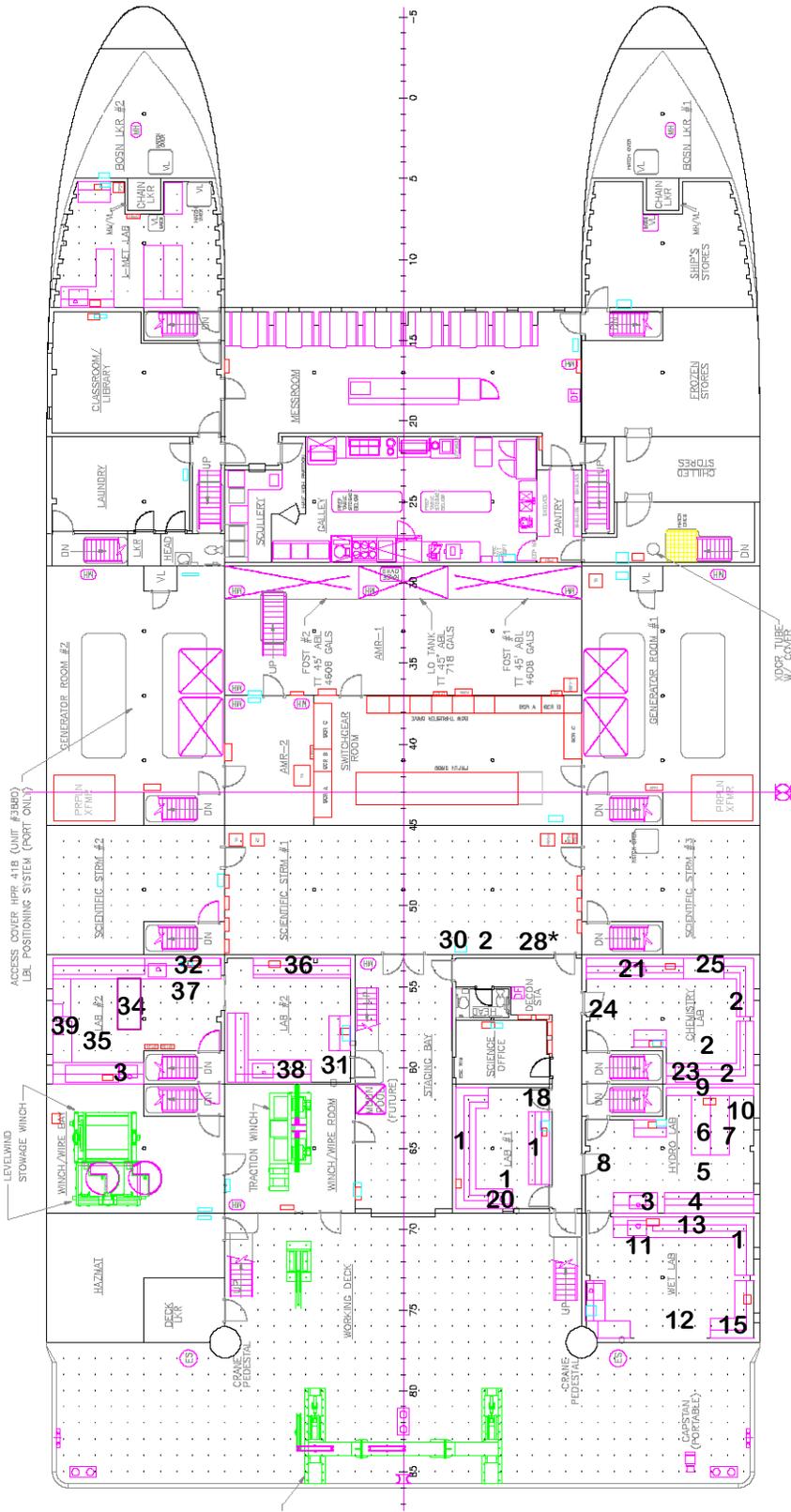
Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. 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.

Minor ³H contamination was for in the Cospolich #1 refrigerator. It should be cleaned ASAP.

Minor ³H and ¹⁴C contamination was found in the Rad Van. No action is necessary, but we recommend cleaning the deck near the entrance to help prevent tracking contamination out of the van.

Figure 1
 SWAB # 993
 23 February 2021



MAIN DECK

Hawaii Van #23

