

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory

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SWAB REPORT # 891

SWAB DATE: 12 March 2018

R/V Hugh Sharp

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Distribution:
SWAB Committee
Tim Deering

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 institution promptly by phone or email.

REPORT FOR SWAB # 891

LOCATION: Lewes, DE

DATE: 12 March 2018

VESSEL: *Hugh Sharp*

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	± 3	0	± 4
2 Initial bucket blank	-21	± 68	-2	± 19
<u>Main Lab (Figure 1)</u>				
25 Forward port benchtop	24	± 45	0	± 7
26 Deck at entrance to Data Acquisition Room	14	± 54	5	± 33
27 Deck in center of Utility Electric Room	8	± 558	-15	± 57
28 Benchtop next to sink	19	± 535	-38	± 145
29 Forward port benchtop	16	± 169	-24	± 92
30 Port benchtop across from science computer	0	± 32	-25	± 97
31 Forward starboard benchtop	-18	± 68	-13	± 51
32 Center starboard benchtop	1	± 55	-34	± 129
33 Aft starboard benchtop	18	± 1143	-36	± 136
34 Aft benchtop across from spill control	-21	± 80	-11	± 42
35 Aft port benchtop	1	± 75	-11	± 44
36 Sink area	-14	± 103	0	± 1
37 Deck below sink	1	± 82	-48	± 183
38 Deck at entrance to Wet Lab	-2	± 182	-36	± 139
39 Deck in front of port porthole	1	± 68	-1	± 3
40 Deck between forward and aft port bench	17	± 80	-16	± 60
41 Deck between starboard and port bench	-1	± 46	-24	± 94
<u>Wet Lab (Figure 1)</u>				
42 Forward port benchtop	-3	± 163	-16	± 61
43 Aft sink area	2	± 126	-8	± 31
44 Deck at aft entrance	13	± 93	-29	± 110
45 Deck in front of aft sink	-9	± 63	-15	± 59
46 Forward starboard benchtop next to CTD	0	± 0	-8	± 30
47 Inside small freezer	11	± 53	-2	± 7
48 Inside Frigidaire freezer	17	± 167	-27	± 104
49 Inside Frigidaire refrigerator	25	± 113	-31	± 118
50 Deck at entrance to Workshop Storage	30	± 64	-15	± 56
51 Deck in front of freezer	-11	± 77	-24	± 91
52 Starboard sink area	-8	± 58	-4	± 14
53 Black rubber mat in companion way outside Head	32	± 62	-14	± 52
66 Final bucket blank	14	± 349	-28	± 109

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 any isotope contamination that requires cleaning.

RV Hugh Sharp Lab Spaces

Figure 1
SWAB # 891
12 March 2018

