

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory

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SWAB REPORT # 985

SWAB DATE: 30 May 2020

R/V Thomas Thompson

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Distribution:
SWAB Committee
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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 # 985

LOCATION: Seattle, WA
VESSEL: *R/V Thomas Thompson*

DATE: 30 May 2020
TECHNICIAN: Jennifer Nomura

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	14	± 75	-11	± 59
3 Computer lab	-20	± 54	-5	± 39
4 Cleaning station - between comp & bio labs & sci fre	-14	± 78	-9	± 50
5 Bioanalytical lab	21	± 54	-4	± 33
6 Main lab - aft	-6	± 224	-17	± 96
7 Main lab - forward	-27	± 73	-1	± 6
8 Science office	-21	± 56	-10	± 53
9 Gym	-13	± 48	-19	± 103
10 C14 source mini fridge	-21	± 55	-3	± 21
11 Wet lab	-38	± 66	-4	± 30
12 Hydroanalytical lab	-16	± 84	-10	± 54
13 Lower aft science storage	-30	± 81	-5	± 41
14 Main deck - outer deck breezeway - heads	13	± 48	4	± 31
15 Main deck - vicinity Rad van (raining)	-12	± 45	7	± 41
16 Staging bay	-2	± 94	-26	± 147
17 01 Deck - aft science cabins - aft passage	38	± 66	-17	± 96
18 01 Deck - aft science cabins - forward passage	7	± 260	-12	± 65
19 Mess deck	18	± 66	-9	± 47
20 Lounge	-25	± 67	8	± 45
21 03 Deck passage - outside chief scientist room	-25	± 67	-1	± 12
22 Chief scientist head	-34	± 59	8	± 48
23 Bridge	-28	± 75	-11	± 60
24 Final bucket blank	12	± 42	-44	± 246

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 inside the ship were free from isotope contamination that requires cleaning.