

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
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SWAB REPORT # 998

SWAB DATE: 29 March 2021

R/V Savannah

James D. Happell

Distribution:
SWAB Committee
John Bichy

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 # 998

LOCATION: Savannah, GA
VESSEL: R/V Savannah

DATE: 29 March 2021
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 ±	0	0 ±	0
2	Initial bucket blank	17 ±	47	1 ±	19
	<u>Dry Lab (Figure 1)</u>				
3	Inside fume hood	14 ±	180	-21 ±	36
4	Benchtop next to fume hood	15 ±	46	2 ±	24
5	Deck in front of fume hood	0 ±	2	-5 ±	22
6	Benchtop aft of sink	-10 ±	193	29 ±	39
7	Benchtop forward of sink	19 ±	62	-10 ±	43
8	Center benchtop	11 ±	46	1 ±	21
9	Deck at aft entrance	33 ±	51	0 ±	4
10	Forward deck	-6 ±	39	-15 ±	32
	<u>Miscellaneous Areas (Figure 1)</u>				
11	Deck under water fountain	15 ±	46	4 ±	31
12	Deck at bottom of stairs	32 ±	58	-10 ±	22
13	Deck inside forward door	23 ±	68	-15 ±	31
14	Deck at top of stairs	-19 ±	63	-4 ±	20
	<u>Wet Lab (Figure 1)</u>				
14	Deck at top of stairs	-19 ±	63	-4 ±	20
15	Port benchtop	-1 ±	7	22 ±	38
16	Benchtop forward of sink	-5 ±	415	12 ±	38
17	Benchtop aft of sink	-3 ±	24	-24 ±	42
18	Inside Thermo refrigerator	3 ±	23	8 ±	37
19	Inside Isotemp freezer	215 ±	56	35 ±	29
20	Deck at aft entrance	22 ±	38	16 ±	35
21	Deck inside port entrance	28 ±	51	-2 ±	10
	<u>Aft Deck (Figure 1)</u>				
22	Deck near incubator	12 ±	47	3 ±	31
23	Deck near CTD	-22 ±	41	9 ±	43
24	Final bucket blank	-12 ±	41	-13 ±	29

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 isotope contamination that requires cleaning. However please note that while the ^3H in the isotemp freezer in the Wet Lab is below the SWAB cleanup standards it is above background.

Figure 1
 SWAB #998
 29 March 2021

