

UNIVERSITY OF MIAMI

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SCHOOL of MARINE &
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Tritium Laboratory

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SWAB REPORT # 989

SWAB DATE: 28 December 2020

R/V Pelican

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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 insitution promptly by phone or email.

REPORT FOR SWAB # 989

LOCATION: Cocodrie, LA
VESSEL: R/V Pelican

DATE: 28 December 2020
TECHNICIAN: Jim Happell

Sample # Sample Identification	³ H dpm		¹⁴ C dpm	
	activity	error	activity	error
1 1st Vial Bkgnd	0	± 0	0	± 0
2 Initial bucket blank	40	± 89	-40	± 84
<u>Dry Lab (Figure 1)</u>				
3 Forward benchtop	42	± 58	-10	± 21
4 Port benchtop	45	± 53	-36	± 77
5 Starboard benchtop	14	± 55	-3	± 37
6 Fume hood	35	± 65	-17	± 37
7 Deck in front of door	-19	± 74	19	± 40
<u>Main Deck (Figure 1)</u>				
8 Deck in computer room near door	-2	± 60	9	± 38
9 Deck between galley and mess	0	± 2	-12	± 25
10 Deck at top of forward stairs	13	± 61	-5	± 62
<u>Wetlab (Figure 1)</u>				
11 Inside aft freezer	-3	± 59	-7	± 76
12 Inside forward freezer top	17	± 52	-2	± 19
13 Inside forward refrigerator bottom	197	± 46	*56	± 32
14 Benchtop next to port door	10	± 41	5	± 33
15 Benchtop next to forward sink	5	± 83	-13	± 27
16 Deck in front of refrigerator	70	± 54	5	± 21
17 Benchtop across from refrigerator	21	± 200	-35	± 74
18 Benchtop across from port sink	-28	± 107	5	± 54
19 Sink area of bottle lab	8	± 146	-12	± 26
20 Aft deck of wetlab	30	± 82	-29	± 60
21 Benchtop forward of port sink	37	± 70	-22	± 46
22 Deck inside port entrance	9	± 134	-10	± 21
23 Deck in center of lab	5	± 37	5	± 35
24 Top of aft chest freezer	57	± 59	-17	± 35
25 Final bucket blank	-18	± 0	6	± 44

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. There was one area of minor ^{14}C contamination in the bottom of the refrigerator. The refrigerator also had above background ^3H . This refrigerator should be cleaned ASAP.

R/V Pelican

Figure 1
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28 December 2020

