UNIVERSITY
OF MIAMI

Rosenstiel School of Marine, Atmospheric, and Earth Science
Tritium Laboratory

4600 Rickenbacker Causeway
Miami, FL 33149-1031

P: 305-421-4100
F: 305-421-4112
tritium@miami.edu

Tritium Laboratory
30 May 2023

SWAB REPORT # 1060

SWAB DATE: 23 May 2023

R/V Pelican
UNOLS Radioisotope Van # 2408-04

James Happell Digitally signed by James Happell
Date: 2023.06.01 11:48:36 -04'00'

James D. Happell

Distribution:
SWAB Committee
Joseph Malbrough
Marshall Bowles
Tim Deering

COMMENTS TO SWAB REPORTS 15 December 2021

The LSC is now a Quantulus GCT 6220, with the SWAB counting assay having background cpm of 0.3 & 1.2 for ^{3}H & ^{14}C. This replaces an LSC with background cpm of 1.6 & 5.5 for ^{3}H & ^{14}C.

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. All activities significantly above background will be in **bold**.

Criteria for SWAB Results

Category	^{3}H (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 dpm/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 Proceedure

Wearing ordinary household rubber gloves:

^{3}H: 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 $^{14}CO_2$). Follow up with wash as if for ^{3}H.

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 # 1060

LOCATION: Cocodrie, LA
VESSEL: *R/V Pelican*

DATE: 23 May 2023
TECHNICIAN: Yudy Mendoza

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		^{3}H dpm/m^{2} error	^{14}C dpm/m^{2} activity		^{14}C dpm/m^{2} error
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank	-32	±	12	-16	±	15
	Dry Lab (Figure 1)						
3	Forward benchtop	-27	±	10	-6	±	12
4	Port benchtop	-11	±	68	-19	±	18
5	Forward benchtop next to fume hood	17	±	39	-12	±	11
6	Deck in front of door	-51	±	40	**39**	**±**	**16**
7	Fume hood	-29	±	11	-12	±	12
	Main Deck (Figure 1)						
8	Deck outside computer room	-28	±	11	7	±	15
9	Deck between galley and mess	13	±	82	-19	±	18
10	Deck at top of forward stairs	22	±	54	-23	±	13
	Wet Lab (Figure 1)						
11	Deck in front of aft freezer	-36	±	14	-13	±	10
12	Inside forward freezer top	8	±	149	-21	±	12
13	Inside forward refrigerator bottom	-11	±	211	-22	±	13
14	Benchtop next to port door	-31	±	12	-20	±	15
15	Benchtop next to forward sink	-18	±	42	-28	±	16
16	Deck in front of refrigerator	-38	±	14	15	±	15
17	Benchtop across from refrigerator	-20	±	50	0	±	12
18	Benchtop across from port sink	6	±	122	-11	±	10
19	Sink area of bottle lab	-18	±	42	-27	±	16
20	Aft deck of bottle lab	-17		40	**24**		**14**
21	Benchtop forward of port sink	-16	±	36	-11	±	10
22	Deck inside port entrance	-20	±	45	16	±	14
23	Deck in front of port sink	-52	±	41	4	±	26
24	Top of aft chest freezer	15	±	97	-23	±	18
25	Intermediate bucket blank	-28	±	11	-18	±	14

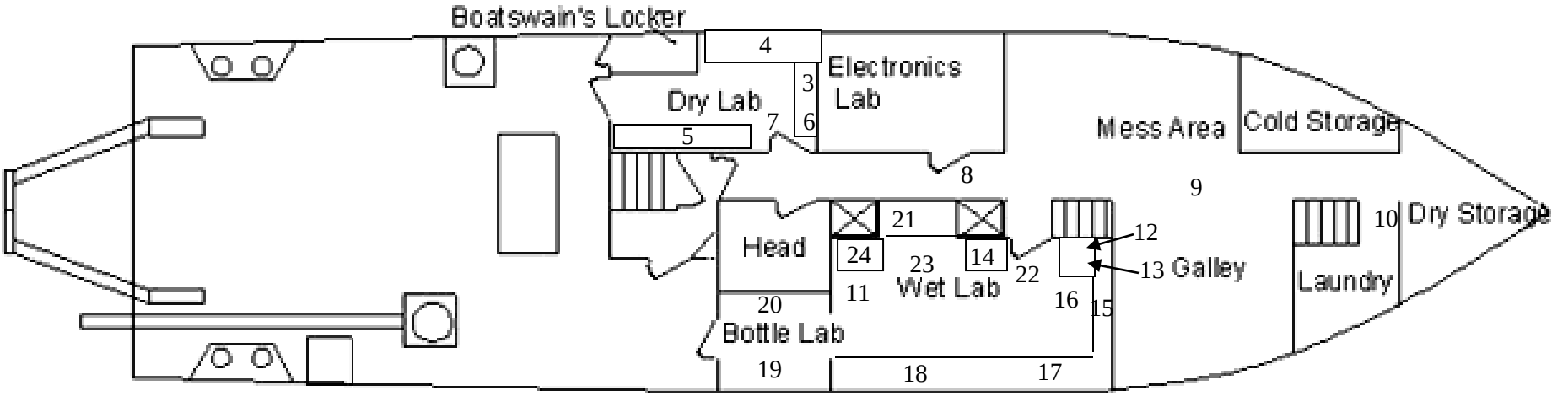
Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
	Radioisotope Van 2408-04 (Figure 2)						
26	Benchtop across from sink	-28	±	11	***262**	±	**24**
27	Benchtop next to LSC	-44	±	35	***173**	±	**21**
28	Inside fume hood	-60	±	7	***1546**	±	**53**
29	Benchtop next to fume hood	-137	±	12	***2517**	±	**66**
30	Benchtop next to sink	-42	±	6	***879**	±	**41**
31	Sink area	-1778	±	42	****31205**	±	**231**
32	Refrigerator near hood	-24	±	0	**18**	±	**14**
33	Refrigerator near sink	**-5**	±	**4**	***79**	±	**17**
34	Deck between LSC and fume hood	-3266	±	62	*****51257**	±	**297**
35	Deck near sink	-259	±	16	***4779**	±	**91**
36	Final bucket blank	-9	±	0	-27	±	16

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. 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. Please note that we are now using a Quantulus 6220 LSC which counts very near natural background. While the cleanup standards have not changed all values above background will now be in bold. All areas tested inside the ship were fress from contamination that requires cleaning. Minor to very high ^{14}C contamination was observed in the Rad Van. The benchtop around the sink and the deck should be cleaned ASAP. Large negative ^{3}H values in samples 31 and 34 are an artifact of the large . amount of ^{14}C in these samples. ^{35}S was also used in the Rad Van. Since ^{35}S is counted as ^{14}C, we will wait 90 days (~one half life of ^{35}S) and count again to see if there is any decrease in activity associate with the presence of ^{35}S.

R/V Pelican

Figure 1
SWAB #1060
23 May 2023



Rad Van 2408-04

Figure 2
SWAB # 1060
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