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Tritium Laboratory
21 May 2024

SWAB REPORT #1092

SWAB DATE: May 15, 2024

R/V Kilo Moana

James D. Happell
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Distribution:
SWAB Committee
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UH Marine Ops

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 ^3H & ^{14}C . This replaces an LSC with background cpm of 1.6 & 5.5 for ^3H & ^{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	^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 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 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 # 1092

LOCATION: San Diego, CA
VESSEL/LAB: R/V Kilo Moana

DATE: 15 May 2024
TECHNICIAN: Charlene Grall

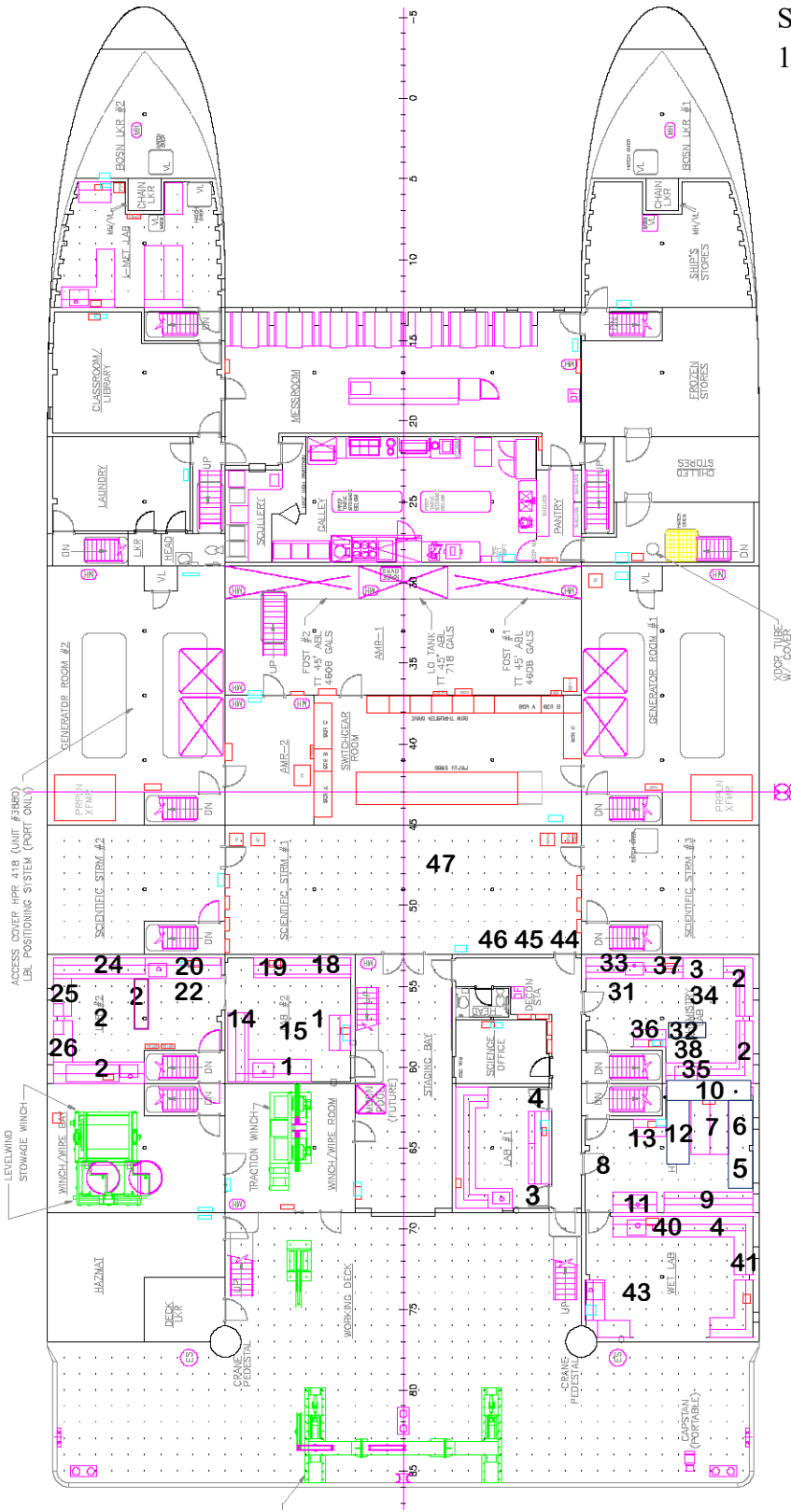
Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
1	1st Vial Background	0	± 0	0	± 0
2	Initial bucket blank CO #1	-2	± 43	-5	± 9
	<u>Lab #1 (Figure 1)</u>				
3	Deck inside aft entrance	14	± 38	-14	± 18
4	Deck inside forward entrance	-18	± 24	-9	± 17
	<u>Hydro Lab (Figure 1)</u>				
5	Starboard benchtop below aft porthole	12	± 42	-14	± 18
6	Starboard benchtop below forward porthole	45	± 25	-3	± 14
7	Deck in front of starboard bench	5	± 10	11	± 14
8	Deck inside port entrance	36	± 30	-17	± 22
9	Aft benchtop	15	± 20	-2	± 11
10	Forward benchtop	-2	± 49	3	± 14
11	Aft sink area	17	± 20	1	± 8
12	Port benchtop	-5	± 19	-9	± 16
13	Forward benchtop next to Fire Station #17	25	± 22	0	± 1
	<u>Lab #2 (Figure 1)</u>				
14	Port benchtop	31	± 23	1	± 14
15	Deck in center of lab	-1	± 11	-1	± 10
16	Aft sink and adjacent benchtop	1	± 20	0	± 5
17	Starboard benchtop	21	± 18	7	± 12
18	Forward benchtop on starboard side	14	± 61	-21	± 28
19	Forward benchtop on port side	44	± 27	-14	± 18
20	Forward sink and adjacent starboard benchtop	-2	± 38	2	± 14
21	Aft sink and adjacent port benchtop	-5	± 20	-4	± 21
22	Deck in front of forward sink	-5	± 33	15	± 15
23	Deck in front of forward bench port of sink	50	± 30	-17	± 22
24	Forward benchtop	37	± 28	-11	± 15
25	Port bench under forward porthole	4	± 17	1	± 11
26	Port bench under aft porthole	31	± 28	-16	± 20
27	Benchtop port of forward sink	32	± 28	-9	± 16

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
<u>Chemistry Lab (Figure 1)</u>					
28	Forward section of starboard benchtop	5	± 22	-2	± 13
29	Aft section of starboard benchtop	-4	± 16	-1	± 8
30	Inside fume hood	12	± 52	-16	± 21
31	Deck between port entrance & forward sink	26	± 23	-2	± 13
32	Center benchtop in front of aft sink	16	± 21	-3	± 13
33	Forward sink area	34	± 24	-5	± 24
34	Deck in front of fume hood	29	± 23	1	± 5
35	Aft sink and adjacent benchtop	11	± 20	-2	± 12
36	Center benchtop opposite of forward sink FS1	-1	± 18	-11	± 15
37	Forward benchtop between fume hood and sink	1	± 26	-1	± 8
38	Deck in front of aft sink	-1	± 16	1	± 14
39	Intermediate bucket blank	-18	± 23	16	± 15
<u>Wet Lab (Figure 1)</u>					
40	Forward sink and adjacent benchtop	19	± 29	-11	± 15
41	Starboard benchtop	29	± 25	-9	± 16
42	Starboard side of forward benchtop	25	± 23	-3	± 15
43	Deck port of CTD	-3	± 51	1	± 15
<u>Science Storeroom (Figure 1)</u>					
44	Inside Cospolich refrigerator #1	29	± 25	-8	± 14
45	Inside Cospolich refrigerator #2	-26	± 34	-2	± 11
46	Inside Cospolich refrigerator #3	-14	± 18	-5	± 10
47	Top of OTG freezer	3	± 56	-4	± 8
<u>01 Deck (No Figure)</u>					
48	01 Deck where Rad Van door opened	11	± 43	-13	± 17
49	01 Deck at base of stair to 02 deck	6	± 29	-5	± 9
50	Final bucket blank	31	± 21	7	± 12

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 on the ship were free from isotope contamination requiring cleaning.

Figure 1
 SWAB # 1092
 15 May 2024



MAIN DECK