



Tritium Laboratory
26 June 2026

SWAB REPORT #1142

SWAB DATE: June 16, 2026

R/V Kilo Moana

James D. Happell
Associate Research Professor

Distribution:
UNOLS office
Craig Nosse
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 institution promptly by phone or email.

REPORT FOR SWAB # 1142

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

DATE: 16 June 2026
TECHNICIAN: Joseph Gonzalez

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	9	±	12	2	±	11
	<u>Lab #1 (Figure 1)</u>						
3	Starboard benchtop	15	±	17	-5	±	39
4	Deck in center of lab	32	±	16	16	±	13
5	Center section of port benchtop	17	±	16	-1	±	11
	<u>Hydro Lab (Figure 1)</u>						
6	Starboard benchtop below forward porthole	37	±	22	-12	±	93
7	Starboard benchtop below aft porthole	31	±	19	-10	±	82
8	Deck in front of starboard bench	15	±	12	11	±	13
9	Deck inside port entrance	1	±	2	-22	±	177
10	Aft benchtop	37	±	20	-3	±	27
11	Forward benchtop	34	±	19	-8	±	65
12	Aft sink area	44	±	24	-13	±	104
13	Port benchtop	10	±	10	9	±	13
14	Forward benchtop next to Fire Sta 17	4	±	6	11	±	14
	<u>Chemistry Lab (Figure 1)</u>						
15	Chem Lab F section of starboard benchtop	19	±	25	-19	±	147
16	Aft section of starboard benchtop	3	±	11	0	±	109
17	Inside fume hood	10	±	12	2	±	11
18	Deck between forward sink & port entrance	-19	±	61	22	±	15
19	Center benchtop in front of aft sink	14	±	15	-5	±	37
20	Forward sink area	28	±	20	-9	±	67
21	Deck in front of fume hood	22	±	17	0	±	11
22	Aft sink and adjacent benchtop	13	±	19	-8	±	62
23	Aft benchtop next to Fire Sta 15	21	±	18	-6	±	51
24	Forward benchtop between fume hood and sink	10	±	13	1	±	7
25	Deck in front of aft sink	90	±	29	-4	±	59
	<u>Wet Lab (Figure 1)</u>						
26	Forward sink and adjacent benchtop	33	±	18	7	±	11
27	Starboard benchtop	8	±	12	2	±	11
28	Starboard side of fwd benchtop	5	±	13	-1	±	9
29	Deck port of CTD	19	±	18	-6	±	44

Sample #	Sample Identification	³ H dpm/m ²			¹⁴ C dpm/m ²		
		activity		error	activity		error
	<u>Science Storeroom (Figure 1)</u>						
30	Inside Cospolich refrigerator #1	3	±	8	-17	±	131
31	Inside Cospolich refrigerator #2	11	±	19	-8	±	62
32	Inside Cospolich refrigerator #3	31	±	18	-4	±	33
33	Top of HOT freezer	8	±	17	-5	±	40
34	Top of OTG freezer	23	±	12	26	±	14
35	Intermediate bucket blank	8	±	23	-8	±	67
	<u>Lab #2 (Figure 1)</u>						
36	Port benchtop	-20	±	64	-9	±	68
37	Deck in center of lab	14	±	16	-4	±	34
38	Aft sink and adjacent benchtop	10	±	22	-9	±	74
39	Starboard benchtop	-31	±	100	0	±	3
40	Forward benchtop	-15	±	50	-10	±	80
41	Forward sink and adjacent benchtop	-18	±	57	1	±	6
42	Aft sink and adjacent benchtop	15	±	16	-3	±	21
43	Deck between aft entrance and forward sink	36	±	21	-7	±	54
44	Deck in front of aft sink	12	±	13	1	±	9
45	Forward benchtop port of forward sink	30	±	20	-8	±	63
46	Port benchtop	29	±	22	-15	±	117
47	Final bucket blank	9	±	21	-8	±	62

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 of radioisotope contamination that requires cleaning.

