

UNIVERSITY OF MIAMI
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Tritium Laboratory

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SWAB REPORT # 962

SWAB DATE: 21 October 2019

R/V Oceanus and Hawaii Van #23

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Distribution:
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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 # 962

LOCATION: Honolulu, HI

DATE: 21 October 2019

VESSEL: *R/V Oceanus*

TECHNICIAN: Charlene Grall

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	-33	± 65	47	± 38
	<u>Main Lab (Figure 1)</u>				
3	Forward sink area	-20	± 39	10	± 40
4	Benchtop opposite of sink	-38	± 74	20	± 40
5	Center benchtop	-64	± 127	40	± 40
6	Aft benchtop	-22	± 44	15	± 39
7	Port benchtop center section	16	± 32	22	± 35
8	Top of So-Low freezer	-1	± 23	6	± 36
9	Deck forward of freezer	-36	± 71	34	± 39
10	Aft port benchtop	-8	± 53	33	± 37
11	Aft benchtop forward of printer	-35	± 69	32	± 39
12	Deck at aft entrance	-56	± 110	33	± 40
13	Deck at forward entrance	-38	± 75	17	± 41
14	Inside refrigerator drawers	-30	± 60	20	± 39
15	Inside freezer drawers	-47	± 93	30	± 39
	<u>Wet Lab (Figure 1)</u>				
16	Inside fume hood	-21	± 42	34	± 38
17	Benchtop port side of fumehood	-46	± 91	27	± 40
18	Forward benchtop above freezer	39	± 78	36	± 35
19	Port benchtop	-51	± 100	8	± 54
20	Starboard sink area	-31	± 60	35	± 38
21	Deck near aft entrance	-61	± 120	44	± 40
	<u>Upper Lab (Figure 1)</u>				
22	Deck at top of stairs	-26	± 52	34	± 38
23	Deck between aft entrance & head	-21	± 42	24	± 38
24	Deck port side of Marine Tech area	-33	± 66	35	± 38
	<u>Aft Deck (Figure 1)</u>				
25	Deck below rad van door	-30	± 59	*55	± 38
26	Intermediate bucket blank	-8	± 113	23	± 37

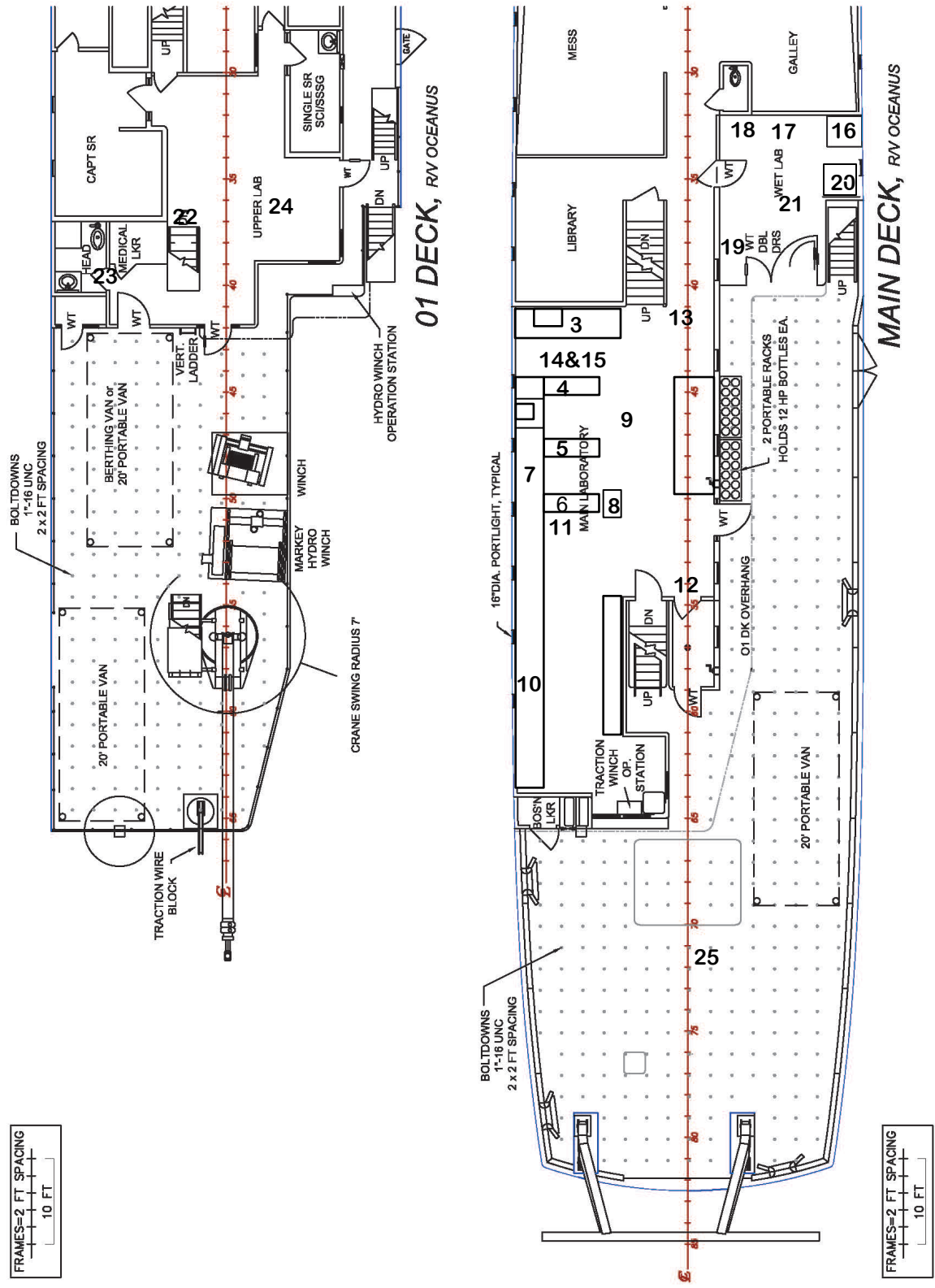
Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
	<u>Hawaii Rad Van #23 (Figure 2)</u>				
27	Benchtop right of door	-18	± 145	30	± 39
28	Benchtop opposite of door right section	-14	± 10	*198	± 43
29	Benchtop opposite of door center section	57	± 21	*324	± 48
30	Benchtop opposite of door left section	107	± 47	*77	± 36
31	Sink area	125	± 54	47	± 33
32	Benchtop left of door	-41	± 0	21	± 40
33	Inside freezer	469	± 75	*85	± 30
34	Inside refrigerator	*868	± 95	*81	± 26
35	Deck below sink	*969	± 103	*180	± 34
36	Deck between benchtops right of door	*1601	± 137	*66	± 19
37	Deck inside van door	*927	± 107	*109	± 29
38	Final bucket blank	-11	± 0	1	± 60

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 of isotope contamination, except for the aft deck below the Rad Van door which had a minor amount of ^{14}C . This area should be cleaned. Minor ^3H and ^{14}C contamination were found in the Hawaii Rad Van. No action is necessary although we recommended cleaning the deck to help prevent tracking contamination outside the van.

Figure 1
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R/V Oceanus



Hawaii Van #23

