UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE

Tritium Laboratory
4600 Rickenbacker Causeway
Miami, Florida 33149-1031

Ph: 305-421-4100
Fax:305-421-4112
E-mail: Tritium@rsmas.miami.edu

Tritium Laboratory
19 September 2019

SWAB REPORT #960

SWAB DATE: 9 September 2019

R/V Kilo Moana and Kilo Moana Rad Van

James Happell

Digitally signed by James Happell
Date: 2019.09.19 12:19:58 -04'00'

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Scott Ferguson
Craig Nosse

COMMENTS TO SWAB REPORTS 12 May 2014

Typical LSC instrument background values for ^{3}H 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	^{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 # 960

LOCATION:Honolulu, Hawaii
VESSEL/LAB: *R/V Kilo Moana*

DATE: 9 September 2019
TECHNICIAN: Jim Happell

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	-31	±	49	5	±	56
	<u>Hydro Lab (Figure 1)</u>						
3	Hydro Aft sink area	-32	±	51	-10	±	15
4	Forward benchtop	-30	±	47	-12	±	18
5	Starboard benchtop aft section	28	±	45	9	±	32
6	Port benchtop	-13	±	47	-30	±	45
7	Deck in front of starboard bench	-10	±	39	-8	±	29
8	Deck inside port entrance	33	±	63	-5	±	20
9	Aft benchtop	-12	±	44	23	±	39
10	Starboard benchtop forward section	6	±	39	-27	±	40
	<u>Wet Lab (Figure 1)</u>						
11	Sink area	-28	±	45	-24	±	35
12	Deck inside aft hanger door entrance	-43	±	56	-7	±	26
13	Port benchtop	13	±	87	-27	±	40
14	Starboard benchtop	53	±	69	-20	±	30
15	Forward benchtop	22	±	61	-2	±	6
	<u>Lab #1 (Figure 1)</u>						
16	Starboard benchtop	-20	±	0	-11	±	41
17	Deck below aft sink	17	±	36	12	±	36
18	Deck at forward entrance	5	±	9	-33	±	115
19	Port benchtop	3	±	15	12	±	38
20	Sink area	-10	±	81	16	±	40
	<u>Chemistry Lab (Figure 1)</u>						
21	Forward sink area	3	±	18	-9	±	32
22	Deck in front of aft sink	-38	±	49	6	±	56
23	Benchtop between sink and fume hood	-26	±	42	-3	±	10
24	Aft sink area	15	±	64	-6	±	20
25	Deck at port entrance	8	±	95	-7	±	25
26	Inside fume hood	1	±	7	-9	±	33
27	Starboard benchtop between portholes	-15	±	55	-11	±	16
28	Aft benchtop	16	±	61	-35	±	52
29	Center benchtop opposite aft sink	-26	±	41	-18	±	27
30	Inside Kenmore refrigerator	-4	±	25	-8	±	29

Sample #	Sample Identification	^{3}H dpm/m^{2}			^{14}C dpm/m^{2}		
		activity		error	activity		error
	Scientific Storage Area (Figure 1)						
31	Inside Cospolich refrigerator #1	24	±	39	-52	±	77
32	Inside Cospolich refrigerator #2	6	±	39	-30	±	44
33	Top of Kenmore chest freezer #3	-6	±	40	-8	±	29
34	Top of Kenmore chest freezer #2	23	±	131	-26	±	39
35	Top of Kenmore chest freezer #1	-3	±	22	-7	±	26
36	Inside Cospolich refrigerator #3	-42	±	55	3	±	104
	Lab #2 (Figure 1)						
37	Deck inside entrance	-11	±	42	-3	±	12
38	Forward sink area	18	±	68	-9	±	34
39	Deck at bulkhead betw lab spaces	-1	±	8	18	±	38
40	Port benchtop center section	29	±	64	-12	±	18
41	Port aft sink area	6	±	38	-19	±	28
42	Benchtop opposite of port aft sink	1	±	10	-10	±	14
43	Deck in front of port aft sink	-20	±	73	11	±	41
44	Forward bench under monitor	4	±	26	-26	±	0
45	Benchtop against center bulkhead	-10	±	37	-9	±	35
46	Forward port benchtop next to forward sink	-12	±	44	-19	±	29
47	Aft sink area	-35	±	46	-9	±	32
48	Aft bench next to port aft sink	-8	±	51	-6	±	24
49	Foward port benchtop	-7	±	46	-20	±	29
	Kilo Moana Rad Van (Figure #2)						
50	Benchtop next to door	30	±	47	7	±	31
51	Benchtop next to fume hood	13	±	49	2	±	26
52	Inside fume hood	18	±	82	-14	±	21
53	Benchtop next to LSC	11	±	90	-10	±	36
54	Benchtop opposite door	50	±	58	-8	±	28
55	Deck between LSC and fume hood	314	±	71	27	±	24
56	Deck in center of van	451	±	83	-20	±	261
57	Deck near door	224	±	67	14	±	21
58	Final bucket balnk	6	±	166	-9	±	33

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. 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 and in the van were free from contamination that requires cleaning

SWAB # 959
Figure 1
7 September 2019

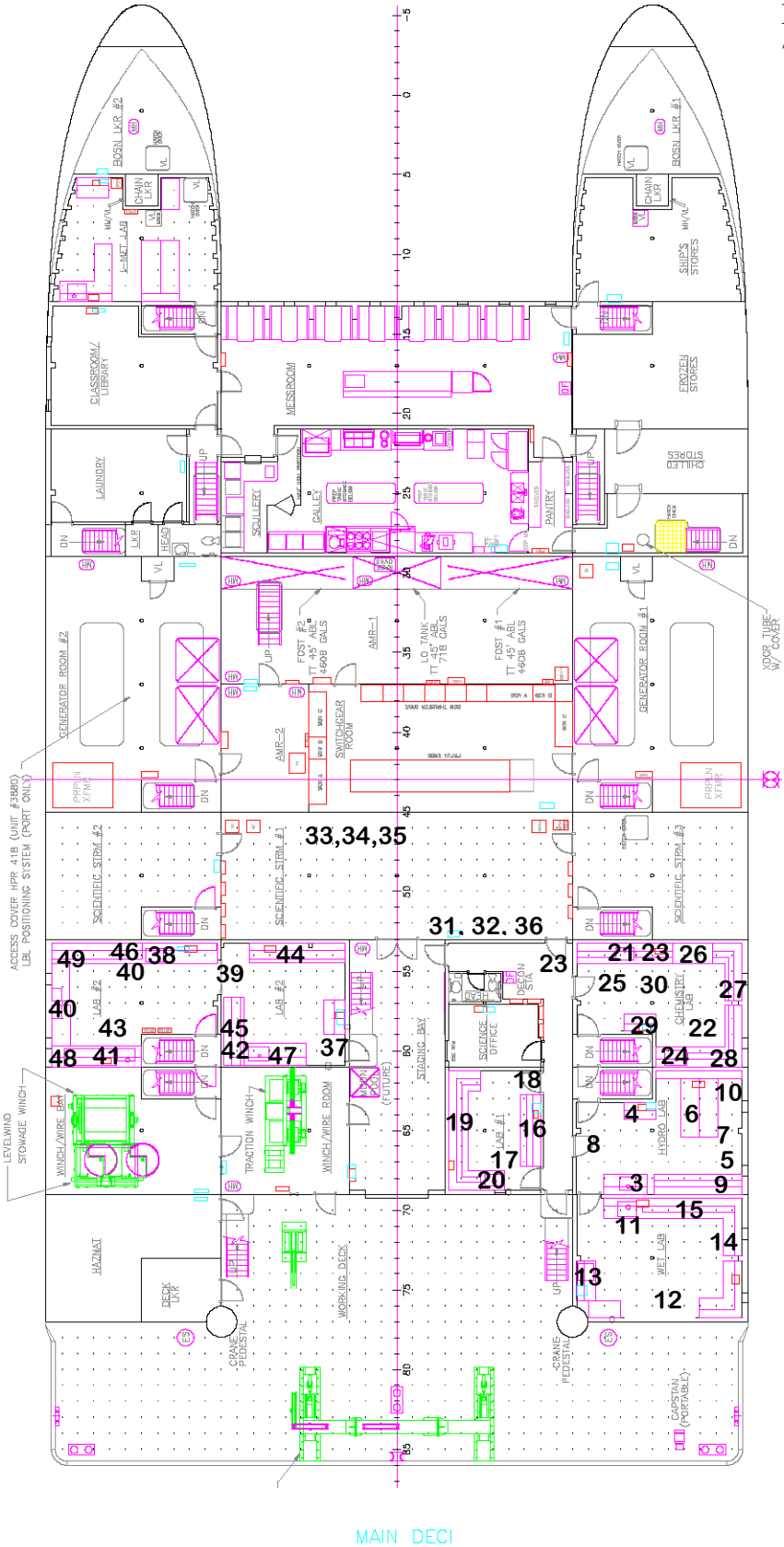

Figure 2
SWAB # 959
7 September 2018

UNIVERSITY OF HAWAII

R/V KILO MOANA

RADIOISOTOPE VAN