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Tritium Laboratory
23 October 2017

SWAB REPORT #877

SWAB DATE: 10 October 2017

R/V Kilo Moana

James Happell

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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 # 877

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

DATE: 10 October 2017
TECHNICIAN: Yudy Mendoza

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	-51	±	10	-1	±	3
	Hydro Lab (Figure 1)						
3	Aft sink area	25	±	109	-30	±	17
4	Forward benchtop	-21	±	15	8	±	45
5	Starboard benchtop after-section	23	±	66	-11	±	9
6	Port benchtop	-51	±	5	14	±	47
7	Deck in front of starboard bench	60	±	53	11	±	30
8	Deck inside port entrance	38	±	88	-29	±	13
	Wet Lab (Figure 1)						
9	Sink area	-6	±	18	-5	±	15
10	Deck inside aft hanger door entrance	-35	±	23	-18	±	21
11	Deck below port fume hood	14	±	81	-10	±	7
	Lab #1 (Figure 1)						
12	Starboard benchtop	-18	±	9	-13	±	5
13	Deck below aft sink	-50	±	7	22	±	44
14	Deck at forward entrance	-9	±	2	3	±	45
	Chemistry Lab (Figure 1)						
15	Forward sink area	-28	±	11	-29	±	21
16	Deck in front of Kenmore refrigerator	6	±	94	-7	±	6
17	Deck below fume hood	1	±	6	-3	±	18
18	Aft sink area	1	±	8	-22	±	15
19	Deck at port entrance	11	±	465	-21	±	17
	Scientific Storage Area (Figure 1)						
20	Inside Cospolich refrigerator 1	1	±	13	-7	±	12
21	Inside Cospolich refrigerator 2	2	±	104	-3	±	8
22	Inside Cospolich refrigerator 3	95	±	59	-13	±	21
23	Top of center GE chest freezer	-4	±	15	-6	±	9
24	Top of Kenmore chest freezer	-9	±	21	-23	±	20

Sample #	Sample Identification	^{3}H dpm/m^{2}			^{14}C dpm/m^{2}		
		activity		error	activity		error
	Lab #2 (Figure 1)						
25	Aft sink area	-7	±	16	-9	±	10
26	Deck inside entrance	-23	±	12	-32	±	14
27	Forward sink area	-7	±	10	-27	±	15
28	Deck at bulkhead between lab spaces	-13	±	18	-16	±	31
29	Port benchtop center section	-15	±	3	-10	±	18
30	Port aft sink area	-29	±	18	-17	±	10
31	Benchtop opposite of aft sink	44	±	65	-19	±	22
32	Deck in front of port aft sink	-15	±	15	8	±	42
	01 Deck (No Figure)						
33	Companionway inside exit to aft port weatherdeck	-21	±	10	-14	±	17
34	Deck where rad van door opened	-31	±	19	20	±	42
35	Intermediate bucket blank	-21	±	8	3	±	70
	Kilo Moana Rad Van (Figure 2)						
36	Benchtop across from side entrance	89	±	52	16	±	29
37	Benchtop adjacent to LSC	-35	±	20	39	±	41
38	Benchtop across from LSC	-18	±	141	*50	±	40
39	Benchtop adjacent to side entrance	4	±	9	43	±	39
40	Inside fume hood	-27	±	17	40	±	41
41	Deck near end entrance	*1339	±	112	*84	±	23
42	Inside refrigerator across from LSC	-16	±	47	*74	±	41
43	Inside refrigerator adjacent to side door	-33	±	29	*68	±	41
44	Deck near side entrance	340		68	*56	±	31
45	Final bucket blank	-27	±	2	54	±	41

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 from contamination that requires cleaning. Radioisotope Van had minor contamination. Deck area near end entrance should be cleaned.

SWAB # 877
Figure 1
10 October 2017

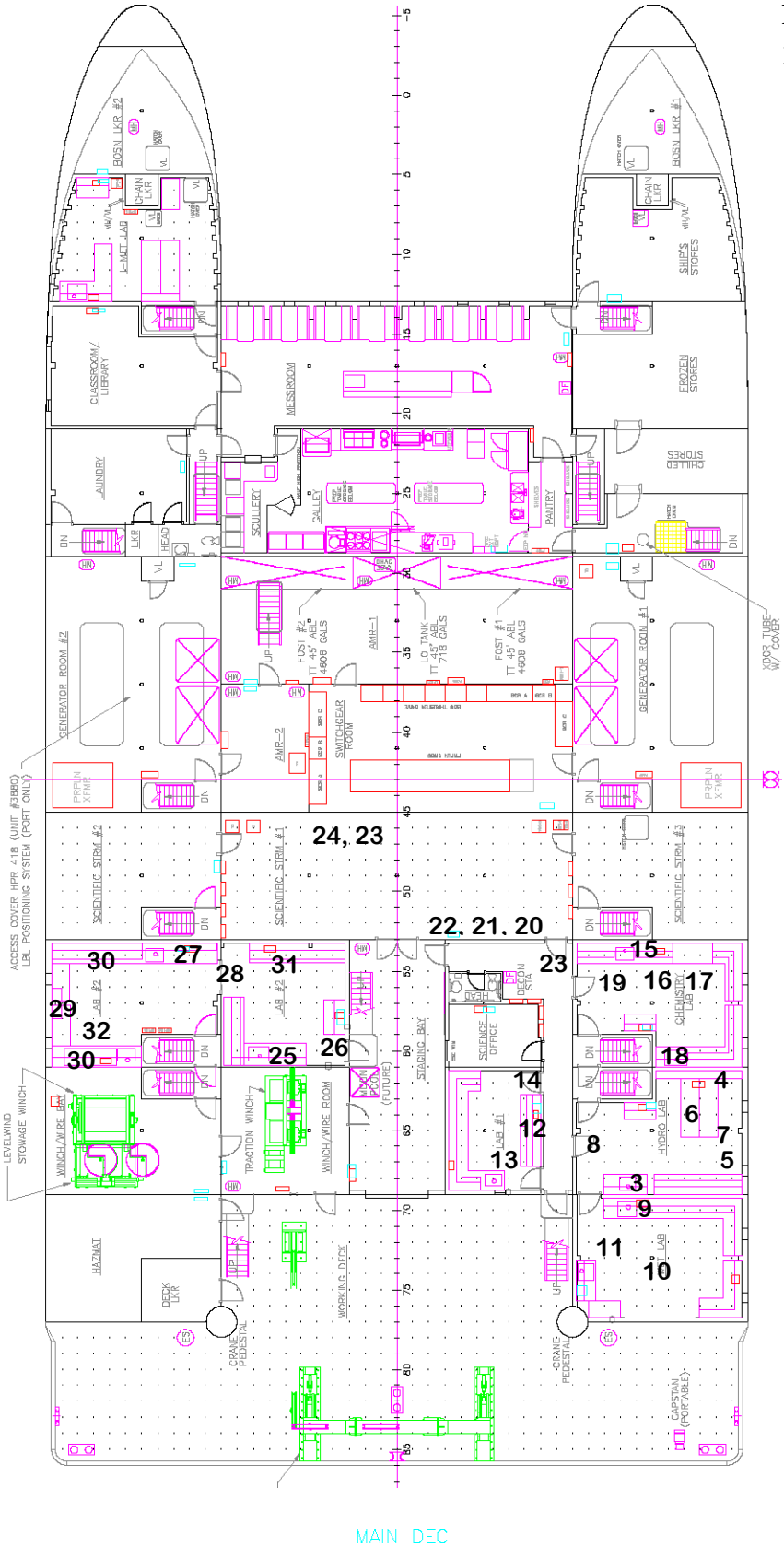

Figure 2
SWAB # 877
10 October 2017

UNIVERSITY OF HAWAII

R/V KILO MOANA

RADIOISOTOPE VAN