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Tritium Laboratory
9 December 2014

SWAB REPORT # 751

SWAB DATE: 1 December 2014

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 # 751

LOCATION: Honolulu, HI
VESSEL: *R/V Kilo Moana*

DATE: 1 December 2014
TECHNICIAN: Yudy Mendoza

Sample #	Sample Identification	^{3}H dpm/m^{2} activity	±	error	^{14}C dpm/m^{2} activity	±	error
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank	0	±	0	0	±	0
	Chemistry Lab (Figure 1)						
3	Deck inside port entrance	0	±	0	0	±	0
4	Deck in front of fume hood	37	±	57	0	±	0
5	Starboard benchtop aft section	5	±	0	0	±	0
6	Inside fume hood	23	±	42	5	±	28
7	Benchtop between forward sink and fume hood	0	±	0	0	±	0
8	Forward sink area	0	±	0	4	±	42
9	Inside small Kenmore fridge	0	±	0	0	±	0
10	Aft sink area	0	±	0	7	±	38
	Hydro Lab (Figure 1)						
11	Deck between forward and port entrances	0	±	0	0	±	0
12	Deck below starboard benchtop, mid section	0	±	0	0	±	0
13	Aft sink area	4	±	54	0	±	0
14	Forward benchtop	0	±	0	0	±	0
15	Port benchtop	0	±	0	22	±	38
16	Starboard benchtop, aft section	94	±	55	0	±	0
	Wet Lab (Figure 1)						
17	Deck inside forward entrance	0	±	0	1	±	0
18	Forward benchtop, next to sink	0	±	0	11	±	35
19	Deck below forward benchtop	33	±	59	0	±	0
	Lab #1 (Figure 1)						
20	Deck below aft sink	0	±	0	0	±	0
21	Deck at forward entrance	0	±	0	0	±	0
	Miscellaneous Areas (Figure 1)						
22	Deck inside Clean Power Room	2	±	0	0	±	0
23	Deck below water fountain and eye wash station	18	±	145	0	±	0
24	Deck at top of stair of Science Storage 4	0	±	0	0	±	0
25	Deck at aft entrance to Staging Bay	0	±	0	0	±	0
26	Deck at forward entrance to Staging Bay	0	±	0	7	±	50

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
	Scientific Storage(Figure 1)						
27	Top of port General Electric freezer	0	±	0	0	±	0
28	Inside Cospolich #1	28	±	57	0	±	0
29	Inside Cospolich #2 bottom	4	±	0	0	±	0
30	Inside Cospolich #3 top	18	±	59	0	±	0
	Lab#2 (Figure 1)						
31	Deck inside entrance	0	±	0	8	±	42
32	Aft starboard sink area	0	±	0	0	±	0
33	Deck at bulkhead between lab spaces	11	±	42	4	±	30
34	Forward sink area	0	±	0	0	±	0
35	Deck below aft port sink	0	±	0	0	±	0
	Computer Lab (Figure 1)						
36	Deck inside aft entrance	0	±	0	4	±	35
37	Deck inside starboard entrance	0		0	4		42
	01 Deck (No Figure)						
38	Aft Weatherdeck deck where the Rad van located	2	±	0	0	±	0
	02 Deck (No Figure)						
39	Deck where incubators used to be	0	±	0	9	±	44
	Mess (No Figure)						
40	Deck below food line	6	±	168	0	±	0
41	Final bucket blank CO #1	0	±	0	6	±	37
42	Initial bucket blank CO #2	0	±	0	0	±	0
	Radioisotope Van (Figure 2)						
43	Benchtop across from side entrance	*969	±	97	7	±	4
44	Benchtop adjacent to LSC	*553	±	78	15	±	12
45	Top of LSC	*2746	±	154	31	±	7
46	Benchtop opposite of LSC	*610	±	81	20	±	14
47	Benchtop adjacent to side entrance	*1675	±	118	7	±	3
48	Inside fume hood	301	±	64	18	±	18
49	Inside refrigerator closest to fume hood	*3502	±	158	*394	±	36
50	Inside refrigerator closest to side entrance	161	±	54	17	±	23
51	Deck inside rear entrance	*966	±	96	*65	±	22
52	Deck inside side entrance	*2339		138	*56		13
53	Final bucket blank CO #2	30	±	79	0	±	0

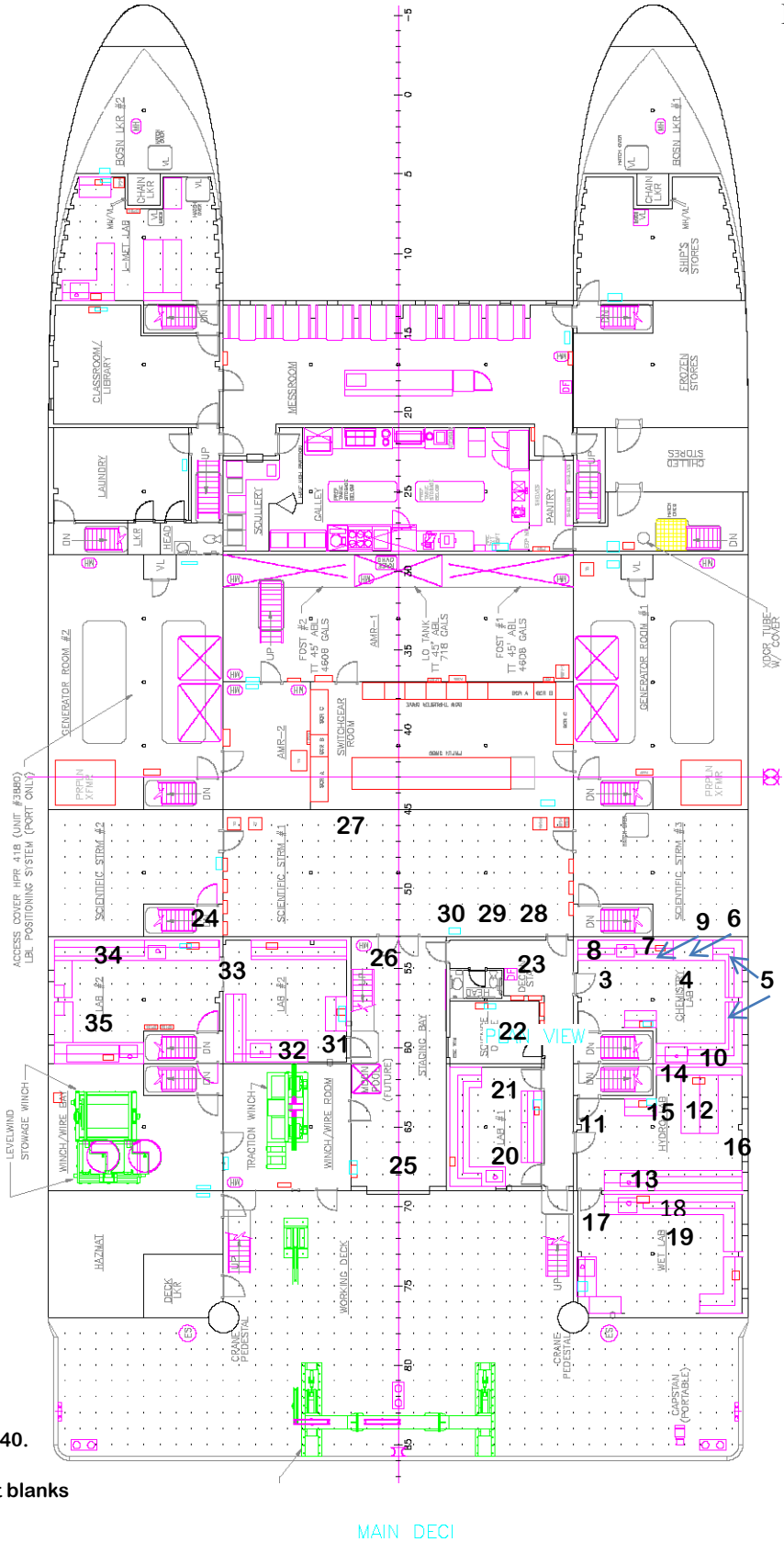
Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.

All areas tested in the ship were free from ^{3}H and ^{14}C contamination that requires cleaning.

Radioisotope van had minor contamination. Deck areas should be cleaned to help prevent tracking contamination into the ship.

SWAB # 751
Figure 1
1 December 2014



No figures for samples 36-40.

Samples 41, 42 are bucket blanks

Figure 2
SWAB #751
1 December 2014

UNIVERSITY OF HAWAII

R/V KILO MOANA
RADIOISOTOPE VAN