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Tritium Laboratory
4 May 2015

SWAB REPORT # 771

SWAB DATE: 25 April 2015

R/V Kilo Moana

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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 # 771

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

DATE: 25 April 2015
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 C. O # 1	4	±	7	-15	±	45
	Chemistry Lab (Figure 1)						
3	Deck inside port entrance	-5	±	10	8	±	37
4	Deck in front of fume hood	1	±	2	-3	±	8
5	Starboard benchtop aft section	26	±	51	-3	±	8
6	Inside fume hood	-2	±	4	-3	±	7
7	Benchtop between forward sink and fume hood	-6	±	11	2	±	42
8	Forward sink area	31	±	47	-1	±	24
9	Inside small Kenmore fridge	-17	±	34	-2	±	4
10	Aft sink area	2	±	5	-18	±	54
	Hydro Lab (Figure 1)						
11	Deck between f0rward and port entrances	44	±	48	9	±	28
12	Deck below starboard benchtop mid section	50	±	53	0	±	6
13	Aft sink area	-34	±	67	9	±	44
14	Forward benchtop	74	±	48	18	±	29
15	Port benchtop	11	±	22	-26	±	75
16	Starboard benchtop aft section	0	±	1	-17	±	49
	Wet Lab (Figure1)						
17	Deck inside forward entrance	-12	±	24	-14	±	42
18	Forward benchtop next to sink	2	±	38	2	±	33
19	Deck below forward benchtop	-1	±	1	-8	±	23
	Lab #1 (Figure 1)						
20	Deck below aft sink	12	±	900	-24	±	71
21	Deck at forward entrance	-18	±	36	-24	±	71
	Miscellaneous Areas (Figure 1)						
22	Deck on hallway between Lab 1 and Hydrolab	21	±	123	-28	±	83
23	Deck below water fountain and eye wash station	2	±	3	-6	±	18
24	Deck at top of stair of Science Storage	-18	±	35	26	±	38
25	Deck at aft entrance to Staging Bay	-21	±	41	-1	±	2
26	Deck at forward entrance to Staging Bay	-11	±	22	-25	±	72

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	-10	±	20	-27	±	78
28	Inside Cospolich #1	26	±	43	11	±	32
29	Inside Cospolich #2 bottom	8	±	142	-10	±	31
30	Inside Cospolich #3 top	-7	±	14	-31	±	90
	Lab #2 (Figure 1)						
31	Deck inside entrance	-40	±	79	-15	±	45
32	Aft starboard sink area	-33	±	65	-6	±	18
33	Deck at bulkhead between lab spaces	0	±	1	-10	±	28
34	Forward sink area	28	±	59	-12	±	35
35	Deck below aft port sink	11	±	48	1	±	25
	Computer Lab (no figure)						
36	Deck at center between aft and starboard	-38	±	75	-26	±	75
	HOT Van (no figure)						
37	Deck inside entrance	737	±	94	50	±	22
38	Deck outside entrance	-19	±	38	-6	±	17
39	Deck where incubator used to be	-17	±	33	-7	±	22
	Mess area (no figure)						
40	Deck below food server	-19	±	37	-4	±	11
41	Deck between exit to Staging Bay and Weatherdeck	-21	±	42	-5	±	15
42	Final bucket blank CO #1	6	±	12	-25	±	73
43	Initial bucket blank CO #2	-28	±	55	-1	±	4
	Radioisotope Van (Figure 2)						
44	Benchtop across from side entrance	111	±	55	0	±	3
45	Benchtop adjacent to LSC	60	±	53	-10	±	29
46	Top of LSC	138	±	55	3	±	11
47	Benchtop opposite of LSC	*517	±	74	17	±	14
48	Benchtop adjacent to side entrance	*10625	±	272	*165	±	13
49	Inside fume hood	32	±	55	-9	±	27
50	Inside refrigerator closest to fume hood	176	±	54	41	±	30
51	Inside refrigerator closest to side entrance	29	±	63	-16	±	48
52	Deck inside rear entrance	231	±	61	23	±	24
53	Deck inside side entrance	*1219	±	104	16	±	8
54	Final bucket blank CO #2	7	±	162	-12	±	0

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 in the ship were free from contamination that requires cleaning

Radioisotope van had minor (^{3}H and ^{14}C) and moderate (^{3}H) contamination. Benchtop adjacent to side entrance must be cleaned before any use.

Deck areas on both Hot Van 23 and Radioisotope van should be cleaned to help prevent tracking contamination into the ship.

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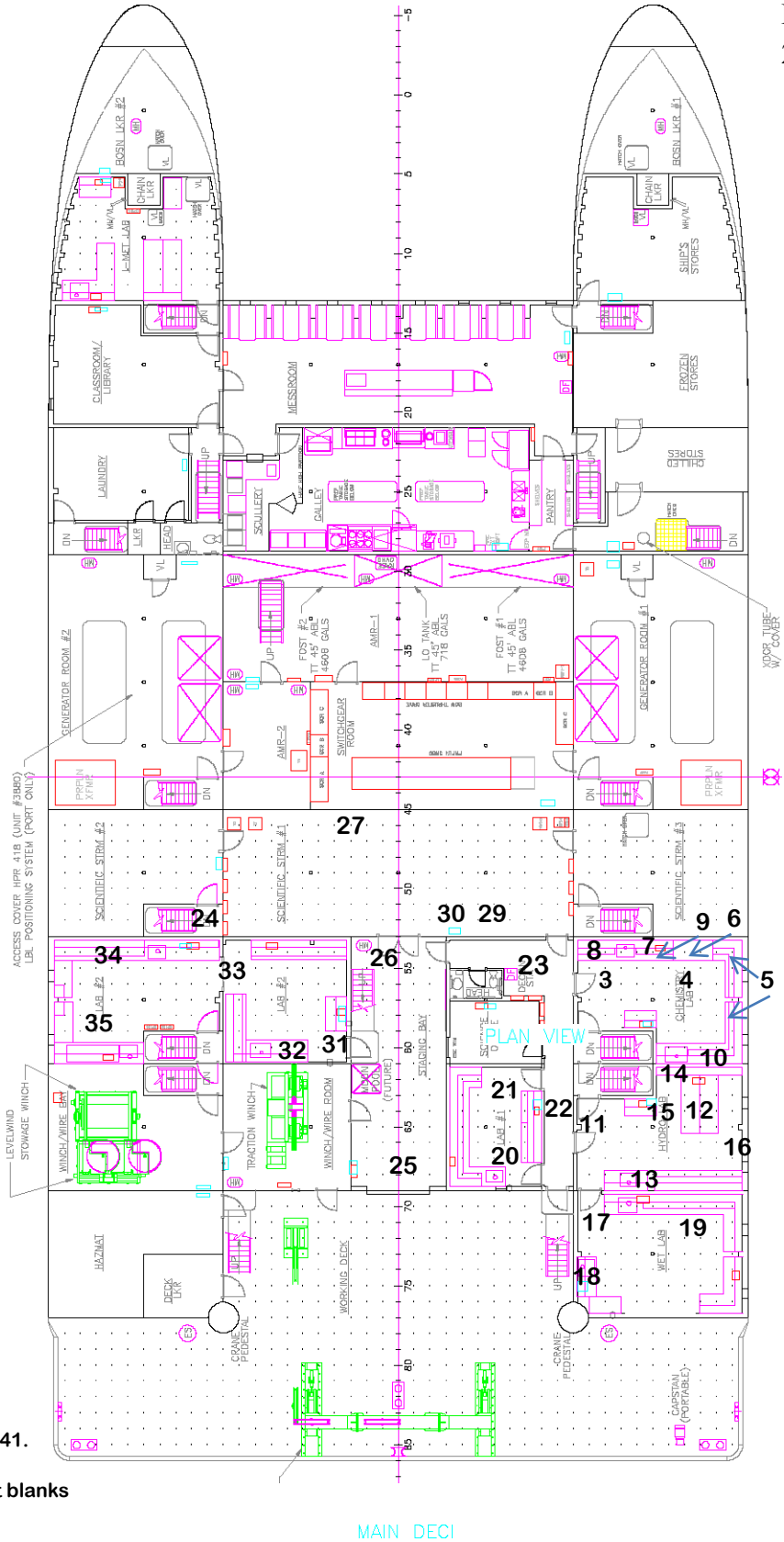
Figure 1
25 April 2015



No figures for samples 36-41.

Samples 42, 43 are bucket blanks

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Figure 2
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R/V KILO MOANA
RADIOISOTOPE VAN