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Tritium Laboratory
1 September 2014

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SWAB REPORT # 736

SWAB DATE: 24 August 2014

R/V Kilo Moana

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Distribution:
SWAB Committee
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COMMENTS TO SWAB REPORTS

23 November 2010

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 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 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 dispose in radiation waste system.

Note: If category C or D is encountered, we try to notify the insitution promptly by phone or email.

REPORT FOR SWAB # 736

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

DATE: 24 August 2014
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	0	± 0	6	± 38
	<u>Chemistry Lab (Figure 1)</u>				
3	Deck inside port entrance	0	± 0	14	± 41
4	Deck in front of fume hood	0	± 0	0	± 0
5	Stbd benchtop aft section	0	± 0	7	± 47
6	Inside fume hood	0	± 0	4	± 56
7	Benchtop between fwd sink and fume hood	6	± 291	0	± 0
8	Fwd sink area	33	± 57	0	± 0
9	Inside small Kenmore fridge	0	± -8	36	± 37
10	Aft sink area	0	± 0	0	± 0
	<u>Hydro Lab (Figure 1)</u>				
11	Deck between fwd and port entrances	0	± 0	0	± 0
12	Deck below stbd benchtop, mid-section	14	± 60	4	± 89
13	Aft sink area	0	± 0	0	± 0
14	Fwd benchtop	0	± 0	9	± 48
15	Port benchtop	0	± 0	0	± 0
16	Stbd benchtop, aft section	0	± 0	0	± 0
	<u>Wet Lab (Figure 1)</u>				
17	Deck inside fwd entrance	0	± 0	0	± 0
18	Inside small fume hood	0	± 0	8	± 51
19	Deck below fwd benchtop	25	± 77	0	± 0
	<u>Lab #1 (Figure 1)</u>				
20	Deck below aft sink	0	± 0	37	± 40
21	Deck at fwd entrance	0	± 0	10	± 50
	<u>Miscellaneous Areas (Figure 1)</u>				
22	Deck inside Clean Power Room	0	± 0	0	± 0
23	Deck below water fountain and eye wash station	0	± 0	0	± 0
24	Deck at top of stair to Science Storage 4	3	± 0	0	± 0
25	Deck at aft entrance to Staging Bay	0	± 0	27	± 37
26	Deck at fwd entrance to Staging Bay	0	± 0	0	± 0

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
<u>Scientific Storage(Figure 1)</u>					
27	Inside port Kenmore freezer	0	± 0	0	± 0
28	Inside Cospolich #1 top	49	± 73	0	± 0
29	Inside Cospolich #2 bottom	0	± 0	0	± 0
30	Inside Cospolich #3 top	24	± 120	0	± 0
<u>Lab#2 (Figure 1)</u>					
31	Deck inside entrance	0	± 0	4	± 51
32	Aft stbd sink area	2	± 0	0	± 0
33	Deck at bulkhead between lab spaces	0	± 0	2	± 117
34	Fwd sink area	0	± 0	0	± 0
35	Dck below aft port sink	11	± 49	2	± 28
36	Final bucket sample CO #1	0	± 0	0	± 0
37	Initial bucket sample CO #2	0	± 0	0	± 0
<u>Computer Lab (Figure 1)</u>					
38	Deck inside aft entrance	0	± 0	0	± 0
39	Deck inside stbd entrance	0	± 0	0	± 0
40	Deck in front of ship's computer monitors	0	± 0	0	± 0
<u>01 Deck (No Figure)</u>					
41	Aft Weatherdeck deck at Rad Van rear entrance	0	± 8	0	± 0
<u>Radioisotope Van (Figure 2)</u>					
42	Benchtop across from side entrance	*588	± 85	0	± 0
43	Benchtop adjacent to LSC	*1364	± 114	0	± 0
44	Top of LSC	*6396	± 232	*97	± 11
45	Benchtop opposite of LSC	252	± 69	0	± 0
46	Benchtop adjacent to side enrancet	*2568	± 147	33	± 8
47	Inside fume hood	*547	± 81	9	± 9
48	Inside reefer closest to fume hood	*4844	± 183	*1466	± 67
49	Inside reefer closest to side entrance	442	± 78	0	± 0
50	Deck inside rear entrance	*1804	± 137	*102	± 22
51	Deck inside side entrance	**16,448	± 429	*414	± 24
52	Final bucket blank CO #2	0	± 0	0	± 0

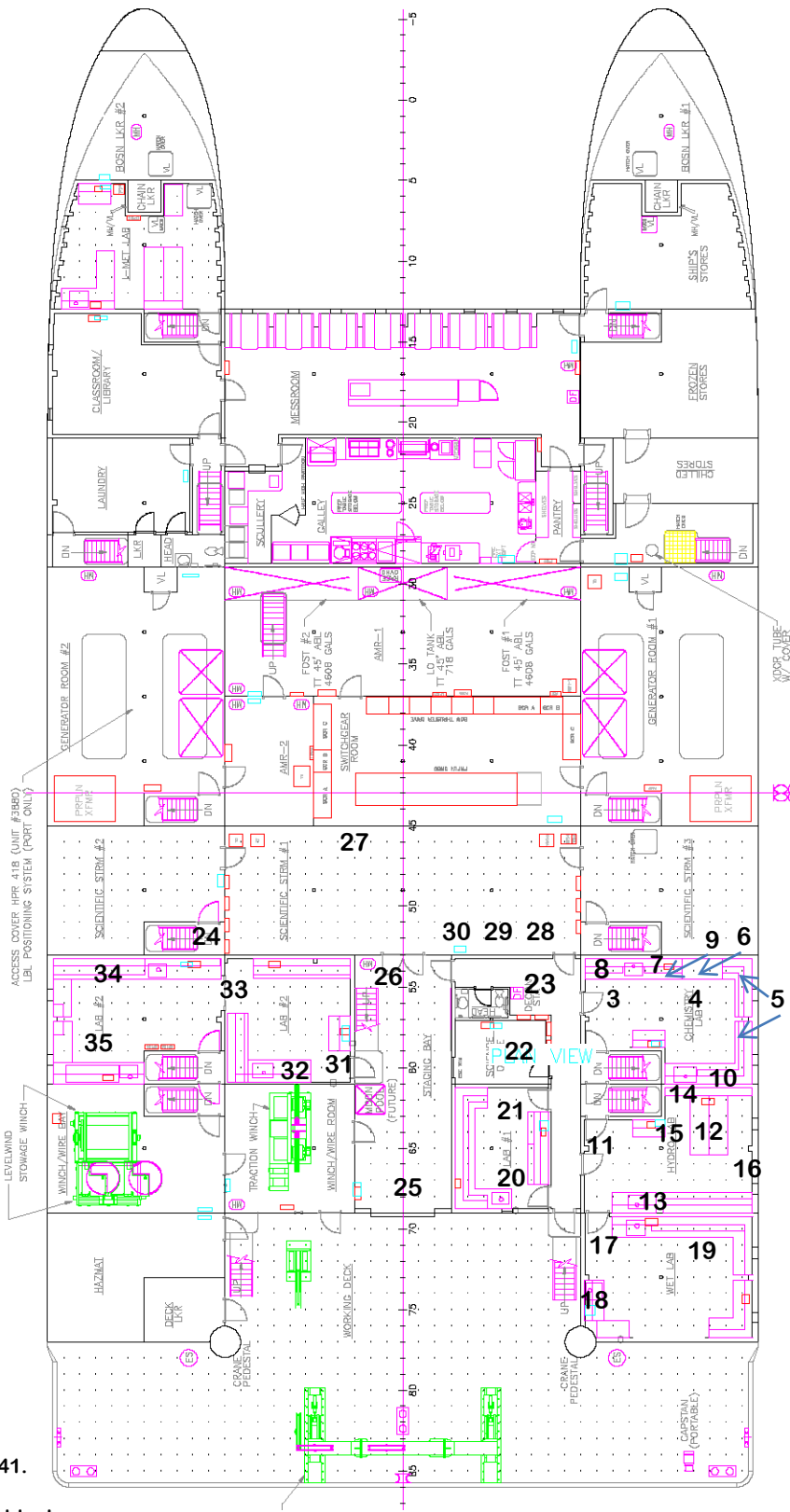
Comments

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 ^3H and ^{14}C contamination.

Radioisotope Van had minor ^{14}C contamination and minor to moderate ^3H contamination.

Deck areas must be cleaned before any additional use.



No figures for samples 38-41.

Samples 36, 37 are bucket blanks

MAIN DECK

R/V KILO MOANA
RADIOISOTOPE VAN

