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17 June 2013

SWAB REPORT # 682

SWAB DATE: 6 June 2013

R/V Kilo Moana
and Univ. of Hawaii Radioisotope Van

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Scott Ferguson

COMMENTS TO SWAB REPORTS 23 November 2010

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/m2 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 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 # 682

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

DATE: 6 June 2013
TECHNICIAN: Cecilia Roig

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	0	±	0	10	±	45
	Lab #2 (Figure 1)						
3	Deck inside entrance	27	±	67	0	±	0
4	Aft sink area	13	±	1167	0	±	0
5	Deck below hydro monitor	12	±	92	0	±	0
6	Fwd. sink area	0	±	0	4	±	55
7	Port sink area	10	±	34	12	±	34
8	Port bench top	0	±	0	0	±	0
9	Deck in front of fwd. sink	0	±	0	10	±	37
10	Deck in front of port aft sink area	4	±	233	0	±	0
	Scientific Storage (Figure 1)						
11	Inside Gibson chest freezer	19	±	72	0	±	0
12	Inside GE chest freezer	15	±	92	0	±	0
13	Inside Cospolich # 1 830.0.014	27	±	47	8	±	30
14	Inside Cospolich #2 830.00.012	17	±	73	0	±	0
15	Inside Cospolich #3 830.00.015	1	±	5	21	±	36
16	Inside Thermo Sci.	0	±	0	3	±	54
	Chemistry Lab (Figure 1)						
17	Inside fume hood	14	±	65	0	±	0
18	Fwd. sink area	0	±	0	0	±	0
19	Aft sink area	0	±	0	6	±	41
20	Deck inside entrance	0	±	0	7	±	51
21	Deck center of lab	13	±	353	0	±	0
22	Inside small Kenmore fridge	1	±	0	0	±	0
	Lab #1 (Figure 1)						
23	Deck inside aft entrance	0	±	0	0	±	0
24	Deck inside fwd. entrance	0	±	0	0	±	0
	Hydro Lab (Figure 1)						
25	Center bench top	15	±	0	0	±	0
26	Deck stbd. of center bench top	226	±	69	0	±	-3
27	Deck at entrance	16	±	44	8	±	32

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
28	Sink area	0	±	0	0	±	0
	Wet Lab (Figure 1)						
29	Deck center of lab	0	±	0	3	±	51
30	Inside Labconco hood	0	±	0	0	±	0
31	Sink area	0	±	0	0	±	0
32	Deck inside fwd. entrance	0	±	0	0	±	0
33	Stbd. bench top	25	±	54	2	±	20
	Miscellaneous Areas (Figure 1)						
34	Deck under eyewash station	0	±	0	0	±	0
35	Deck inside Clean Power room	9	±	231	0	±	0
36	Final bucket blank C. O. #1	0	±	0	0	±	0
	UH Radioisotope Van (Figure 2)						
37	Initial bucket blank C. O. #2	0	±	0	0	±	0
38	Deck at entrance next to hood	*573	±	89	*60	±	26
39	Inside fume hood	74	±	62	0	±	0
40	Top of LSC	*477	±	76	*61	±	27
41	Bench top left of LSC	0	±	0	8	±	41
42	Bench top across side entrance	15	±	49	4	±	30
43	Deck inside side entrance	*1,259	±	119	*84	±	23
44	Inside freezer	*1,603	±	102	*1,164	±	65
45	Inside fridge	*1,556	±	118	*97	±	23
46	Bench top next to hood	311	±	74	0	±	-9
47	Bench top above fridge	57	±	64	0	±	0
48	Deck center of van	*2,954	±	172	*121	±	20
49	Final bucket blank C. O. #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 on the ship were free from radioisotope contamination. The radioisotope van had minor ^{3}H and ^{14}C contamination. Van deck requires cleaning to prevent tracking into the ship.

Figure 1
SWAB # 682
6 June 2013

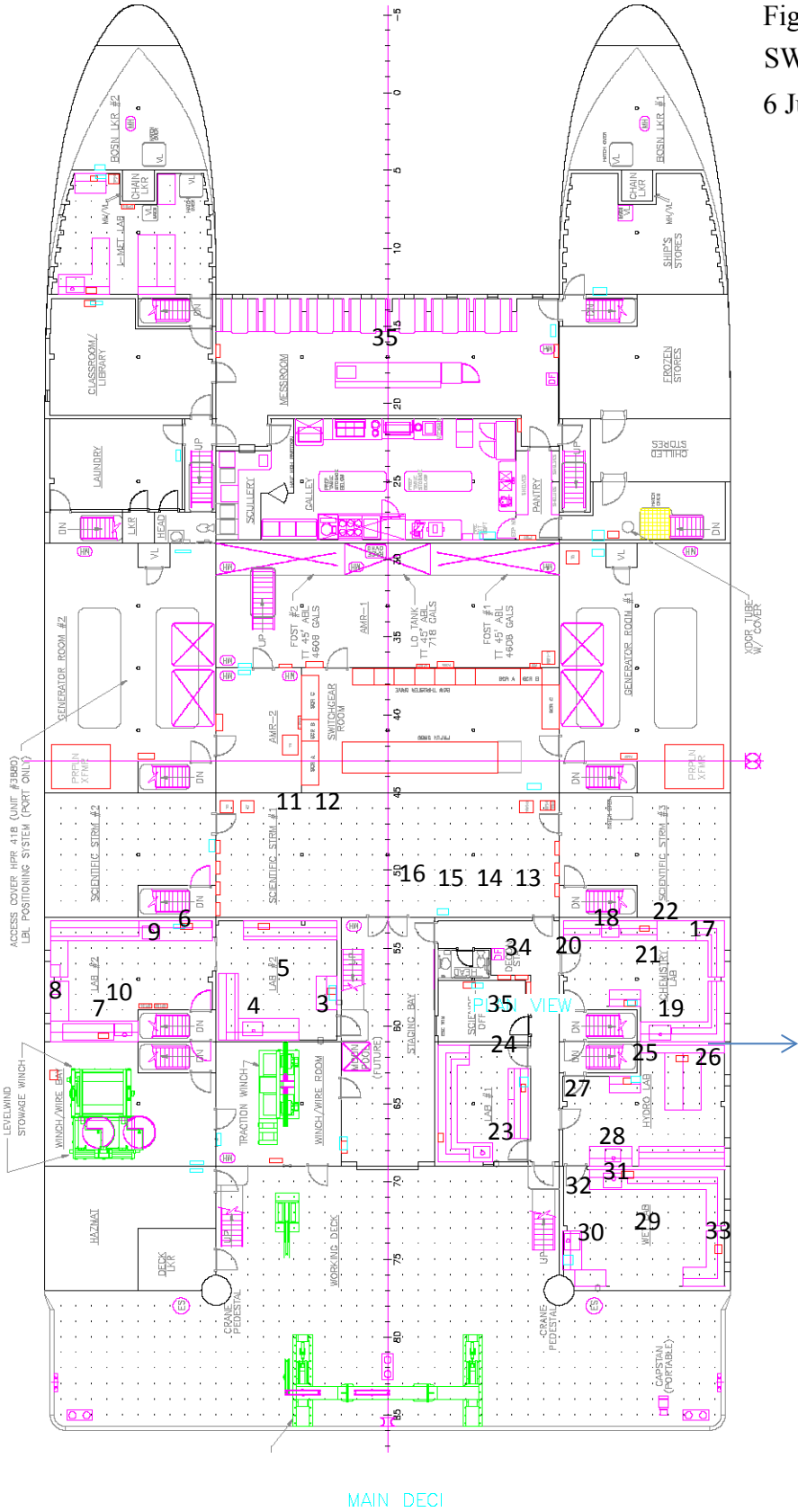

Figure 2
SWAB # 682
13 December 2012

UNIVERSITY OF HAWAII

RADIOISOTOPE VAN