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Tritium Laboratory
12 October 2012

SWAB REPORT # 649

SWAB DATE: 27 September 2012

R/V Kilo Moana and UH radioisotope van

James Happell

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Distribution:
SWAB Committee
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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 # 649

LOCATION: Honolulu, Hawaii
VESSEL: *R/V Kilo Moana* and UH radioisotope van

DATE: 27 September 2012
TECHNICIAN: DH

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	16	±	35
	<u>UH Radioisotope Van (Figure 3)</u>						
3	Deck at entrance next to fume hood	**15046	±	304	*1037	±	44
4	Inside fume hood	95	±	43	0	±	0
5	Sink area	*4756	±	168	*576	±	40
6	Bench top across from LSC	184	±	49	12	±	18
7	Bench top above freezer	95	±	42	19	±	26
8	Bench top next to fume hood	156	±	47	49	±	30
9	Deck at entrance next to sink	*724	±	67	*325	±	40
10	Inside freezer	*761	±	75	42	±	17
11	Inside refrigerator	*708	±	70	*241	±	37
	<u>Wet Lab (Figure 1)</u>						
12	Initial bucket blank #2	15	±	32	6	±	28
13	Deck center of lab	0	±	0	15	±	35
14	Starboard bench top	27	±	44	0	±	0
15	Deck inside forward entrance	50	±	36	0	±	0
	<u>Hydro Lab (Figure 1)</u>						
16	Center bench top	4	±	20	11	±	32
17	Deck at entrance	49	±	46	0	±	0
18	Aft bench top	67	±	16	*368	±	45
	<u>Lab # 1 (Figure 1)</u>						
19	Deck inside aft entrance	7	±	45	0	±	0
20	Deck inside forward entrance	0	±	0	0	±	0
	<u>Chemistry Lab (Figure 1)</u>						
21	Inside fume hood	0	±	0	0	±	0
22	Forward sink area	28	±	42	0	±	0
23	Aft sink area	82	±	34	0	±	0
24	Deck inside entrance	50	±	38	0	±	0
25	Inside small kenmore refrigerator	0	±	0	0	±	0

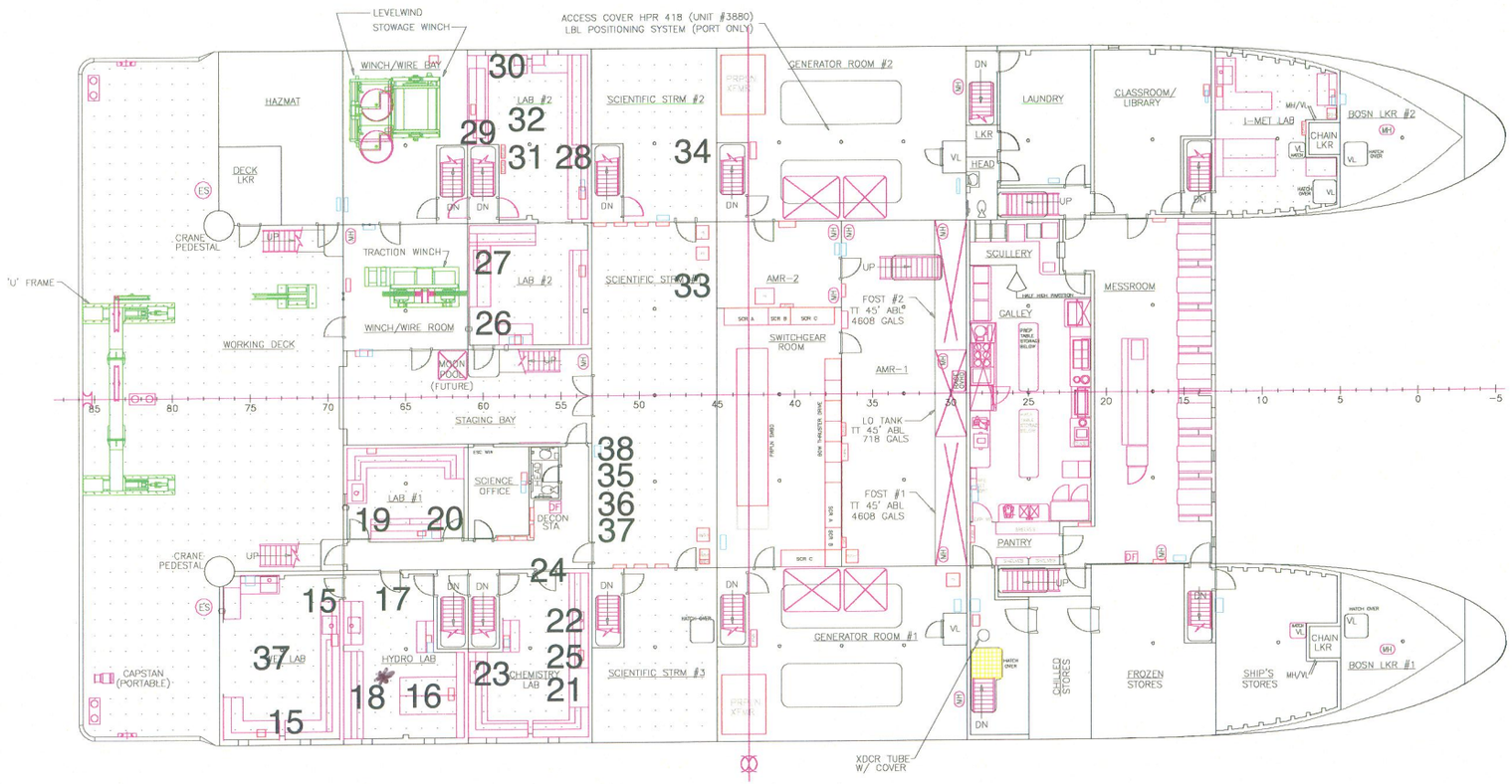
Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
	Lab 2 (Figure 1)						
26	Deck inside entrance	66	±	40	0	±	0
27	Aft sink area	0	±	0	0	±	0
28	Forward sink area	0	±	0	0	±	0
29	Port aft sink area	0	±	0	0	±	0
30	Port bench top	0	±	0	0	±	0
31	Deck in front of forward sink	0	±	0	0	±	0
32	Deck in front of port aft sink	0	±	0	0	±	0
	Science Storage (Figure 1)						
33	Inside Gibson chest freezer	177	±	35	0	±	0
34	Top of GE chest freezer	11	±	0	0	±	0
35	Inside Cospolich #3 refrigerator	0	±	0	0	±	0
36	Inside Cospolich $2 refrigerator	13	±	89	0	±	0
37	Inside Cospolich #1 refrigerator	28	±	75	0	±	0
38	Ice inside Therom Scientific freezer	0	±	0	0	±	0
	01 Deck (Figure 2)						
39	Passageway outside ET locker	0	±	0	0	±	0
40	Port passage used by rad people	54	±	52	0	±	0
41	Final bucket blank #2	31	±	41	0	±	0

Comments

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

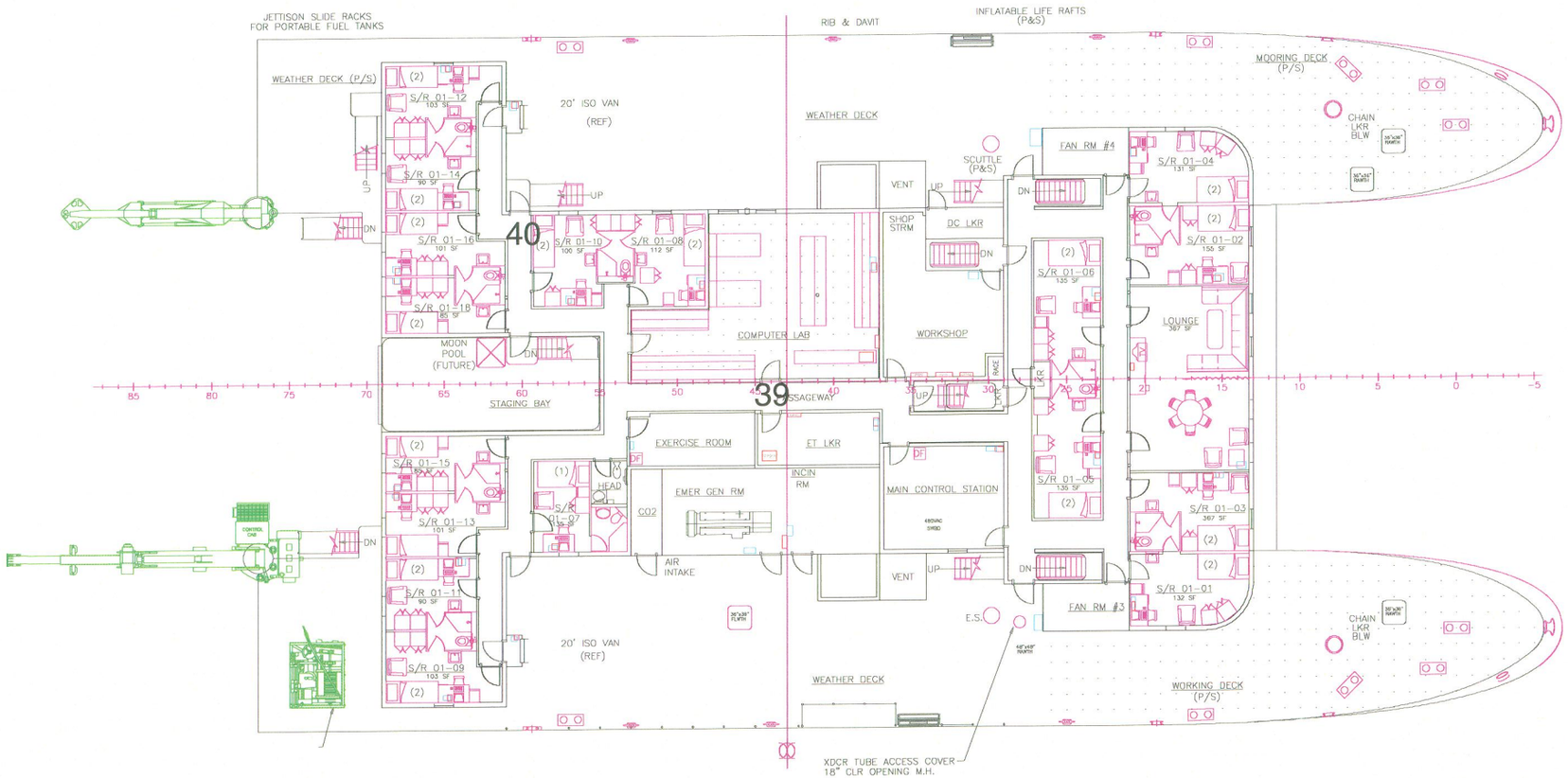
Minor to moderate ^{3}H and minor ^{14}C contamination found in the rad van. Cleaning of deck area in van is recommended to prevent tracking into the ship. ^{14}C contamination was found on the aft bench in the hydro lab. This area should be cleaned before any further use.

Figure 1
Kilo Moana Main Deck
27 Sept. 2012



PLAN VIEW – MAIN DECK

Figure 2
Kilo Moana 01 Deck
27 Sept. 2012



PLAN VIEW – 01 DECK

Figure 3
UH Radioisotope Van
27 Sept. 2012