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Tritium Laboratory

22 April 2013

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SWAB REPORT # 674

SWAB DATE: 18 April 2013

R/V F.G. Walton Smith and UM Rad Van

Dr. James D. Happell
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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 # 674

LOCATION: Gulfport, MS

DATE: 18 April 2013

VESSEL: *R/V F.G. Walton Smith* and UM rad van

TECHNICIAN: Jim Happell

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	3	± 12	17	± 35
	<u>Main Lab (Figure 1)</u>				
3	Bench top port of sink	17	± 57	0	± 0
4	Starboard side of center bench	4	± 76	0	± 0
5	Starboard bench top	0	± 0	0	± 0
6	Deck inside door to wet lab	0	± 0	0	± 0
7	Deck inside mess hall	26	± 52	0	± 0
8	Deck inside forward starboard stairs	7	± 23	0	± 0
9	Deck inside forward port stairs	40	± 50	0	± 0
10	Deck between starboard and center bench	0	± 0	0	± 0
11	Deck between port and center bench	8	± 64	0	± 0
12	Deck below sink	13	± 85	0	± 0
13	Port side of center bench	19	± 75	0	± 0
	<u>Wet Lab (Figure 1)</u>				
14	Inside Haier refrigerator bottom	0	± 0	0	± 0
15	Inside Haier freezer	0	± 0	4	± 37
16	Deck between doors	0	± 0	7	± 45
17	Bench top port of forward sink	24	± 92	0	± 0
18	Bench top starboard of aft sink	16	± 79	0	± 0
	<u>UM Small Radioisotope Van (Figure 2)</u>				
19	Fume hood	47	± 54	0	± 0
20	Refrigerator	*527	± 75	11	± 10
21	Bench top across from fume hood	18	± 30	25	± 35
22	Bench top left of LSC	32	± 42	7	± 28
23	Top of LSC	6	± 43	0	± 0
24	Deck in center of van	119	± 55	0	± 0
25	Freezer	75	± 54	0	± 0
26	Final bucket blank	5	± 53	0	± 0

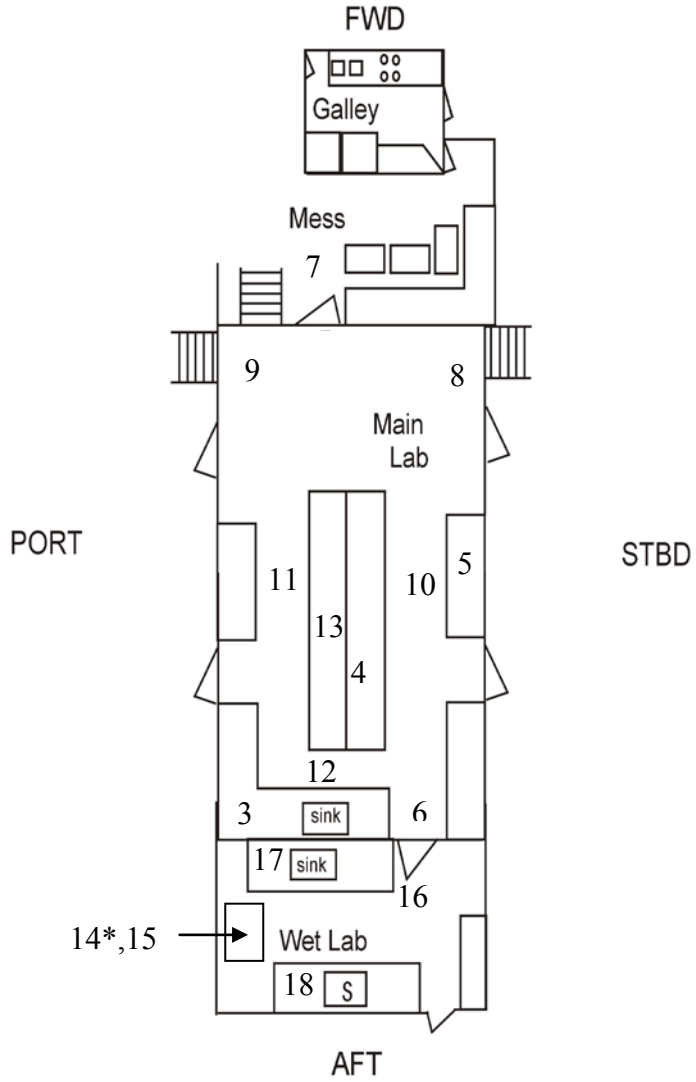
Comments

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

No ¹⁴C or ³H contamination that requires cleaning was detected inside the ship

Minor amount of ³H in the rad van. No cleaning required.

R/V F.G. Walton-Smith



U.M. Radioisotope Van

