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Tritium Laboratory
26 April 2012

SWAB REPORT # 624

SWAB DATE: 23 April 2011

R/V F.G. Walton Smith and UM Small Radioisotope Van

James Happell

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James D. Happell

Distribution:
SWAB Committee
Richard Kniffin

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 # 624

LOCATION: Miami, FL
VESSEL: *R/V F.G. Walton Smith*

DATE: 23 April 2012
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	14	±	48	0	±	0
	Main Lab (Figure 1)						
3	Bench top port of sink	0	±	0	3	±	0
4	Stbd. side of center bench	4	±	50	0	±	0
5	Stbd. bench top	18	±	60	0	±	0
6	Deck inside door to Wet Lab	0	±	0	0	±	0
7	Deck inside Mess Hall	12	±	41	4	±	30
8	Deck inside stairs fwd. stbd.	0	±	0	0	±	0
9	Deck inside stairs fwd. port	1	±	0	0	±	0
10	Deck between stbd. & center bench	0	±	0	0	±	0
11	Deck between port & center bench	20	±	55	0	±	0
12	Deck below sink	0	±	0	13	±	37
13	Port side of center bench	0	±	0	0	±	0
	Wet Lab (Figure 1)						
14	Inside Haier refrigerator, bottom	0	±	0	*52	±	46
15	Inside Haier freezer	0	±	0	0	±	0
16	Deck between doors	0	±	0	0	±	0
17	Bench top port of fwd. sink	0	±	0	7	±	40
18	Bench top stbd of aft sink	18	±	83	0	±	0
	UM Small Radioisotope Van (Figure 2)						
19	Fume hood	0	±	0	3	±	35
20	Refrigerator	*2445	±	134	40	±	9
21	Benchtop across from fume hood	66	±	58	0	±	0
22	Bench top left of LSC	55	±	52	0	±	0
23	Top of LSC	70	±	55	0	±	0
24	Deck in center of van	108	±	65	0	±	0
25	Final bucket blank	0	±	0	1	±	44

Comments

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

The Haier refrigerator in the wet lab had minor ^{14}C contamination. It should be cleaned.

The refrigerator in the UM Small Radioisotope Van tested positive for minor ^{3}H contamination, no action required.

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Figure 1
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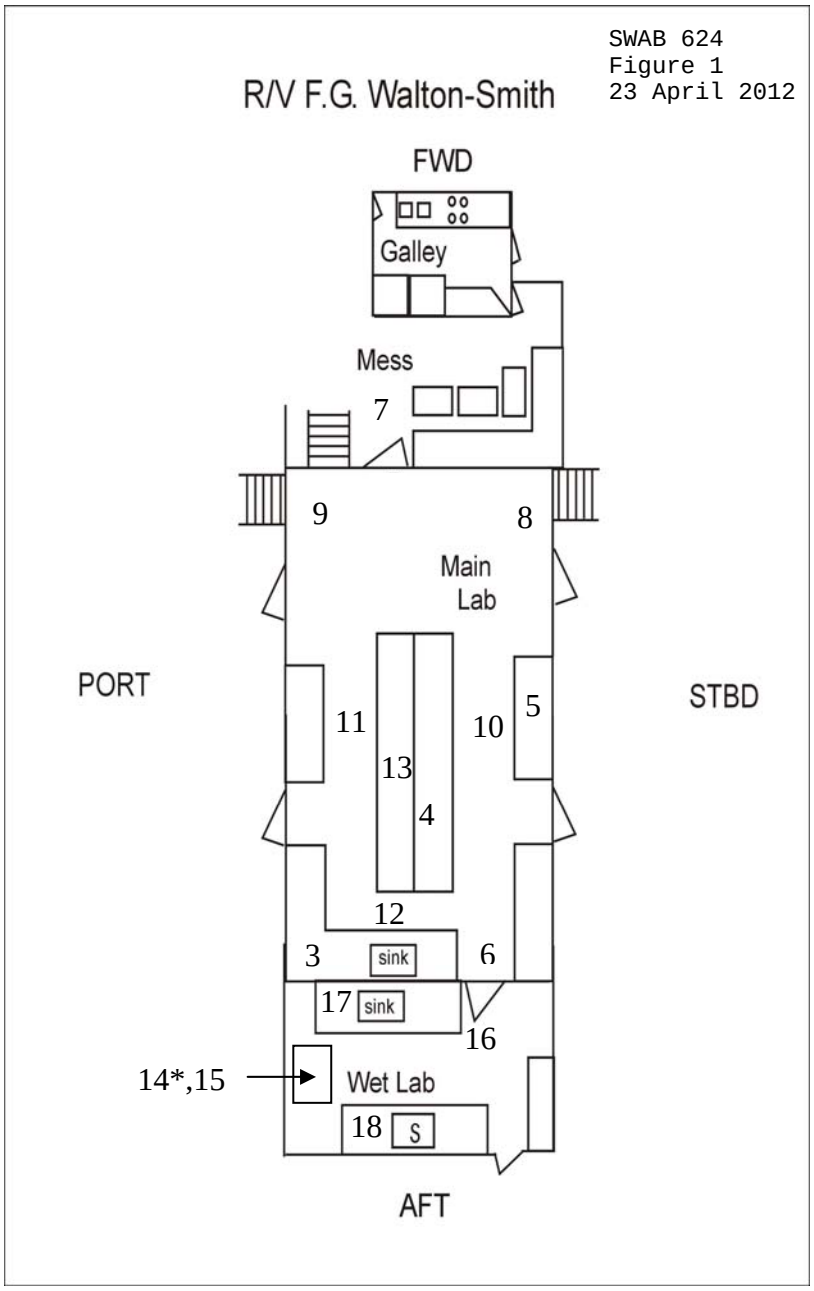

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Figure 2
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U.M. Radioisotope Van