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Tritium Laboratory
6 June 2011

SWAB REPORT # 581

SWAB DATE: 3 June 2011

R/V Walton Smith

James D. Happell

Distribution:
SWAB Committee
Richard Kniffin

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 # 581

LOCATION: Miami, FL
VESSEL: R/V Walton Smith

DATE: 3 June 2011
TECHNICIAN: James D. 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	0	±	0	0	±	0
<u>Main Lab (Figure 1)</u>							
3	Bench top port of sink	10	±	62	0	±	0
4	Stbd. side center bench top	0	±	0	14	±	38
5	Stbd. bench top	52	±	54	1	±	8
6	Deck inside door to wet lab	27	±	53	3	±	23
7	Deck inside Mess Hall	40	±	47	15	±	32
8	Deck inside stairs fwd. stbd.	38	±	48	13	±	31
9	Deck inside stairs fwd. port	39	±	74	0	±	0
10	Deck between stbd. & center benches	41	±	49	11	±	30
11	Deck between port & center benches	55	±	62	0	±	0
12	Deck below sink	56	±	64	0	±	0
13	Port side center bench top	19	±	62	0	±	0
<u>Wet Lab (Figure 1)</u>							
14	Inside Haier freezer bottom	0	±	0	16	±	38
15	Inside Haier freezer top	9	±	40	6	±	33
16	Inside Haier refrigerator bottom	33	±	61	0	±	0
17	Deck between doors	0	±	0	15	±	37
18	Bench top stbd. of fwd. sink	0	±	0	3	±	42
19	Bench top port of aft sink	0	±	0	0	±	0
20	Deck between sinks	4	±	26	8	±	35
<u>UM Small Radioisotope Van (Figure 2)</u>							
21	Left bench top	100	±	54	21	±	29
22	Bench top left of LSC	0	±	-4	22	±	37
23	Bench top right of LSC	3	±	35	3	±	34
24	Refrigerator next to LSC	**17,381	±	370	*206	±	12
25	Bench top around sink	143	±	64	0	±	0
26	Fume hood	49	±	53	7	±	26
27	Deck in center of van	67	±	55	6	±	23
28	Top of LSC	174	±	65	0	±	0
29	Refrigerator on bench top	*1,530	±	120	0	±	0
30	Final bucket blank	26	±	51	0	±	1

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 of contamination. Some contamination was detected in both refrigerators in the radioisotope van. Only the refrigerator next to the LSC requires cleaning at this time.

R/V F.G. Walton-Smith

Figure 1
SWAB #581
3 June 2011

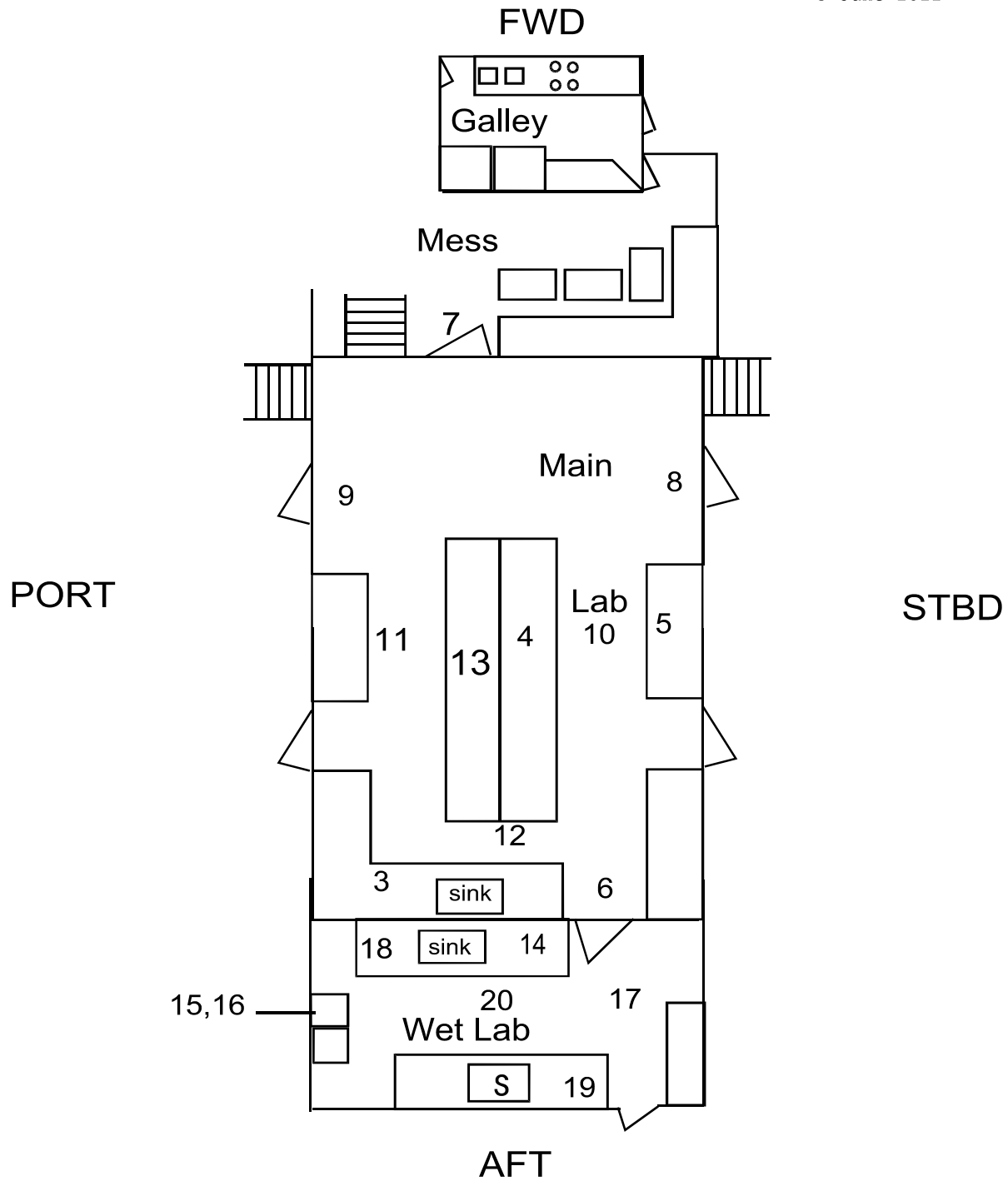
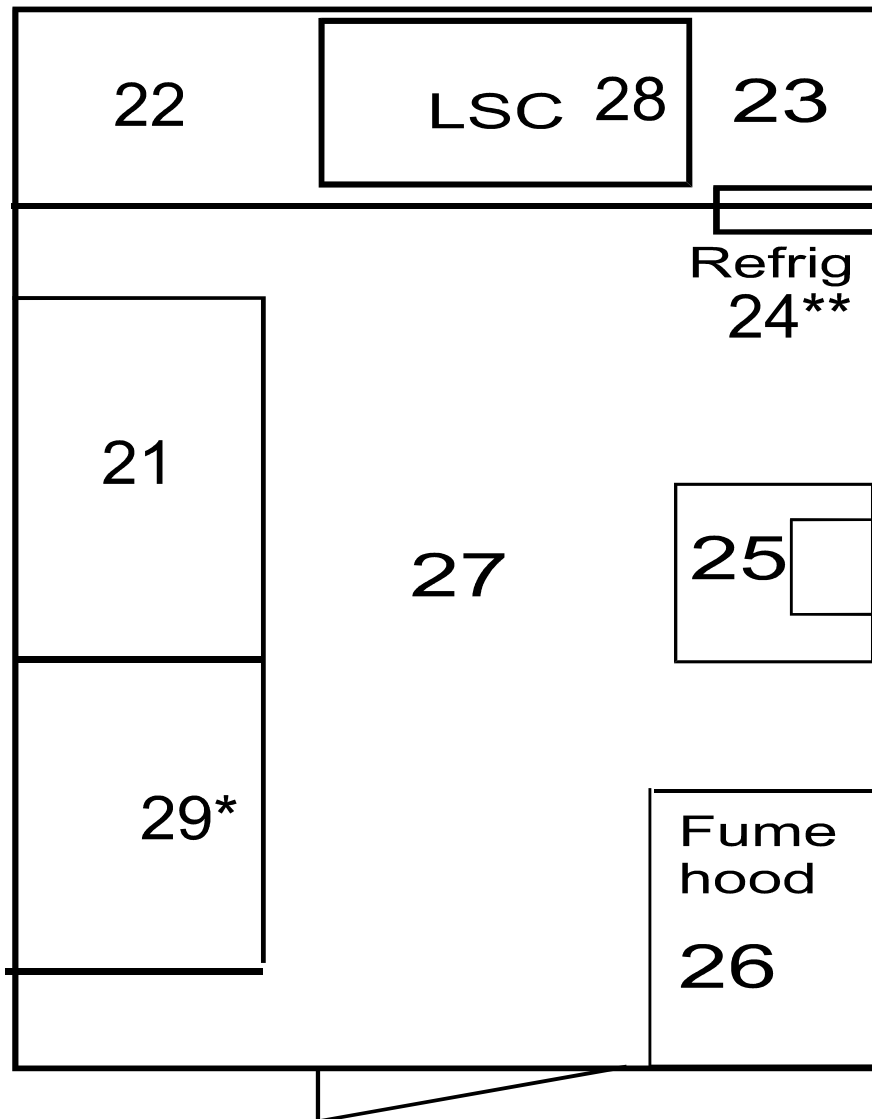


Figure 2
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U.M. Radioisotope Van