

UNIVERSITY OF MIAMI

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SCHOOL of MARINE &
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6 October 2011

SWAB REPORT # 599

SWAB DATE: 30 September 2011

R/V Atlantis

James D. Happell

Distribution:
SWAB Committee
David Fissichella

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 # 599

LOCATION: San Diego, CA
VESSEL/LAB: R/V Atlantis

DATE: 30 September 2011
TECHNICIAN: Cecilia Roig

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank #1	19	± 33	21	± 33
<u>Main Lab (See Figure 1)</u>					
3	Inside Revco #1 freezer	0	± 0	9	± 35
4	Inside Revco #2 freezer	20	± 32	23	± 33
5	Inside freezer top	19	± 29	29	± 34
6	Inside refrigerator bottom	0	± 0	47	± 37
7	Deck in front of freezers	22	± 36	18	± 33
8	Port sink area	17	± 27	30	± 34
9	Deck inside fwd. port entrance	17	± 22	46	± 35
10	Deck inside aft port entrance	26	± 30	39	± 34
11	Center bench top across port sink	52	± 38	45	± 34
12	Stbd. sink area	0	± 0	40	± 36
13	Inside fume hood	0	± 0	37	± 36
14	Deck inside aft doors	63	± 40	49	± 34
<u>Bio/Analytical Clean Lab (See Figure 1)</u>					
15	Inside Cospolich top	5	± 11	35	± 35
16	Inside Cospolich bottom	0	± 0	28	± 36
17	Fwd. sink area	7	± 16	29	± 35
18	Deck in front of Cospolich	29	± 30	46	± 35
19	Inside fume hood	0	± 0	38	± 36
20	Aft sink area	18	± 30	25	± 34
21	Deck in front of hood	0	± 0	46	± 37
22	Deck inside stbd. door	7	± 13	42	± 35
<u>Miscellaneous Areas (See Figure 2)</u>					
23	Bench top inside fwd. walk-in cooler	48	± 46	12	± 28
24	Deck inside fwd. walk-in cooler	14	± 27	26	± 34
25	Final bucket blank #1	5	± 12	33	± 35
26	Initial bucket blank #2	0	± 0	11	± 37

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
27	Aft bench top of aft walk-in cooler	9	± 21	25	± 34
28	Deck inside aft walk-in cooler	4	± 12	28	± 35
29	Deck center of walk-in vestibule	0	± 0	32	± 35
<u>Electronic/Computer Lab (See Figure 2)</u>					
30	Deck inside stbd. door	0	± 0	44	± 36
31	Deck inside fwd. door	9	± 34	8	± 32
32	Deck inside Dark Room	24	± 32	29	± 34
<u>Wet Lab (See Figure 3)</u>					
33	Inside fume hood	17	± 33	19	± 33
34	Sink area	106	± 50	26	± 29
35	Deck inside stbd. door	28	± 39	19	± 32
36	Stbd. bench top	3	± 5	45	± 36
<u>Hydro Lab (See Figure 3)</u>					
37	Inside Cospolich top	0	± 0	10	± 37
38	Inside Cospolich bottom	6	± 17	24	± 34
39	Deck in front of Cospolich	0	± 0	0	± 0
40	Deck inside aft entrance	3	± 7	40	± 35
41	Port sink area	0	± 0	23	± 37
42	Deck inside stbd. doors	8	± 20	27	± 34
43	Stbd. sink area	0	± 0	0	± 0
44	Intermediate bucket blank	9	± 20	27	± 34
<u>Rad Van WHOU (See Figure 4)</u>					
45	Bench top across sink	53	± 27	*120	± 38
46	Mid port bench top	180	± 52	*109	± 36
47	Bench top above freezer	484	± 65	*279	± 41
48	Deck under escape hatch	29	± 19	*109	± 38
49	Inside hood	*1,490	± 102	*684	± 52
50	Bench top above fridge	465	± 68	*138	± 34
51	Sink area	54	± 32	*81	± 36
52	Inside freezer	47	± 41	27	± 32
53	Inside fridge	374	± 31	*1,974	± 82
54	Deck center of van	102	± 30	*236	± 42
55	Deck inside doors	32	± 16	*168	± 40
56	Inside samll black Haier fridge	75	± 42	*60	± 34
57	Final bucket blank #2	8	± 20	23	± 34

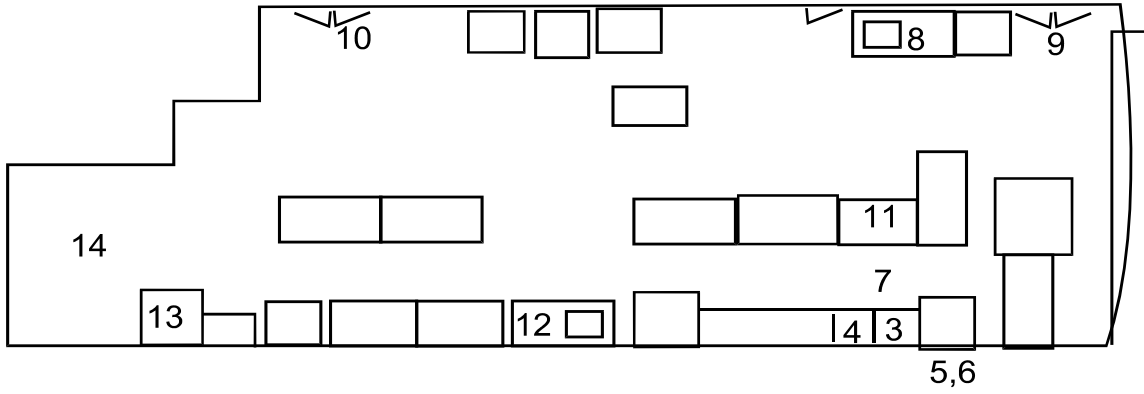
Comments

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 radioisotope contamination. Minor 14C and 3H contamination was found in the radiation van, no action required.

Figure 1
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Atlantis Main Lab

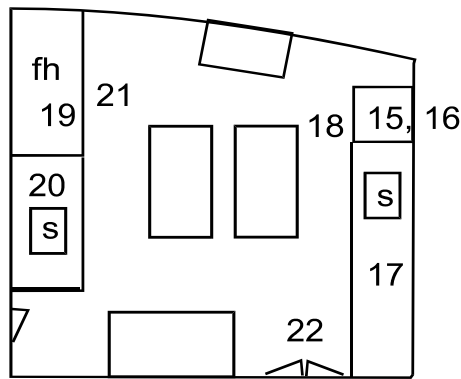
Port



Aft

Fwd

Biology/Analytical Clean Lab



Stbd

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F

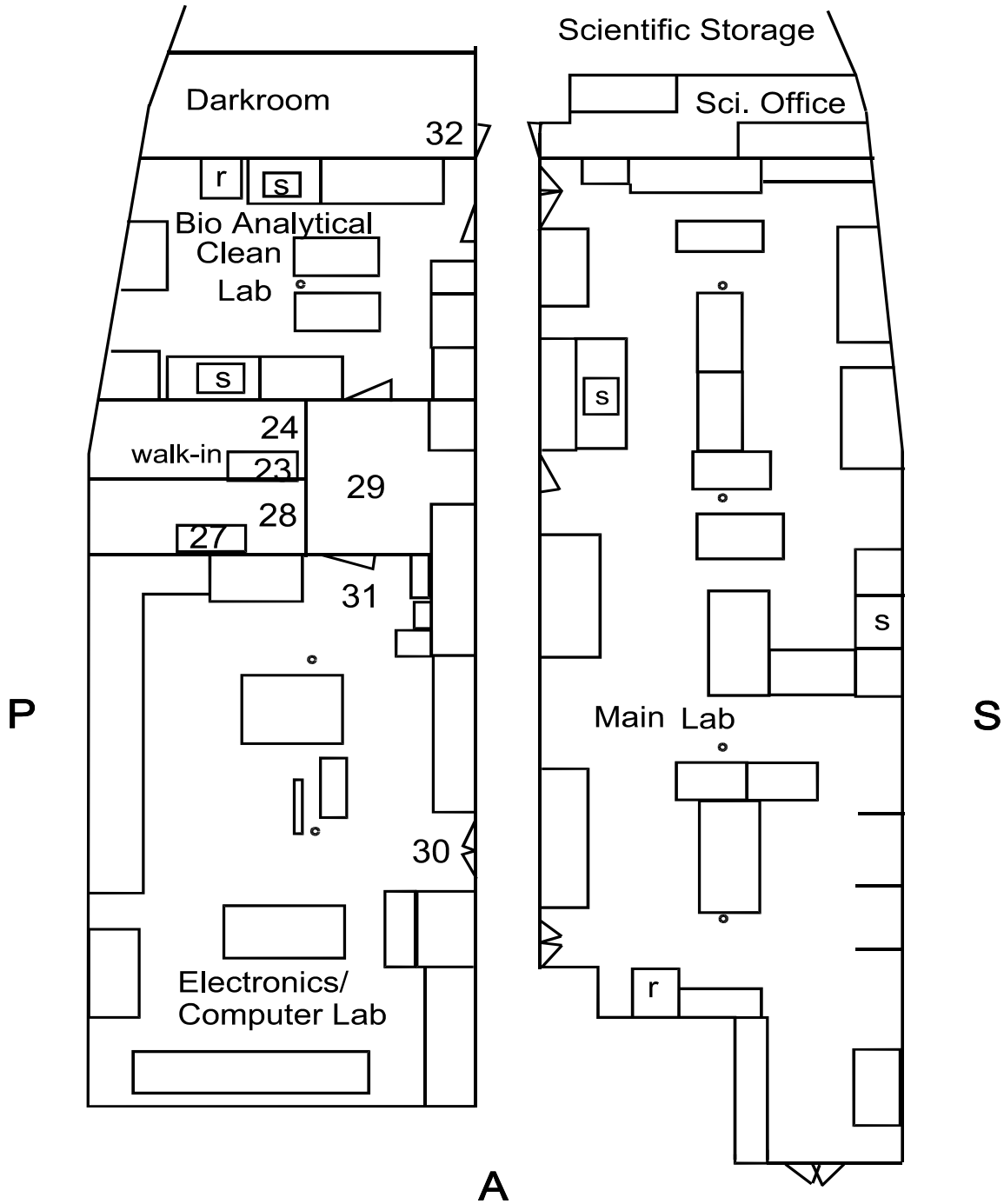


Figure 3
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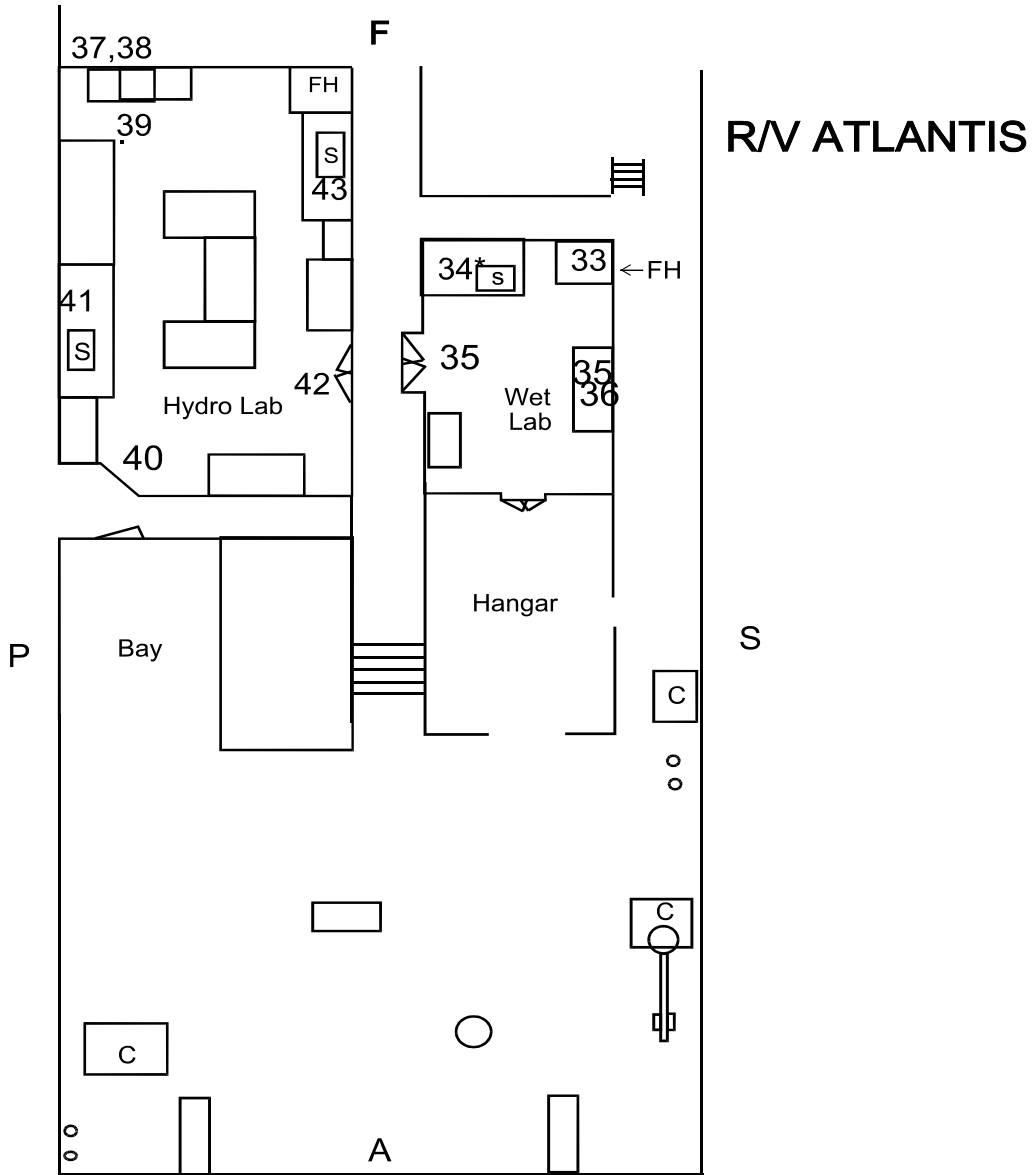


Figure 4
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RADIOISOTOPE VAN

