UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE

Tritium Laboratory
4600 Rickenbacker Causeway
Miami, Florida 33149-1031

Ph: 305-421-4100
Fax:305-421-4112
E-mail: Tritium@rsmas.miami.edu

Tritium Laboratory
2 May 2014

SWAB REPORT # 721

SWAB DATE: 24 April 2014

R/V Atlantis & WHOI Radioisotope Van

James D. Happell

Distribution:
SWAB Committee
Dave Fisichella

COMMENTS TO SWAB REPORTS 23-Nov-10

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 a reported in dpm/m2. 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 activi 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/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 haza

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 disso 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 ema

REPORT FOR SWAB # 721

LOCATION: Gulfport, MS
VESSEL: *R/V Atlantis*

DATE: 24 April 2014
TECHNICIAN: Yudy Mendoza

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 C.O. #1	17	±	27	31	±	34
	Hydrographic Lab (Figure 1)						
3	Inside Cospolich top	0	±	0	19	±	37
4	Inside Cospolich bottom	0	±	0	6	±	43
5	Deck in front of Cospolich	0	±	0	23	±	35
6	Deck inside aft door	12	±	59	0	±	0
7	Port sink area	0	±	0	24	±	36
8	Stbd sink area	21	±	28	37	±	34
9	Deck inside stbd doors	0	±	0	4	±	40
10	Inside fume hood	0	±	0	16	±	36
	Wet Lab (Figure 1)						
11	Inside fume hood	0	±	0	2	±	40
12	Fwd. sink area	0	±	0	23	±	36
13	Deck at port door	0	±	0	25	±	36
14	Stbd benchtop	0	±	0	16	±	36
	Main Lab (Figure 2)						
15	Top of Revco freezer 1	0	±	0	20	±	36
16	Top of Revco freezer 2	0	±	0	6	±	37
17	Inside stbd freezer top	0	±	0	0	±	0
18	Inside stbd fridge bottom	10	±	44	2	±	27
19	Deck in front of freezer	0	±	0	16	±	37
20	Deck inside fwd port entrance	0	±	0	15	±	36
21	Port sink area	13	±	31	16	±	33
22	Stbd sink area	0	±	0	8	±	36
23	Center benchtop	31	±	36	26	±	33
24	Inside fume hood	0	±	0	28	±	35
25	Deck inside aft doors	0	±	0	14	±	35
26	Deck inside mid port entrance	0	±	0	0	±	0
27	Center benchtop	1	±	19	4	±	34
	Electronic Lab (no figure)						
28	Deck at stbd entrance	6	±	22	16	±	34
29	Deck at fwd entrance	0	±	0	10	±	37

Sample #	Sample Identification	^{3}H dpm/m^2			^{14}C dpm/m^2		
		activity		error	activity		error
	Science Storeroom (no figure)						
30	Deck inside storeroom	0	±	0	0	±	0
31	Final bucket blank C.O. #1	0	±	0	19	±	36
32	Initial bucket blank C.O. #2	0	±	0	6	±	44
	Bioanalytical/Clean Lab (Figure 2)						
33	Inside Cospolich top	6	±	27	9	±	33
34	Inside Cospolich bottom	0	±	0	0	±	0
35	Deck in front of Cospolich	0	±	0	0	±	0
36	Inside fume hood	0	±	0	11	±	44
37	Deck in front of fume hood	16	±	48	1	±	16
38	Fwd. sink area	0	±	0	15	±	37
39	Aft. sink area	6	±	175	0	±	0
40	Deck inside stbd door	14	±	43	4	±	28
	Walk-in Coolers (no figure)						
41	Benchtop in aft walk-in cooler	10	±	55	0	±	0
42	Deck in aft walk-in cooler	9	±	506	0	±	0
43	Benchtop in fwd. walk-in cooler	0	±	0	0	±	0
44	Deck in fwd walk-in cooler	0	±	0	0	±	0
45	Intermediate bucket blank C.O. # 2	0	±	0	0	±	0
	WHOI Radiation Van #2001400 (Figure 3)						
46	Benchtop across fume hood	0	±	0	*1417	±	72
47	Inside fume hood	9	±	3	*375	±	47
48	Benchtop under fume hood	7	±	5	*145	±	39
49	Sink area	0	±	0	*1420	±	72
50	Inside fridge	115	±	27	*341	±	45
51	Inside Freezer	0	±	0	**10954	±	180
52	Initial bucket blank C.O. #3	0	±	0	0	±	0
53	Benchtop across sink	60	±	15	*414	±	48
54	Benchtop across fridge	40	±	7	*837	±	59
55	Inside small Haier	123	±	16	*1083	±	65
56	Deck between freezer and fume hood	0		0	**11946		188
57	Benchtop over fridge	33		10	*367		47
58	Deck between sink and entrance	0		0	*2758		95
59	Deck outside van entrance	0		0	*2180		86
60	Final bucket blank C.O. #3	7	±	50	0	±	0

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 ^{3}H and ^{14}C contamination that requires cleaning. Minor and moderate ^{14}C contamination found in WHOI Radiation Van. Inside freezer and deck between freezer and fume hood need to be cleaned before any further use. The deck of the ship outside the rad van also needs to be cleaned before any further use. We also recommend cleaning the whole deck of the rad van to help prevent tracking contamination outside the van.

Figure 1
SWAB # 721
24 April 2014

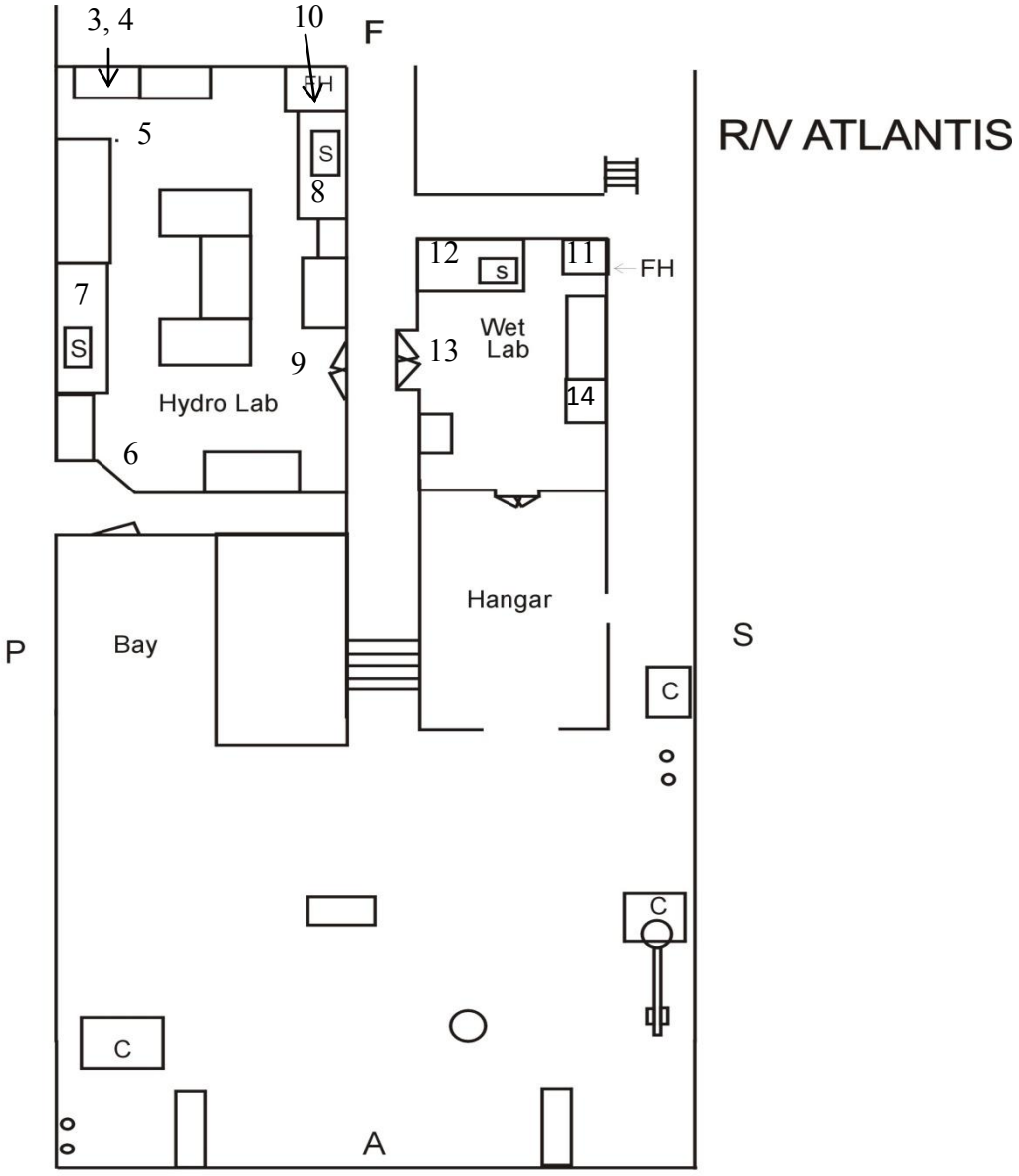

Figure 2
SWAB # 721
24 April 2014

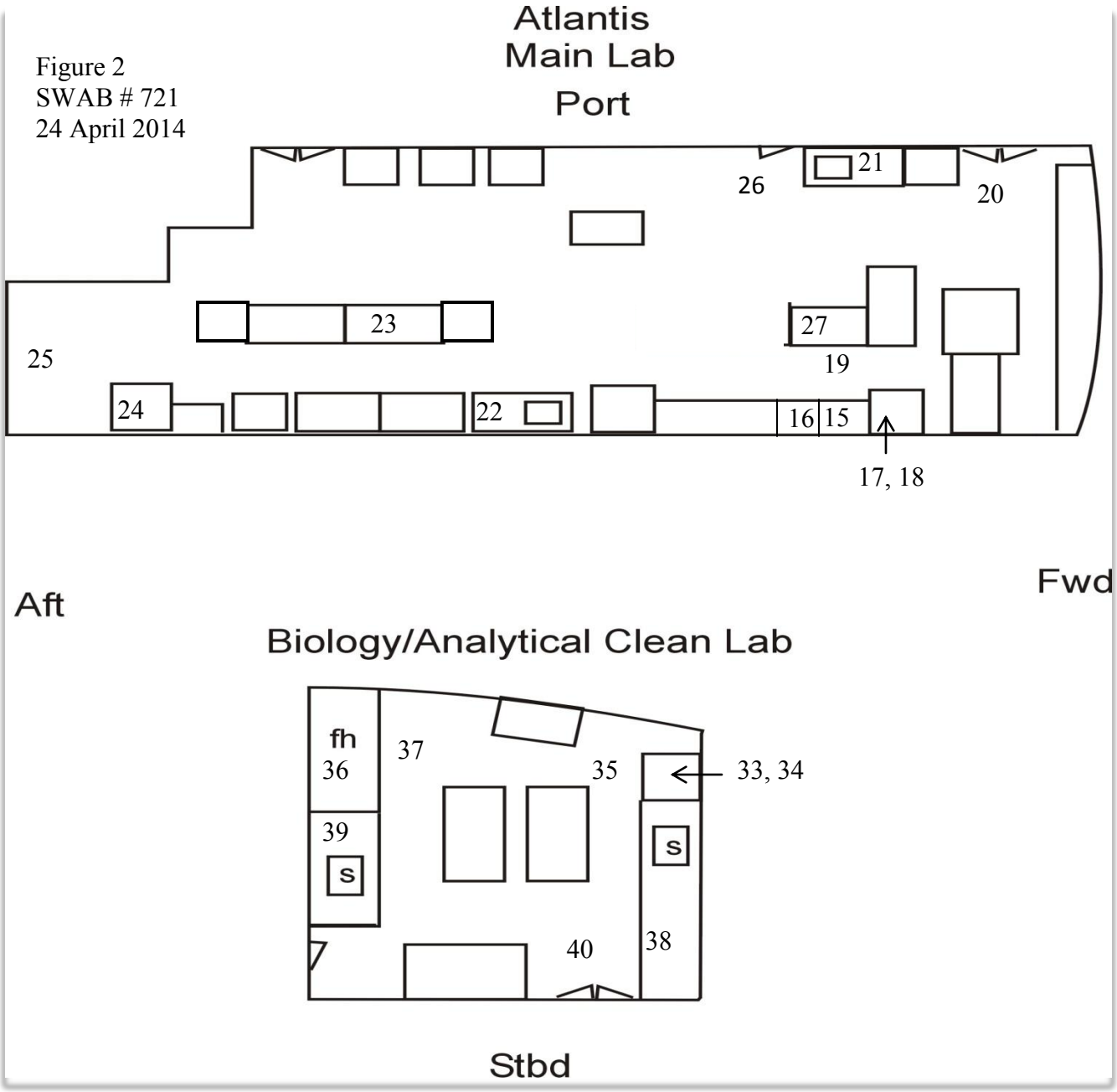

Figure 3
SWAB # 721
24 April 2014