

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory

17 January 2017

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SWAB REPORT # 844

SWAB DATE: 10 January 2017

R/V Atlantic Explorer

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Distribution:
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COMMENTS TO SWAB REPORTS

12 May 2014

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 $1000 \text{ dpm}/\text{m}^2$ 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 contact your institution's radiation safety office.

Note: If category C or D is encountered, we try to notify the institution promptly by phone or email.

REPORT FOR SWAB # 844

LOCATION: St. George, Bermuda
VESSEL: R/V *Atlantic Explorer*

DATE: 10 January 2017
TECHNICIAN: Charlene Grall

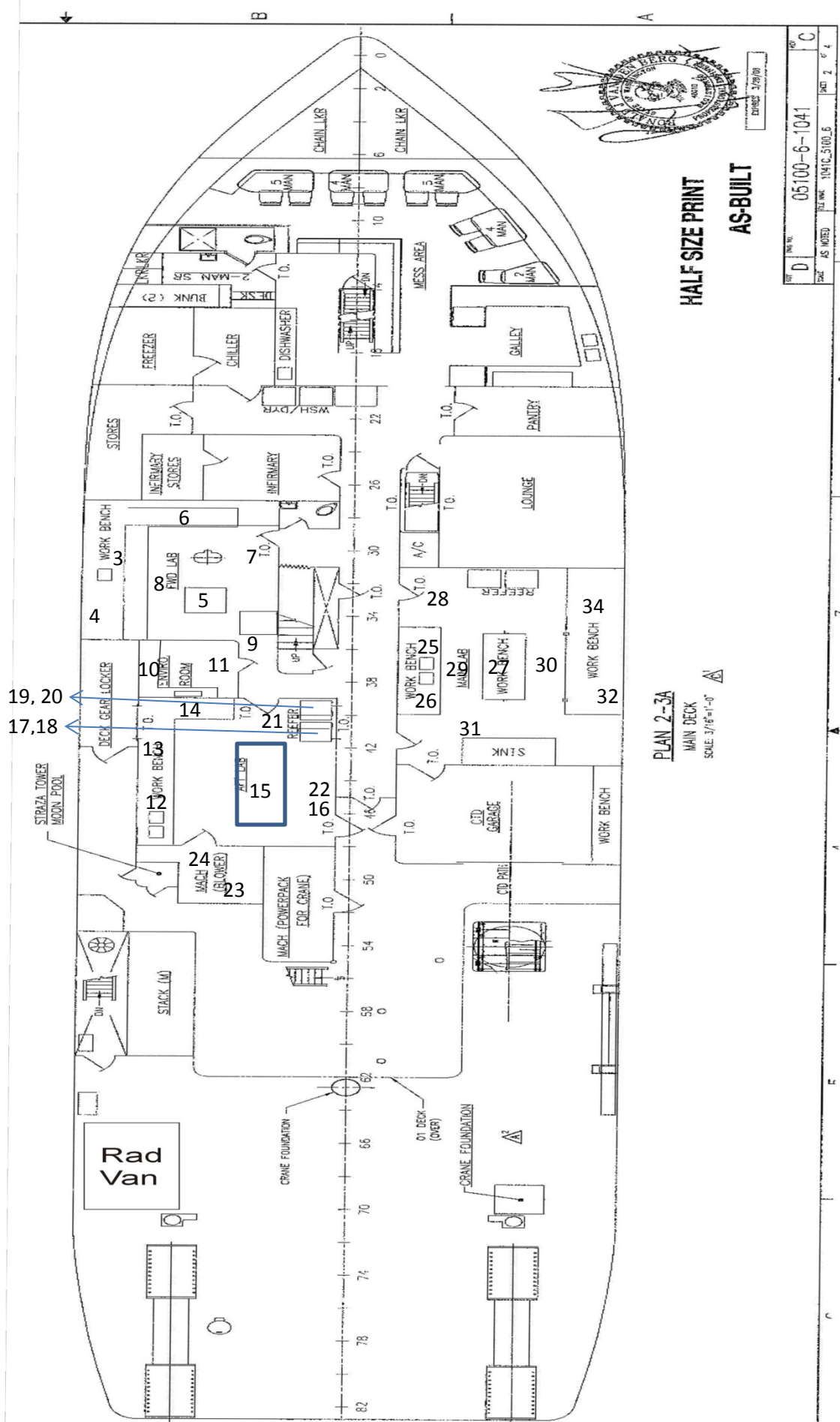
Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	-8	± 99	-38	± 41
	<u>Forward Lab (Figure 1)</u>				
3	Port sink area	24	± 96	-24	± 0
4	Benchtop aft of port sink	-159	± 141	18	± 62
5	Center benchtop	-14	± 83	8	± 43
6	Forward benchtop	8	± 66	-30	± 75
7	Deck inside forward entrance	48	± 69	-29	± 53
8	Deck in front of port sink	22	± 99	-24	± 14
9	Deck at aft entrance	16	± 195	-26	± 118
10	Benchtop inside Enviro Room	3	± 21	-26	± 65
11	Deck in Enviro Room	6	± 118	-8	± 18
	<u>Aft Lab (Figure 1)</u>				
12	Port sink area	-9	± 22	-3	± 67
13	Benchtop forward of port sink	-2	± 38	-1	± 126
14	Forward benchtop	-10	± 54	-3	± 53
15	Center benchtop	-10	± 22	-11	± 14
16	Inside aft Thermo -80 freezer	-44	± 47	0	± 113
17	Inside aft Cospolich refrigerator	16	± 147	-24	± 145
18	Inside aft Cospolich freezer	16	± 51	-2	± 32
19	Inside forward Cospolich refrigerator	-23	± 97	-22	± 79
20	Inside forward Cospolich freezer	-2	± 104	-16	± 60
21	Deck in front of Cospolich freezers	17	± 270	-32	± 99
22	Deck in front of freezers	3	± 16	-23	± 30
23	Inside forward Thermo -80 freezer	27	± 66	-17	± 158
24	Inside fume hood	-16	± 88	-18	± 99
25	Deck in front of fume hood	21	± 79	-19	± 27
	<u>Main Lab (Figure 1)</u>				
26	Port sink area	-3	± 108	0	± 117
27	Benchtop aft of sink	0	± 29	-31	± 35
28	Center benchtop	32	± 74	-25	± 31
29	Deck inside forward entrance	3	± 81	-20	± 14

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
30	Deck in front of sink area	27	± 69	-18	± 76
31	Deck btwn center bench and stbd aft benc	-8	± 74	-28	± 70
32	Aft starboard benchtop	-14	± 110	-5	± 45
33	Intermediate bucket blank	1	± 12	8	± 38
34	Forward starboard benchtop	27	± 171	-44	± 66
<u>Radioisotope Van 2409-01</u>					
35	Forward Cold bench	215	± 60	-4	± 22
36	Inside fume hood	186	± 57	21	± 26
37	Top of LSC	*1514	± 114	18	± 8
38	Inside Danby refrigerator under sink	*2004	± 88	*4163	± 114
39	Benchtop across from sink	*585	± 78	*56	± 27
40	Deck between LSC and hood	**13,068	± 304	*242	± 16
41	Sink area	127	± 51	29	± 32
42	Deck at entrance across from sink	*3283	± 163	*99	± 17
43	Final bucket blank	11	± 36	7	± 35

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. All areas tested on the ship were free from any isotope contamination that requires cleaning. Minor ^{14}C and minor to moderate ^3H contamination found in the rad van. The deck between the LSC and fume hood and the refrigerator should be cleaned before any further use.

Figure 1
 SWAB #844
 10 January 2017



UNOLS Shared Use Van 2409-01

