

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Tritium Laboratory

11 January 2016

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SWAB REPORT # 802

SWAB DATE: 7 January 2016

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 # 802

LOCATION: Jacksonville, FL
VESSEL: R/V Atlantic Explorer

DATE: 7 January 2016
TECHNICIAN: Charlene Grall

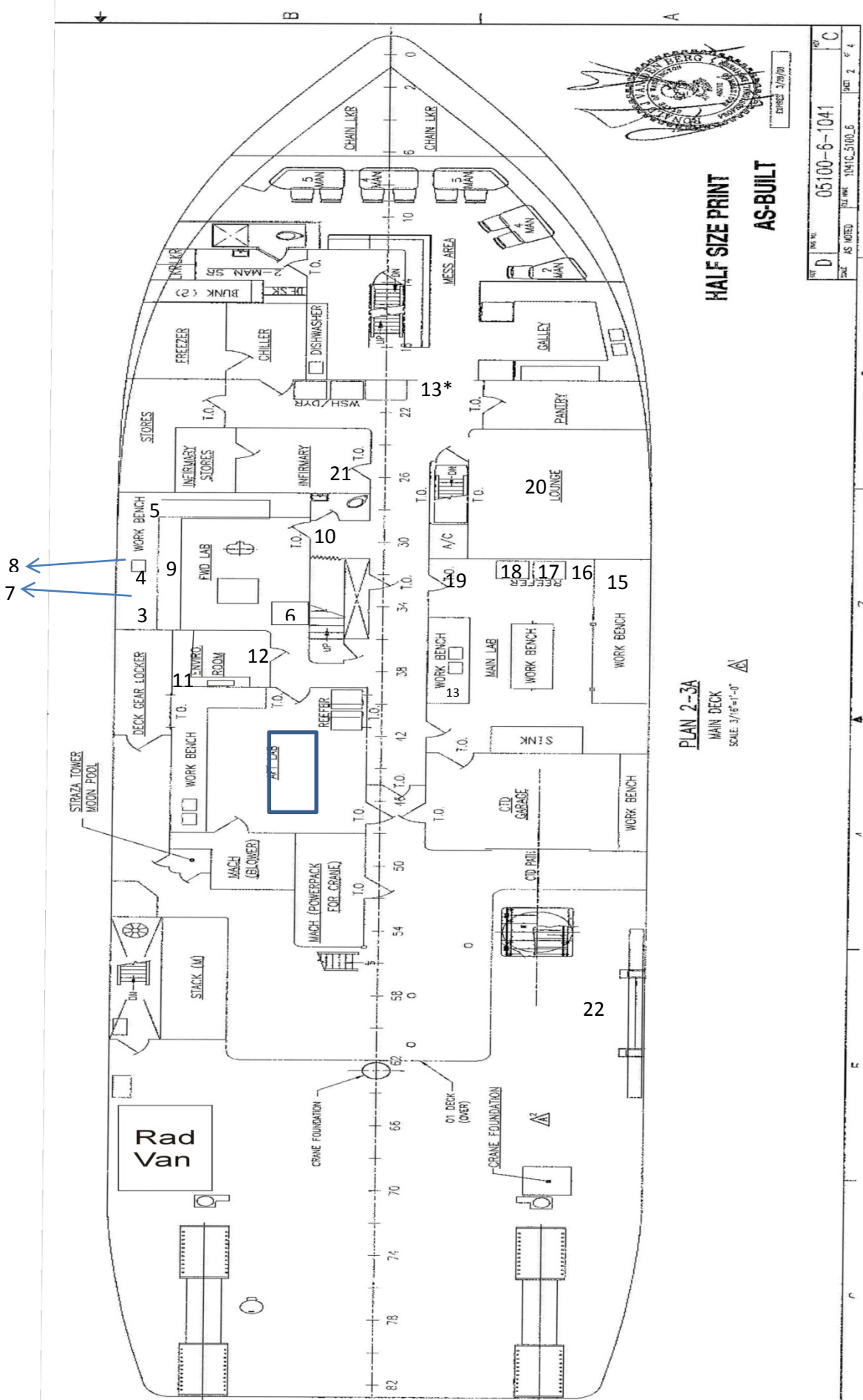
Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
	<u>Forward Lab (Figure 1)</u>				
2	Initial bucket blank	46	± 41	18	± 31
3	Slate port benchtop aft section	6	± 16	26	± 36
4	Slate port benchtop aft of sink	-27	± 33	27	± 38
5	Slate port benchtop fwd of sink	19	± 25	36	± 35
6	Top of -80 freezer	-8	± 62	29	± 37
7	Cabinets above aft port benchtop	28	± 34	25	± 34
8	Inside cabinet next to sink	-10	± 126	18	± 37
9	Inside cabinet below sink	-2	± 5	47	± 37
10	Deck at forward entrance	7	± 14	36	± 36
11	Enviro Room benchtop next to sink	4	± 16	17	± 35
12	Enviro Room floor	5	± 21	12	± 35
	<u>Mess (Figure 1)</u>				
13	Deck below water fountain	-27	± 34	*50	± 38
14	Deck between drink station and serving line	-4	± 15	33	± 36
	<u>Main Lab (Figure 1)</u>				
15	Inside laminar flow hood	-7	± 53	27	± 36
16	Inside small black GE refrigerator	-37	± 46	46	± 38
17	Inside stbd forward freezer (icemelt)	-11	± 131	23	± 37
18	Inside port forward freezer (icemelt)	10	± 127	-14	± 0
19	Deck inside forward entrance	-12	± 144	25	± 37
	<u>Miscellaneous Areas (Figure 1)</u>				
20	Coffee tabletop in Lounge	20	± 45	3	± 25
21	Deck inside Infirmary	20	± 40	13	± 33
22	Stbd Maindeck where CTD comes aboard	6	± 15	27	± 36
23	Storage hold deck below hatch in Forward Lab	476	± 71	*60	± 27
24	01 Deck where wastewater discharges from Rad Van	-7	± 49	28	± 37

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
	<u>Radioisotope Van # (Figure 2)</u>				
25	Small SS benchtop inside entrance	11	± 23	27	± 35
26	Sink area	414	± 70	39	± 24
27	Inside fume hood	*3255	± 159	*207	± 26
28	Inside Danby refrigerator	*1100	± 98	*64	± 20
29	Top of LSC	*2094	± 135	*94	± 19
30	SS benchtop across from sink	*1275	± 105	*64	± 19
31	Deck between LSC and fume hood	*2799	± 160	*87	± 16
32	Deck inside entrance	242	± 59	*71	± 32
33	Final bucket blank	20	± 35	15	± 33

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 contamination that requires cleaning. Minor ¹⁴C contamination was found in samples 13 and 23 inside the ship. These areas should be cleaned as soon as possible. Sample 23 also had ³H that was above background but below the cleanup threshold. Minor ¹⁴C and ³H contamination was found in radioisotope van. No action is needed.

Figure 1
 SWAB #802
 7 January 2016



8
 7

HALF SIZE PRINT
 AS-BUILT

PLAN 2-3A
 MAIN DECK
 SCALE 3/16"=1'-0"

NO.	REV.	DATE	BY	CHKD.
D	1	05100-6-1041		C
DATE	AS NOTED	7/12/16	1041C.5100.6	1041C.5100.6
		SHEET 2 OF 4		

SWAB #802
Figure 2
7 January 2016

UNOLS Shared Use Van 2409-01

