

UNIVERSITY OF MIAMI  
ROSENSTIEL  
SCHOOL of MARINE &  
ATMOSPHERIC SCIENCE



Tritium Laboratory

12 January 2015

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SWAB REPORT # 757

SWAB DATE: 5 January 2015

*R/V Atlantic Explorer and UNOLS Van # 2409.01*

James  
Happell

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SWAB Committee  
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## COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for  $^3\text{H}$  and  $^{14}\text{C}$  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  $\text{dpm}/\text{m}^2$ . Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in  $\text{dpm}/\text{m}^2$ . An error larger than the activity indicates that the activity is not significantly different from zero.

### Criteria for SWAB Results

Category	$^3\text{H}$ ( $\text{dpm}/\text{m}^2$ )	$^{14}\text{C}$ ( $\text{dpm m}^2$ )	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:  $^{14}\text{C}$  and  $^{35}\text{S}$  have peak energies of 156 and 167 KeV, respectively; thus  $^{35}\text{S}$  will be registered as  $^{14}\text{C}$  by our counting techniques. Categories A, B and C are not a health hazard.

### Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

$^3\text{H}$ : 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.

$^{14}\text{C}$ : 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  $^3\text{H}$ .

### 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 # 739

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

DATE: 5 January 2015  
TECHNICIAN: Richard Oleson

Sample #	Sample Identification	<sup>3</sup> H dpm/m <sup>2</sup>		<sup>14</sup> C dpm/m <sup>2</sup>	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	11	± 33	11	± 34
	<u>Aft Wet Lab (Figure 1)</u>				
3	Inside fume hood	18	± 87	0	± 0
4	Deck at entrance to hood room	19	± 58	0	± 0
5	Benchtop forward of sink	0	± 0	0	± 0
6	Inside Roper freezer top	0	± 0	0	± 0
7	Inside Roper fridge bottom	0	± 0	0	± 0
8	Inside GE freezer	0	± 0	0	± 0
9	Inside small black GE	0	± 0	0	± 0
10	Center benchtop	23	± 276	0	± 0
11	Deck at forward entrance	18	± 88	0	± 0
12	Forward benchtop	0	± 0	0	± 0
13	Deck at aft entrance	0	± 0	0	± 0
	<u>Forward Lab (Figure 1)</u>				
14	Benchtop forward of sink	29	± 83	0	± 0
15	Forward benchtop	0	± 0	0	± 0
16	Deck at starboard entrance	0	± 0	0	± 0
17	Deck at infirmary entrance	0	± 0	0	± 0
18	Deck at top of stairs	0	± 0	0	± 0
19	Inside VWR freezer	0	± 0	0	± 0
20	Center benchtop	0	± 0	0	± 0
21	Benchtop aft of sink	0	± 0	0	± 0
22	Benchtop inside Enviro Room	0	± 0	0	± 0
23	Deck in Enviro Room	0	± 0	0	± 0
	<u>Main Lab (Figure 1)</u>				
24	Starboard forward freezer	0	± 0	0	± 0
25	Port forward freezer	15	± 0	0	± 0
26	Starboard benchtop	0	± 0	3	± 124
27	Deck in front of port benchtop	5	± 0	0	± 0
28	Deck in front of freezers	23	± 100	0	± 0
29	Deck in front of stbd. benchtop	38	± 78	0	± 0

Sample #	Sample Identification	<sup>3</sup> H dpm/m <sup>2</sup>		<sup>14</sup> C dpm/m <sup>2</sup>	
		activity	error	activity	error
30	Deck inside aft entrance	19	± 114	0	± 0
31	Center benchtop	0	± 0	0	± 0
32	Inside clean air bench	29	± 360	0	± 0
33	Sink area	0	± 0	0	± 0
34	Benchtop aft of sink	13	± 0	0	± 0
35	Deck by forward entrance	0	± 0	0	± 0
<u>UNOLS Shared Use Van 2409.01 (Figure 2)</u>					
36	Sink area	*1664	± 219	*76	± 24
37	Inside fume hood	*1900	± 125	45	± 13
38	Benchtop next to LSC	*3278	± 203	*102	± 18
39	Deck between LSC and hood	*997	± 98	0	± 0
40	Forward benchtop	78	± 59	0	± 0
41	Inside Danby under sink	*6916	± 226	*242	± 22
42	Deck at entrance	*1078	± 103	*61	± 21
43	Deck outside van entrance	11	± 0	0	± 0
44	Final bucket blank	0	± 0	0	± 0

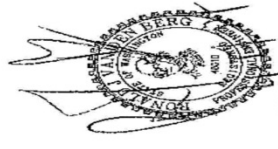
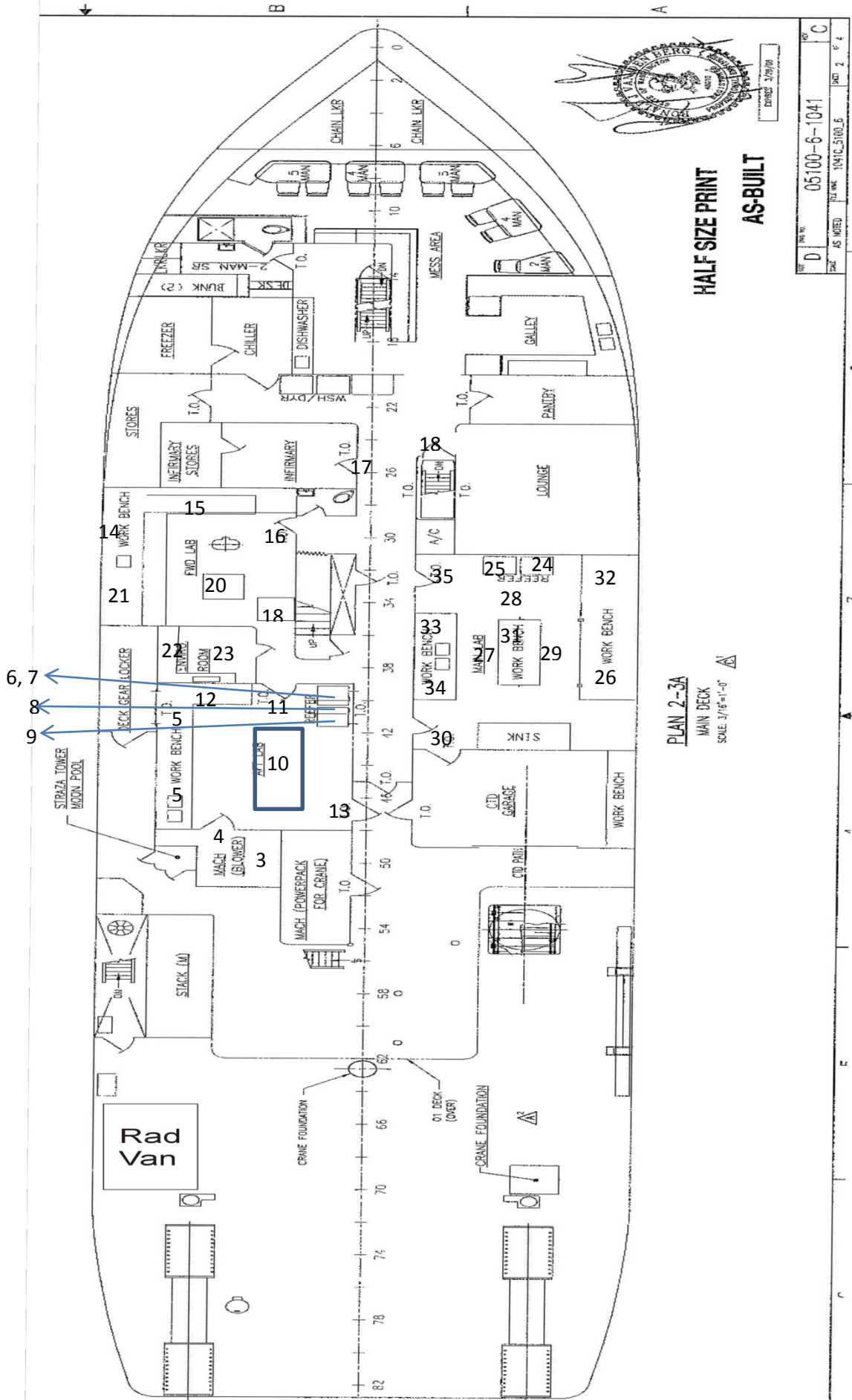
### Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.

All areas tested in the ship were free from isotope contamination that requires cleaning.

Minor <sup>3</sup>H and <sup>14</sup>C contamination was detected in the radioisotope van. Deck areas should be cleaned.

Figure 1  
 SWAB #757  
 5 January 2015



UNOLS Shared Use Van 2409.01

SWAB #757

Figure 2

5 January 2015

