

UNIVERSITY OF MIAMI

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SCHOOL of MARINE &
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Tritium Laboratory
2 July 2012

SWAB REPORT # 637

SWAB DATE: 27 June 2012

R/V Atlantic Explorer

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Distribution:
SWAB Committee
James Caison

Typical LSC instrument background values for 3H and 14C 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/m². Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in dpm/m². 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)	14C (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: 14C and 35S have peak energies of 156 and 167 KeV, respectively; thus 35S will be registered as 14C 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.

14C: Wash with 1% sulfuric or 2% hydrochloric (muriatic) acid with good ventilation (will dissolve carbonates, releasing 14CO₂). 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 institution promptly by phone or email.

REPORT FOR SWAB # 637

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

DATE: 27 June 2012
TECHNICIAN: Cecilia Roig

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	0	± 0	17	± 35
	<u>Aft/Wet Lab (Figure 1)</u>				
3	Inside hood	0	± 0	35	± 34
4	Deck at entrance to hood room	0	± 0	12	± 38
5	Bench top fwd. of sink	9	± 18	36	± 33
6	Inside Roper freezer top	0	± 0	32	± 34
7	Inside Roper fridge bottom	16	± 41	4	± 26
8	Inside GE freezer	0	± 0	16	± 35
9	Inside small black GE	0	± 0	27	± 35
10	Center bench top	0	± 0	12	± 33
11	Deck at fwd. entrance	0	± 0	17	± 33
12	Fwd. bench top	0	± 0	41	± 34
	<u>Forward Lab (Figure 1)</u>				
13	Bench top fwd. of sink	1	± 3	42	± 34
14	Fwd. bench top	0	± 0	46	± 35
15	Deck at stbd. entrance	0	± 0	39	± 34
16	Deck at infirmary entrance	0	± 0	34	± 35
17	Deck at top of stairs	0	± 0	12	± 34
18	Deck in front of ice machine	0	± 0	27	± 34
19	Center bench top	0	± 0	16	± 36
20	Bench top aft of sink	0	± 0	33	± 34
21	Deck in Enviro Room	0	± 0	24	± 33
22	Water inside VWR freezer	116	± 51	7	± 16
	<u>Main Lab (Figure 1)</u>				
23	Stbd. fwd. freezer	0	± 0	20	± 36
24	Port fwd. freezer	7	± 41	1	± 25
25	Stbd. bench top	13	± 32	11	± 30
26	Aft bench top	43	± 44	5	± 22
27	Deck in front of freezers	0	± 0	28	± 34
28	Deck in front of stbd. bench	0	± 0	21	± 34
29	Deck in front of aft bench	0	± 0	14	± 33
30	Center bench top	0	± 0	34	± 35
31	Bench top aft of sink	0	± 0	37	± 34

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
32	Bench top fwd. of sink	8	± 26	14	± 31
33	Inside clean air bench top	0	± 0	25	± 33
34	Intermediate bucket blank	9	± 36	5	± 29
<u>UNOLS Shared Use Van 2409.01 (Figure 2)</u>					
35	Sink area	118	± 51	44	± 30
36	Bench top next to LSC	40	± 46	9	± 26
37	Inside fume hood	*1,556	± 112	*72	± 17
38	Top of LSC	56	± 37	42	± 32
39	Deck between LSC and hood	175	± 52	41	± 27
40	Inside Danby next to LSC	24	± 32	24	± 31
41	Inside Danby under sink	*5,230	± 191	*96	± 11
42	Deck at entrance	125	± 51	17	± 24
43	Fwd. bench top	159	± 54	23	± 24
44	Final bucket blank	0	± 0	6	± 33

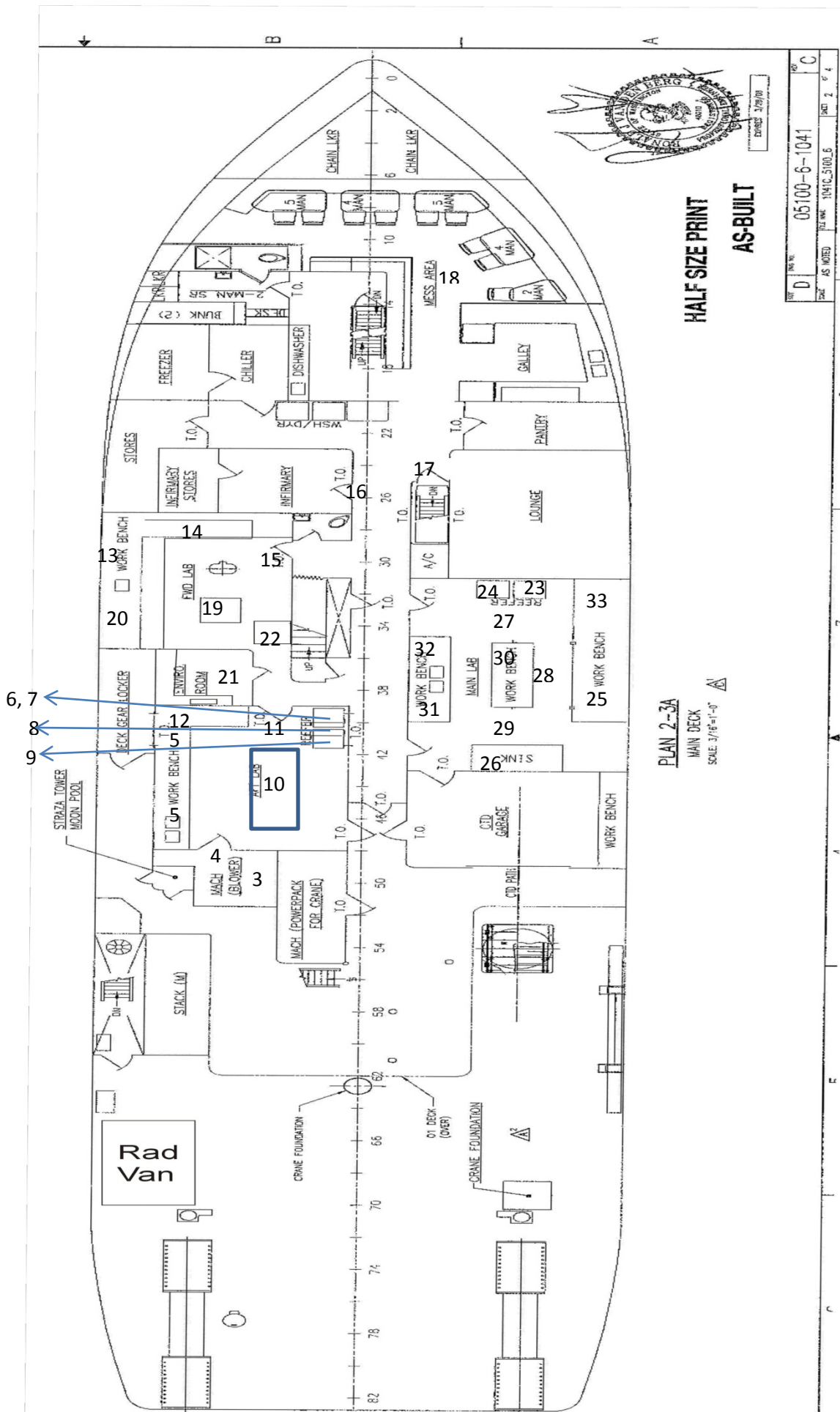
Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. The ship is free of any radioisotope contamination. Minor ^3H and ^{14}C contamination was found in the UNOLS van, these two areas will need cleaning before any natural tracer work.

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Figure 1

26 June 2012



HALF SIZE PRINT
AS-BUILT

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

NO.	C
REV.	D
DATE	AS NOTED
BY	AS NOTED
CHKD.	AS NOTED
APP.	AS NOTED
DATE	05100-6-1041
SCALE	3/16"=1'-0"
SHEET	2 OF 4

6, 7
8
9

Rad Van

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Figure 2

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