

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory

23 January 2021

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SWAB REPORT # 992

SWAB DATE: 27 January 2020

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 # 987

LOCATION: St. Georges, Bermuda, BIOS Dock
VESSEL: *R/V Atlantic Explorer*

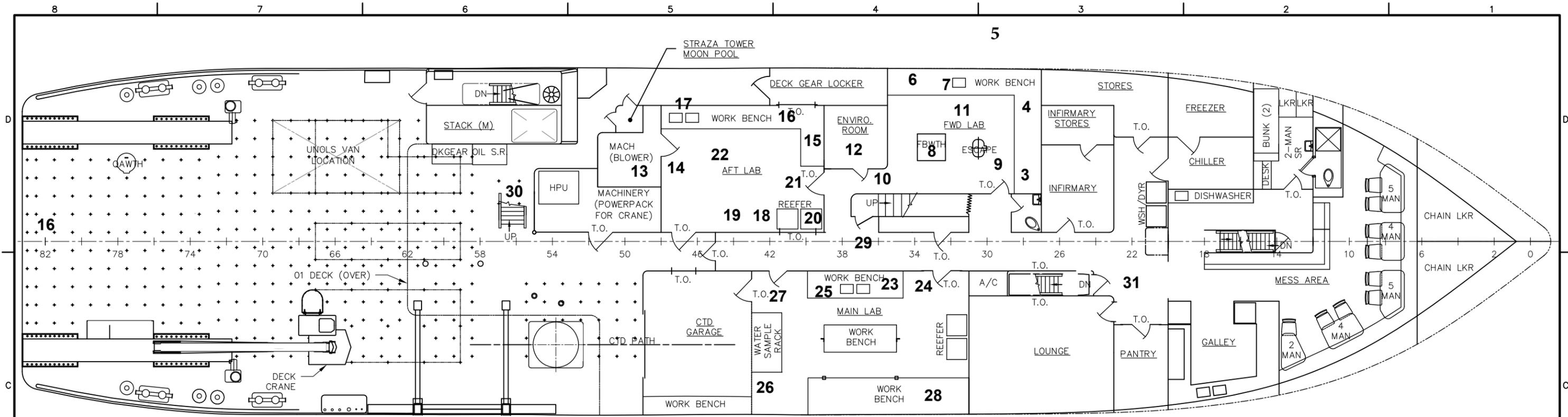
DATE: 27 January 2021
TECHNICIAN: Claire Medley, Matt Hayden

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	5	± 13	30	± 37
<u>Forward Lab (Figure 1)</u>				
3 Forward benchtop on starboard si	-28	± 76	20	± 40
4 Foward benchtop below pCO2 measuring system	19	± 64	-9	± 41
5 Port benchtop forward of sink	-45	± 122	44	± 40
6 Port benchtop aft of sink	-8	± 44	8	± 38
7 Sink area	-13	± 144	37	± 38
8 Center benchtop	-15	± 87	15	± 39
9 Deck inside starboard entrance	-2	± 27	13	± 37
10 Deck inside aft entrance	-2	± 29	4	± 37
11 Deck in front of sink	-10	± 130	29	± 38
12 Deck inside enviro room	-31	± 86	8	± 46
<u>Aft Lab (Figure 1)</u>				
13 Inside fume hood	-18	± 59	-1	± 9
14 Deck in front of fume hood	-19	± 64	-4	± 32
15 Forward benchtop	-22	± 75	5	± 49
16 Benchtop forward of sink	18	± 323	-32	± 39
17 Port sink area	-20	± 66	-17	± 48
18 Inside -80°C freezer #1	0	± 1	-16	± 45
19 Inside -80°C freezer #2 (not present)				
20 Inside Cospolich refrigerator	6	± 34	7	± 37
21 Deck below Cospolich refrigerator	-17	± 57	-14	± 38
22 Center benchtop	39	± 93	-36	± 44

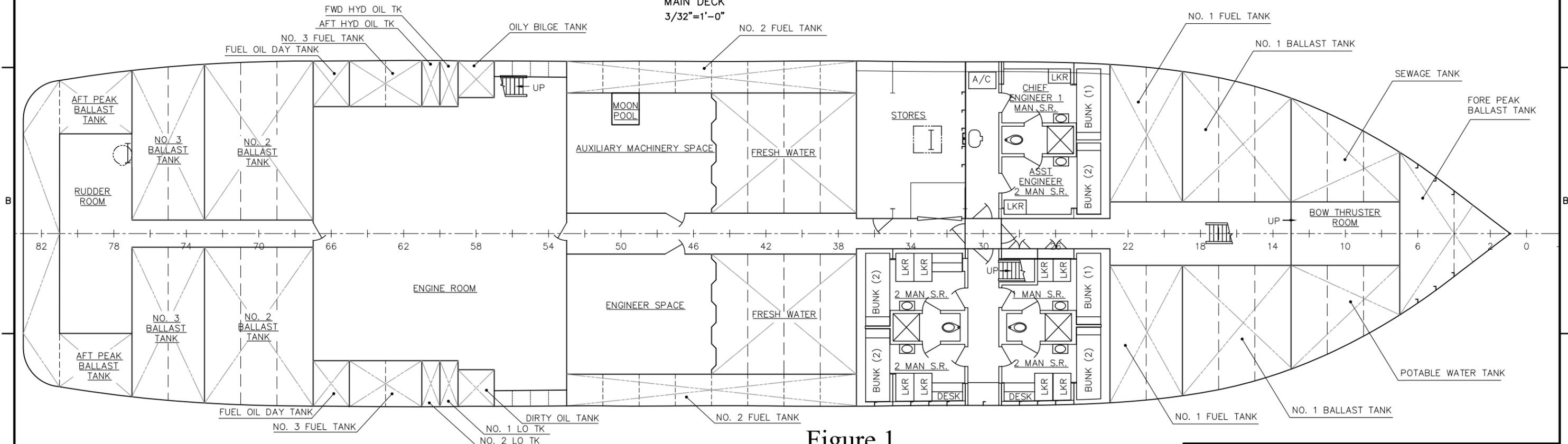
Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
<u>Main Lab (Figure 1)</u>					
23	Port sink area	-13	± 43	-15	± 43
24	Deck inside forward entrance	1	± 12	-25	± 31
25	Deck under sink area and bench aft of sink	1	± 7	13	± 37
26	Deck below end of water drain	-11	± 27	7	± 39
27	Deck inside aft entrances	-29	± 72	12	± 42
28	Starboard clean benchtop	11	± 49	0	± 3
29	Deck at base of stairs to 01 deck	8	± 19	27	± 37
30	Three lower steps of aft stair outside	16	± 40	7	± 33
31	Deck outside lounge	5	± 14	25	± 37
32	Intermediate bucket blank	-8	± 19	10	± 38
<u>Radiation Van #625.5.02 (Figure 2)</u>					
33	Sink area	18	± 70	-12	± 0
34	Benchtop adjacent to sink	*4627	± 190	*81	± 12
35	Inside fume hood and adjacent bench	83	± 51	14	± 28
36	Benchtop adjacent to fumehood	69	± 51	14	± 28
37	Top of LSC	230	± 62	*57	± 31
38	Inside freezer	0	± 1	16	± 36
39	Inside refrigerator	*599	± 81	*112	± 32
40	Benchtop adjacent to LSC	213	± 61	34	± 28
41	Deck in front of and below fume hood	13	± 20	47	± 37
42	Deck between LSC and freezer	202	± 76	37	± 30
43	Deck in front of sink and refrigerator	137	± 66	-5	± 74
44	Benchtop across from sink	78	± 52	19	± 30
45	Deck inside entrance	*1563	± 125	28	± 10
46	Deck outside entrance	30	± 53	2	± 18
47	Final bucket blank	2	± 17	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 isotope contamination that requires cleaning. Minor ^3H and ^{14}C contamination was found in Van # 625.5.02, but no action is necessary.



PLAN 2-5C
MAIN DECK
 3/32"=1'-0"



PLAN 2-5A
HOLD LEVEL
 3/32"=1'-0"

Figure 1
SWAB #992
27 January 2021

BIOS ST. GEORGE'S, BERMUDA			
R/V ATLANTIC EXPLORER GENERAL ARRANGEMENT HOLD LEVEL AND MAIN DECK PLANS			
THE GLOSTEN ASSOCIATES <i>Consulting Engineers Serving the Marine Community</i>		1201 Western Avenue, Suite 200 Seattle, Washington 98101-2953 TEL 206.624.7850 WEB www.glosten.com	
Drawn TGA	Checked CSC	Approved DHK	Date 05/30/2014
Scale AS NOTED	Drawing Number 12146-070-01	Sheet 2	of 4
		Revision A	

UNOLS Rad Van #625.5.02

Figure 2
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