

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Tritium Laboratory

27 January 2022

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SWAB REPORT # 1024

SWAB DATE: 23 January 2022

R/V Atlantic Explorer

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Rick Verlini
Rod Johnson

COMMENTS TO SWAB REPORTS

15 December 2021

The LSC is now a Quantulus GCT 6220, with the SWAB counting assay having background cpm of 0.3 & 1.2 for 3H & 14C. This replaces an LSC with background cpm of 1.6 & 5.5 for 3H & 14C.

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. All activities significantly above background will be in bold.

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.

ed Cleaning Procedure

y 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.

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 insitution promptly by phone or email.

REPORT FOR SWAB # 1024

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

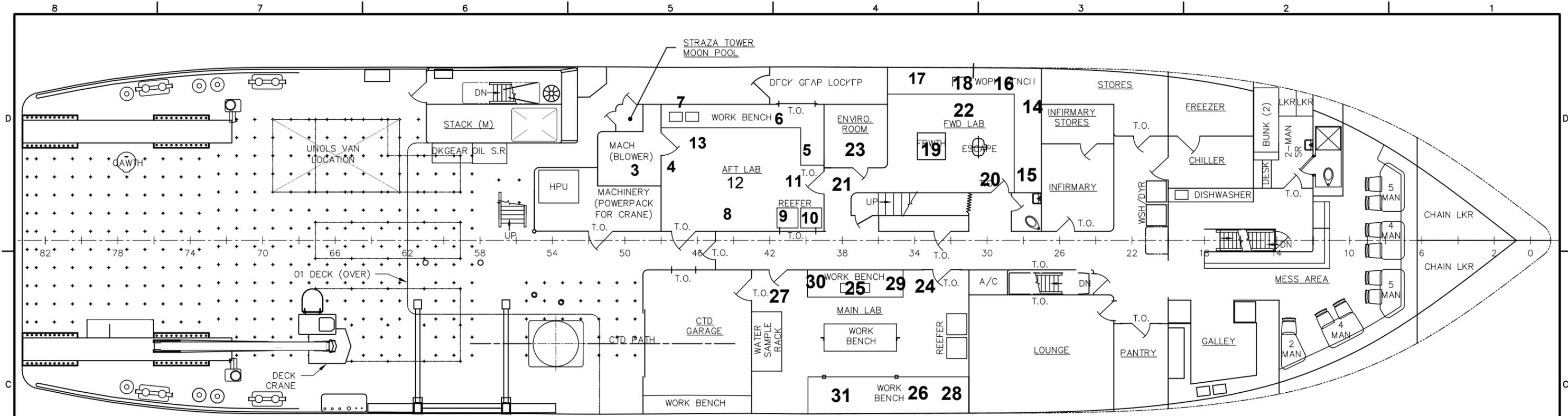
DATE: 23 January 2022
TECHNICIAN: Jim Happell

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	-16	±	46	3	±	15
	<u>Aft Lab (Figure 1)</u>						
3	Inside fume hood	-14	±	40	1	±	28
4	Deck in front of fume hood	-3	±	11	-9	±	11
5	Forward benchtop	-20	±	56	4	±	16
6	Benchtop forward of sink	-13	±	38	-6	±	9
7	Port sink area	-21	±	60	12	±	13
8	Deck below -80 °C freezer #2	-34	±	94	15	±	14
9	Inside DEAD Cospolich refrigerator	-1	±	4	-3	±	14
10	Inside LIVE Cospolich refrigerator	-13	±	36	5	±	13
11	Deck at forward entrance	-49	±	136	0	±	4
12	Center benchtop	-53	±	150	3	±	157
13	Deck below sink area	-34	±	95	13	±	14
	<u>Forward Lab (Figure 1)</u>						
14	Starboard side of forward benchtop	-20	±	55	-9	±	11
15	Port side of forward benchtop	-17	±	47	-5	±	13
16	Port benchtop forward of sink	-14	±	40	10	±	13
17	Port benchtop aft of sink	-13	±	36	16	±	13
18	Port sink area	-41	±	113	1	±	27
19	Center benchtop	-32	±	90	-13	±	15
20	Deck inside starboard entrance	-23	±	63	-3	±	14
21	Deck inside aft entrance	-29	±	80	1	±	32
22	Deck in front of sink	-11	±	31	2	±	17
23	Deck inside Enviro Room	-2	±	7	3	±	12

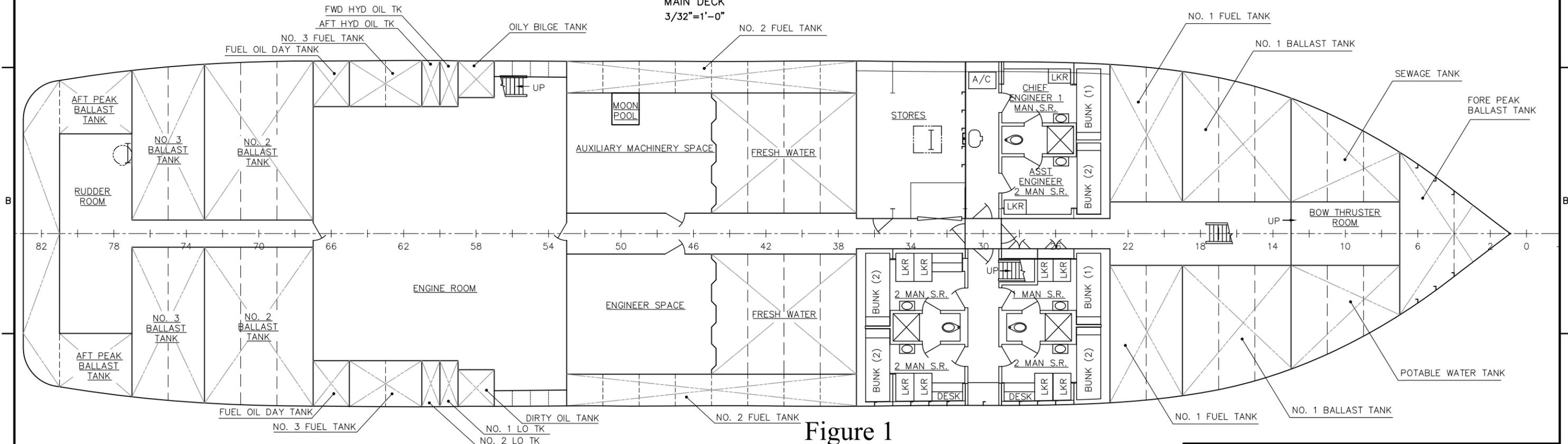
Sample #	Sample Identification	^3H dpm/m ²			^{14}C dpm/m ²		
		activity	±	error	activity	±	error
	<u>Main Lab (Figure 1)</u>						
24	Deck inside forward entrance	10	±	29	0	±	16
25	Port sink area	8	±	33	-2	±	11
26	Inside laminar flow hood	-18	±	50	-6	±	8
27	Deck inside aft entrances	-12	±	33	-2	±	42
28	Benchtop forward of laminar flow hood	-3	±	11	3	±	12
29	Port benchtop forward of sink	-12	±	33	10	±	13
30	Port benchtop aft of sink	-20	±	56	-6	±	8
31	Starboard benchtop	-5	±	19	-1	±	23
32	Final bucket blank	-18	±	49	2	±	20

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. Reports may now contain values less than zero. 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. Please note that we are now using a Quantulus 6220 LSC which counts very near natural background. While the cleanup standards have not changed all values above background will now be in bold. All areas tested in the ship were free from isotope contamination that requires cleaning.



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



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

Figure 1
SWAB #1024
23 January 2022

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