

UNIVERSITY OF MIAMI

ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Tritium Laboratory

31 August 2018

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SWAB REPORT # 912

SWAB DATE: 24 August 2018

R/V Rachel Carson
University of Washington

Dr. James D. Happell
Associate Research Professor

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 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: ^{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 insitution promptly by phone or email.

REPORT FOR SWAB # 912

LOCATION: Seattle, WA
VESSEL: *R/V Rachel Carson*

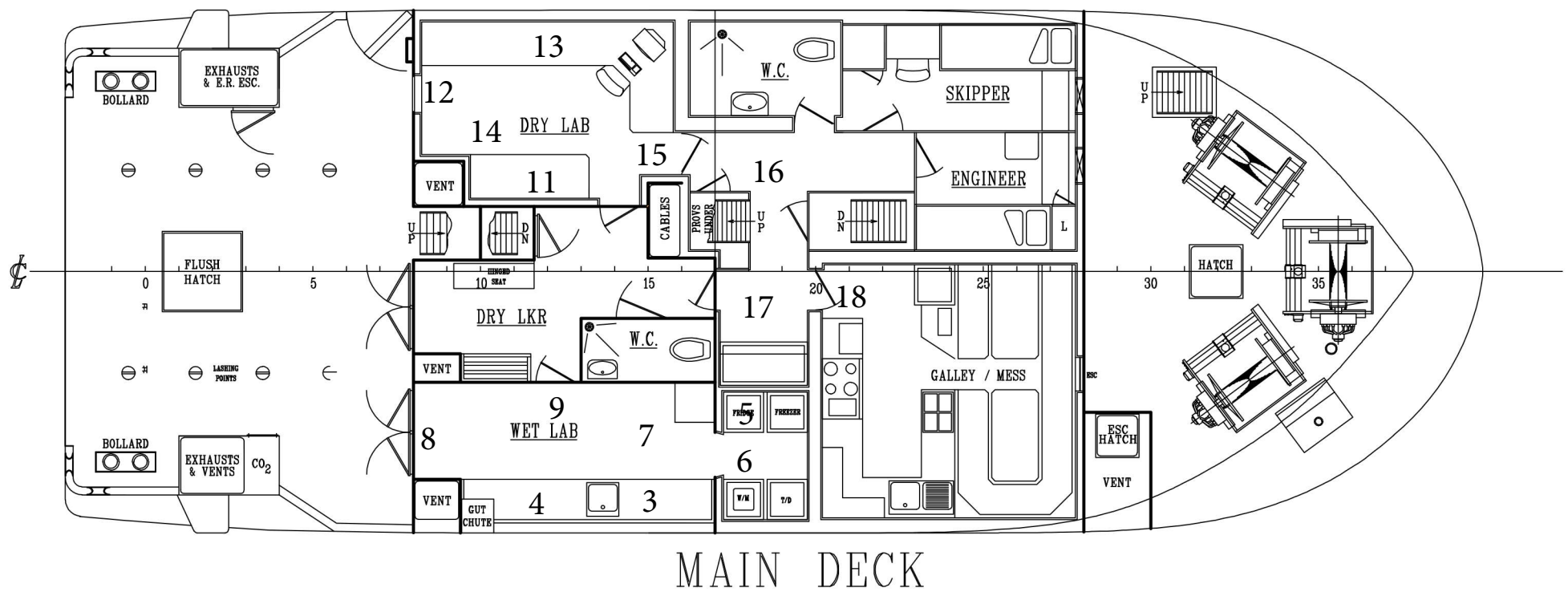
DATE: 24 August 2018
TECHNICIAN: Charlene Grall

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
<u>Wet Lab (Fig. 1)</u>						
2 Initial bucket blank	11	±	65	-7	±	18
3 Wooden bench forward of sink	26	±	32	32	±	35
4 Wooden bench aft of sink	48	±	50	7	±	27
5 Inside forward refrigerator	-1	±	2	44	±	37
6 Deck in front of forward refrigerator	-49	±	61	18	±	42
7 Deck in front of sink area	27	±	44	10	±	32
8 Deck inside aft entrance	33	±	53	-1	±	44
9 Deck inside port entrance	23	±	33	27	±	35
<u>Dry Lab (Fig. 1)</u>						
10 Deck outside head	-24	±	44	8	±	43
11 Starboard benchtop	13	±	33	14	±	35
12 Aft folding benchtop	15	±	61	-7	±	19
13 Port benchtop	16	±	40	11	±	34
14 Deck between benches	-35	±	80	10	±	44
15 Deck between starboard and forward lab entrances	23	±	34	25	±	35
16 Companionway forward of DL near stairs to Bridge	-18	±	163	42	±	38
<u>Miscellaneous areas (Fig. 1, 2, 3)</u>						
17 Companionway aft of Mess and starboard of stairs	-9	±	54	12	±	38
18 Deck inside Mess	-5	±	22	6	±	38
19 Deck at base of stairs to Lower Deck berthing	-1	±	7	18	±	37
23 Maindeck outside Dry Lab entrance	-23	±	103	17	±	41
<u>Shelterdeck (Fig. 3)</u>						
20 Deck of Bridge near top of stairs	-22	±	88	10	±	41
21 Deck aft of Bridge	-18	±	73	-19	±	95
22 Foredeck forward of Zodiac launch	-14	±	100	16	±	39
24 Final bucket blank	28	±	53	-8	±	68

Comments

This is a baseline SWAB test of the *R/V Rachel Carson*, newly acquired by the University of Washington. 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 any radioisotope contamination that requires cleaning.

Figure 1.
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24 August 2018



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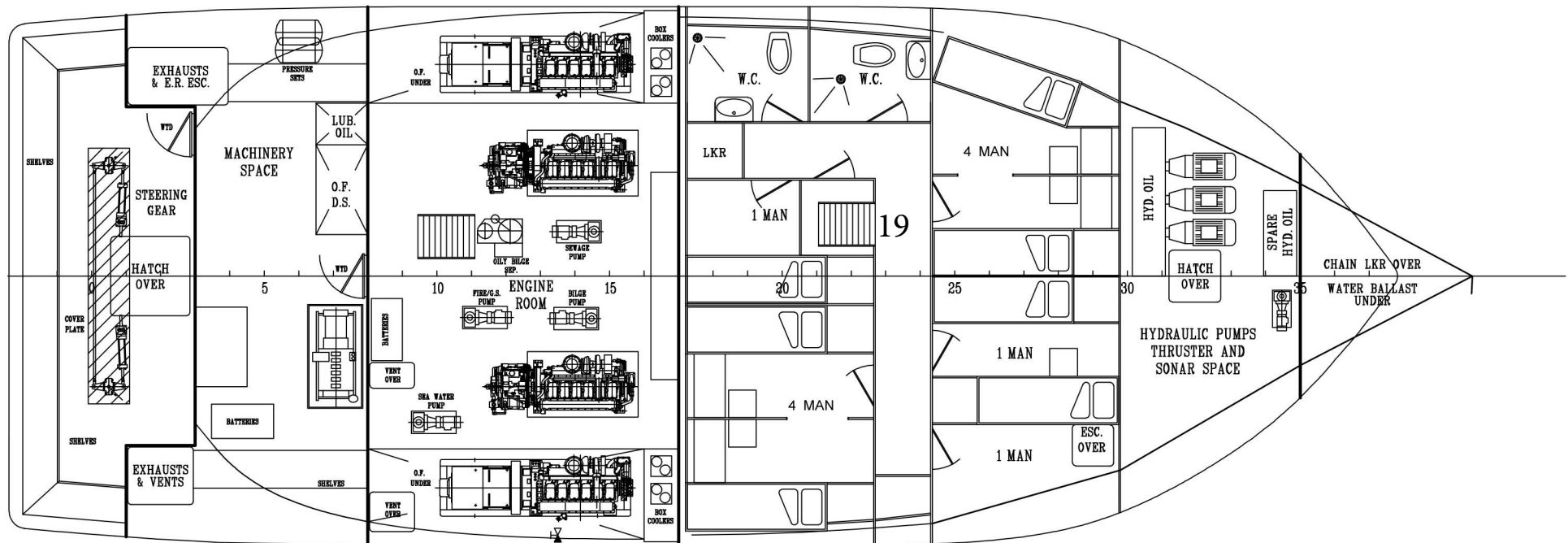
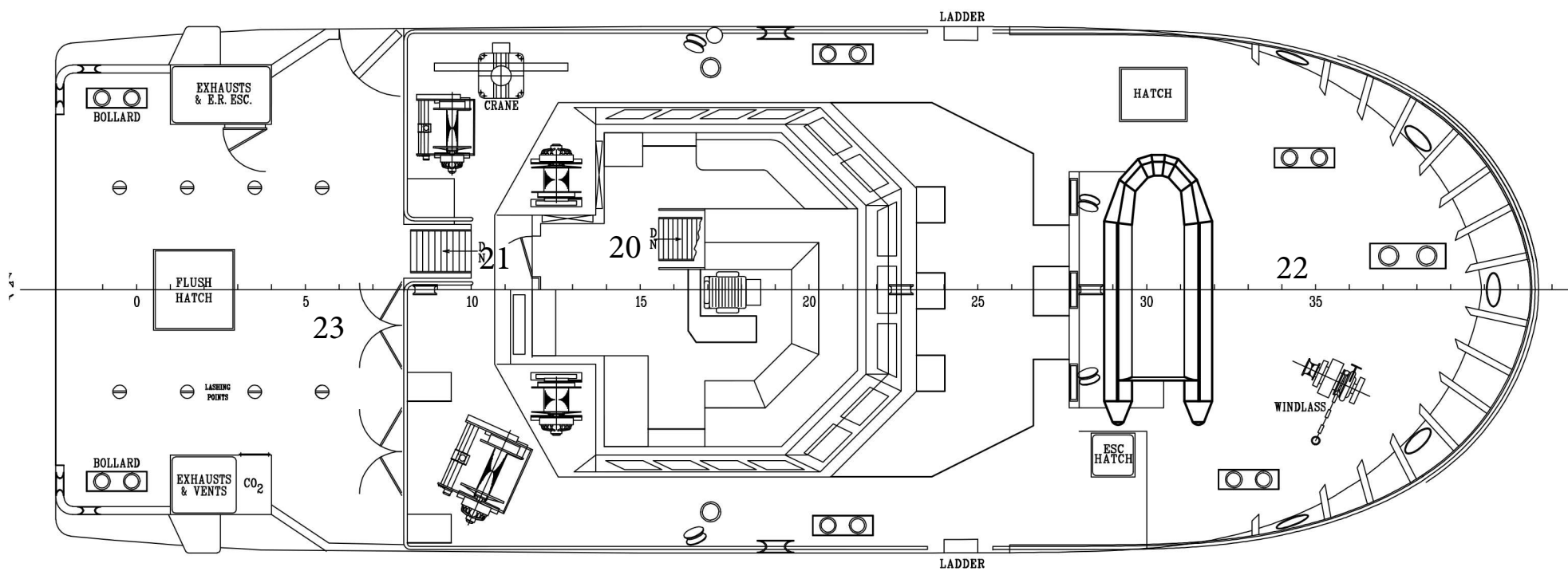


Figure 3.
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SHELTER DECK