

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory

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SWAB REPORT # 864

SWAB DATE: 2 July 2017

R/V Roger Revelle

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Distribution:
SWAB Committee
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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 insitution promptly by phone or email.

REPORT FOR SWAB # 864

LOCATION: Point Loma, San Diego, CA

DATE: 2 July 2017

VESSEL: *R/V Roger Revelle*

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
2	Initial bucket blank	8	27	53	13	±	34
<u>Main Lab (Figure 1)</u>							
3	Starboard sink area	6	±	27	11	±	34
4	Bench aft of starboard sink	-6	±	20	11	±	36
5	Starboard bench below giant monitor	-17	±	34	27	±	37
6	Starboard bench across from giant monitor	18	±	27	30	±	35
7	Starboard bench forward of fume hood	4	±	8	37	±	36
8	Inside fume hood	-6	±	73	21	±	36
9	Inside bottom of Cospolich fridge (top N/A)	3	±	13	19	±	35
10	Desk inside aft entrance	-13	±	52	53	±	37
11	Desk inside aft port entrance	-15	±	88	29	±	37
12	Port center Bench	-7	±	31	37	±	37
13	Deck between plotter and center deck	3	±	24	6	±	34
14	Deck inside port entrance	9	±	26	15	±	34
15	Port sink area	-27	±	1195	53	±	38
16	Deck below port sink	-11	±	62	10	±	37
17	Desk inside forward port entrance	-36	±	90	48	±	38
18	Deck below forward bench	27	±	40	13	±	32
<u>Bio-Analytical Lab (Figure 1)</u>							
19	Forward sink area	-28	±	16	37	±	38
20	Deck below Cospolich refrigerator	13	±	25	27	±	35
21	Inside fume hood	-14	±	72	49	±	37
22	Aft sink area	-1	±	5	25	±	36
23	Deck below sink and fume hood	-32	±	88	57	±	38
24	Deck at starboard entrance	-20	±	31	27	±	37
25	Deck at aft entrance	13	±	28	19	±	34
26	Bench opposite of aft sink area	16	±	38	13	±	33
<u>Miscellaneous Areas (Figure 1)</u>							
27	Deck outside Freeze Box	-30	±	92	16	±	39
28	Bench inside aft climate control chamber	-23	±	505	40	±	38
29	Deck of aft climate control chamber	-41	±	54	28	±	39

Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
	activity	error	activity	error
30 Deck of vestibule adjacent to companionway	-30	± 6	28	± 38
31 Deck inside Darkroom	-26	± 67	37	± 38
32 Deck inside Ship Office	-23	± 33	29	± 38
33 Deck in front of -80 freezer in Science storeroom	10	± 56	-2	± 19
<u>Hydro Lab (Figure 2)</u>				
34 Hydro Lab Stbd sink area	-4	± 238	10	± 36
35 Inside fume hood	-6	± 22	11	± 36
36 Inside small white Haier refrigerator	-30	± 58	19	± 39
37 Benchtop aft of stbd sink area	26	± 53	-4	± 19
38 Fwd bench across from fume hood	-12	± 44	21	± 37
39 Port Bench	8	± 16	33	± 36
40 Inside Percival refrigerator	4	± 17	15	± 35
41 Deck inside stbd entrance	-19	± 21	28	± 37
42 Deck in front of aft port sink	-4	± 92	13	± 36
43 Aft port sink area	-13	± 322	33	± 37
44 Final bucket blank (CO#1)	20	± 51	-3	± 11
45 Initial bucket blank (CO#2)	0	± 8	16	± 35
<u>Wet Lab (Figure 2)</u>				
46 Wet Lab Inside Cospolich fridge upper (H	-15	± 81	13	± 38
47 Fwd lab bench	7	± 24	16	± 35
48 Sink area	20	± 35	18	± 34
49 Inside fume hood	-18	± 56	38	± 37
50 Deck in center of lab	-48	± 47	43	± 39
51 Deck in center of Staging Bay	13	± 34	11	± 33
<u>Radioisotope Van SN 625.101-2 (Figure 3)</u>				
52 Rad Van Sink area	17	± 8	218*	± 43
53 Bench adjacent to LSC	156	± 39	201*	± 41
54 Inside fume hood	75	± 35	86*	± 37
55 Bench across from LSC	12	± 23	29	± 35
56 Bench across from fume hood	3	± 2	222*	± 43
57 Inside incubator	68	± 9	1109*	± 66
58 Freezer under LSC	123	± 44	73*	± 35
59 Refrigerator across from LSC	154	± 27	550*	± 52
60 Deck in front of fume hood	1012*	± 83	681*	± 53
61 Deck in front of sink by entrance	308	± 47	413*	± 47
62 Final Bucket sample (C.O.#2)	0	± 1	42	± 36

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 positive and larger than the error. All areas tested on the ship were free from any isotope contamination that requires cleaning. Minor ^3H and minor ^{14}C contamination found in the rad van, which requires no cleaning.

R/V ROGER REVELLE

Figure 1
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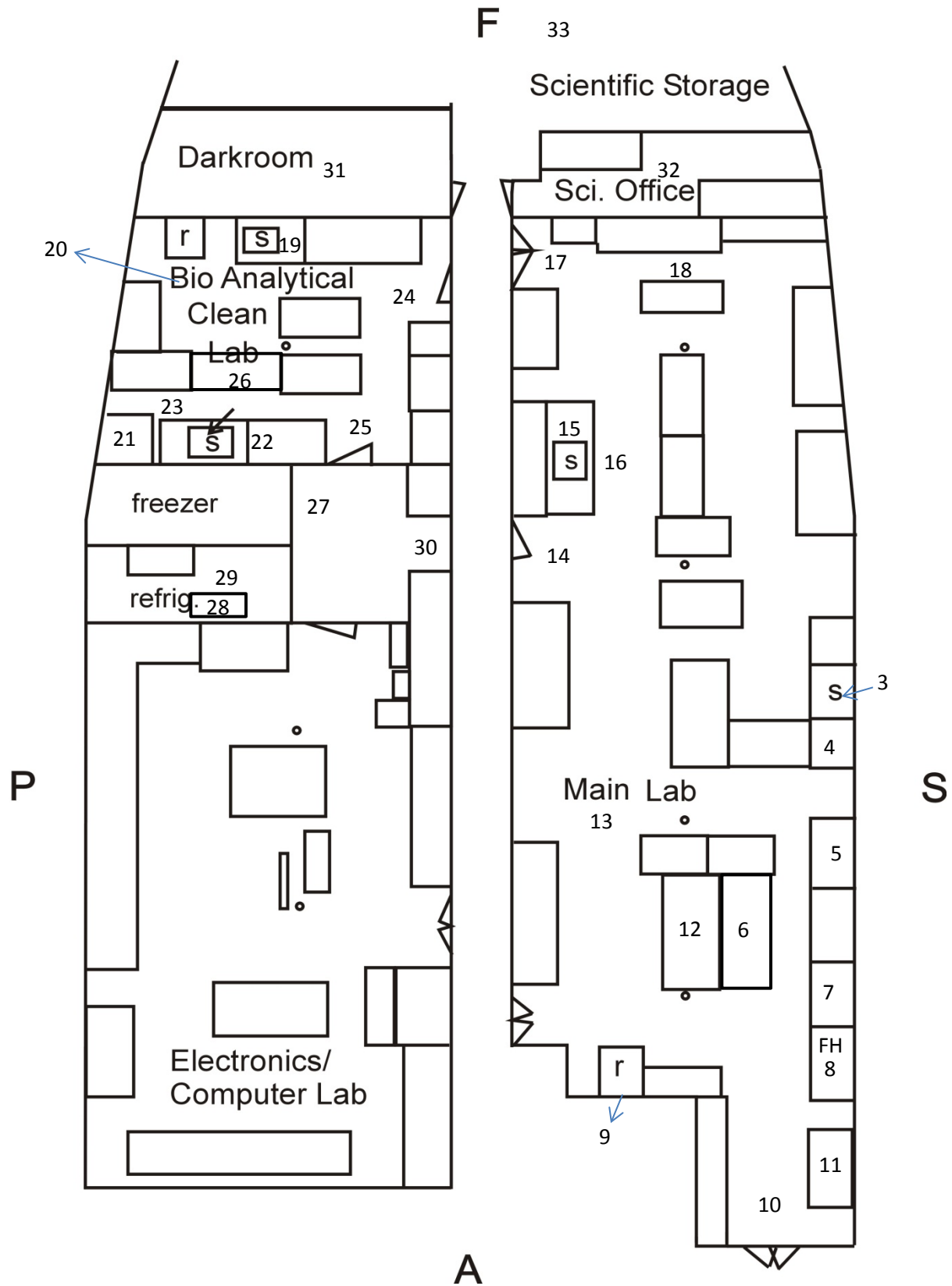
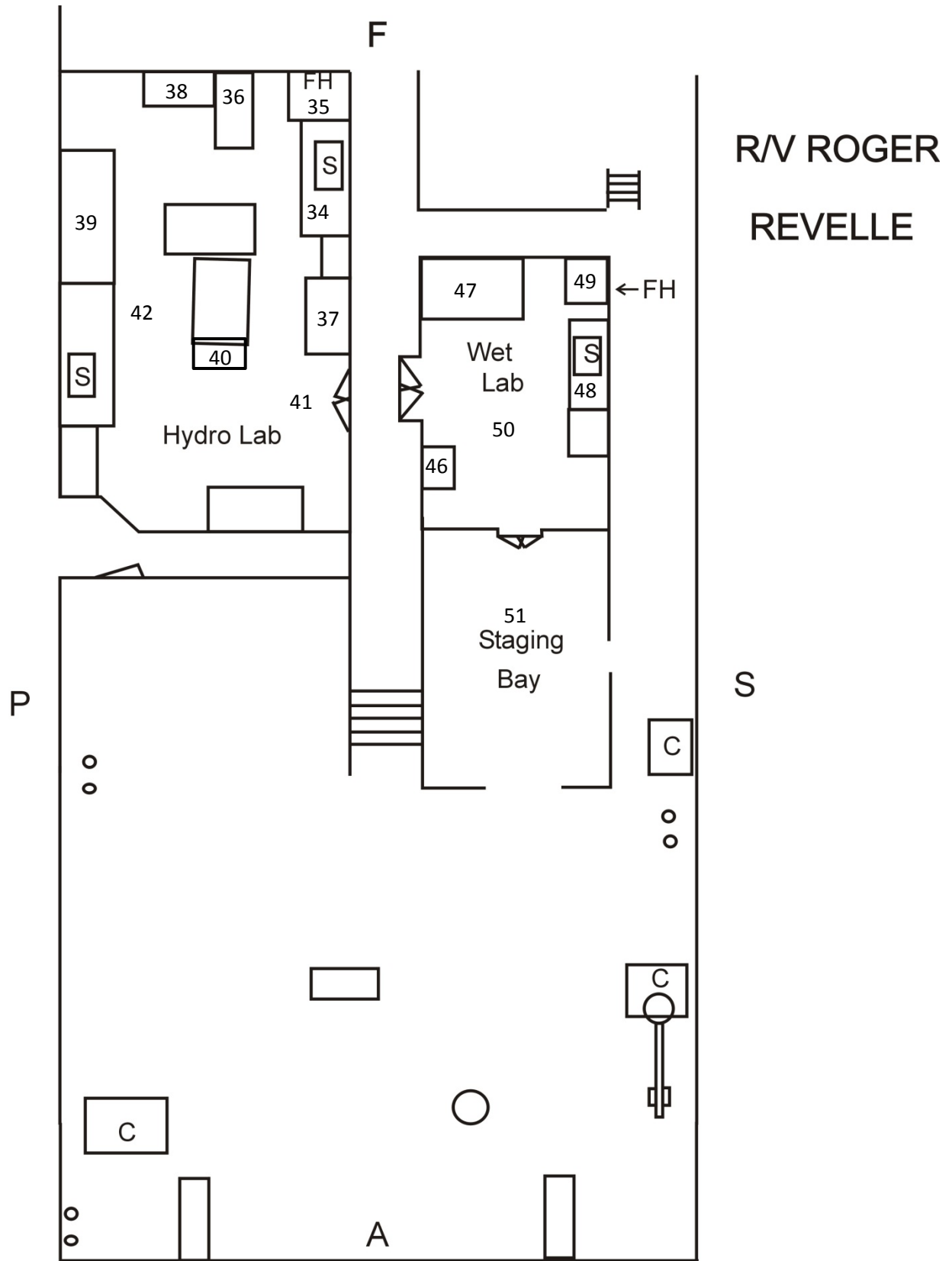


Figure 2
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Figure 3

VAN SN-625.101-2

