

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Tritium Laboratory
4600 Rickenbacker Causeway
Miami, Florida 33149-1031

Ph: 305-421-4100
Fax: 305-421-4112
E-mail: Tritium@rsmas.miami.edu

5 March 2012

SWAB REPORT # 617

SWAB DATE: 6-9 February 2012

R/V L. M. Gould

James D. Happell

Distribution:
SWAB Committee
Ethan Norris

COMMENTS TO SWAB REPORTS

23 November 2010

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 dispose in radiation waste system.

Note: If category C or D is encountered, we try to notify the insitution promptly by phone or email.

REPORT FOR SWAB # 617

LOCATION: Punta Arenas, Chile
VESSEL/LAB: R/V L. M. Gould

DATE: 6-9 February 2012
TECHNICIAN: L. Loughry

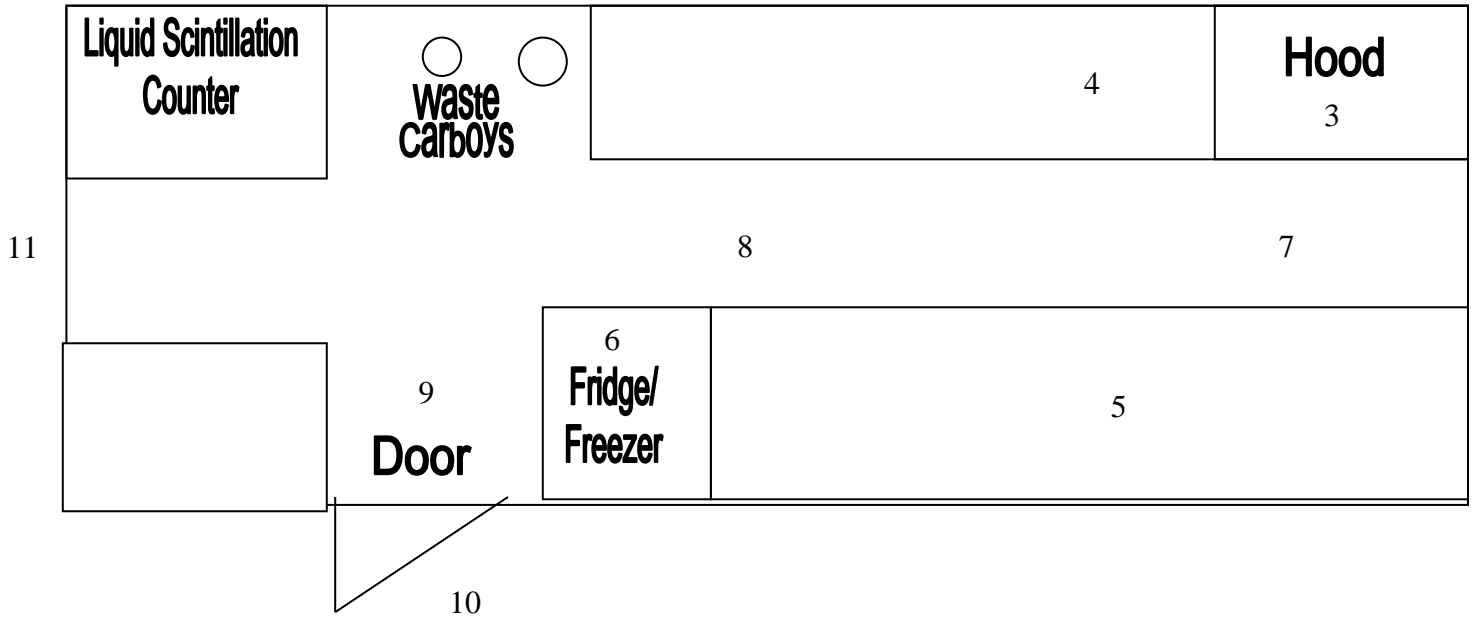
Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	43	± 100	58	± 0
	<u>Van #2 (Figure 1)</u>				
3	Inside fume hood	150	± 34	292	± 45
4	Sink area	12	± 18	43	± 37
5	Benchtop across from sink	89	± 32	156	± 41
6	Inside refrigerator	499	± 70	56	± 27
7	Deck in front of hood	119	± 49	27	± 30
8	Deck in center of van	364	± 57	140	± 37
9	Deck at entrance	171	± 45	43	± 31
10	Deck outside single door entrance	27	± 77	0	± 0
	<u>Van #1 (Figure 2)</u>				
11	Sample broke in shipping				
12	Inside fume hood	*1867	± 131	9	± 3
13	Benchtop left of fume hood	*939	± 94	0	± -4
14	Benchtop across from fume hood	*3278	± 156	32	± 7
15	Inside refrigerator, bottom	*2800	± 147	33	± 8
16	Deck in front of fume hood	**10790	± 279	*210	± 16
17	Deck in front of LSC	*1959	± 122	34	± 10
18	Deck inside single door entrance	*3863	± 168	*98	± 15
19	Deck outside single door entrance	128	± 44	0	± -78
20	Deck outside double door entrance	59	± 35	23	± 32
	<u>Dry Lab (Figure 3)</u>				
22	Dry Lab - Benchtop by CCTV	8	± 0	0	± 0
23	Inside refrigerator	2	± 0	0	± 1
24	Sample broke in shipping				
25	Sample broke in shipping				
26	Bucket blank after bucket emptied	5	± 0	0	± 0
27	Feb 9 - Initial bucket blank	55	± 71	0	± 0
28	Dry Lab - Inside Kenmore 00010415	47	± 55	0	± 0
29	Inside Isotemp 00010622	0	± 0	0	± 0
30	Inside consul top	59	± 75	0	± 0

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
31	Inside consul bottom	17	± 80	0	± 0
32	Inside fume hood	4	± 38	2	± 33
33	Deck in front of fume hood	16	± 116	0	± 0
34	Deck inside electronics lab	31	± 88	0	± 0
35	Deck inside aft door	49	± 58	0	± 0
36	Fwd center benchtop	18	± 125	0	± 0
37	Deck in front of sink	63	± 59	0	± 0
38	Deck inside port entrance	32	± 86	0	± 0
<u>Wet Lab (Figure 4)</u>					
21	Deck inside Wet Lab door	28	± 70	0	± 0
39	Benchtop across from aft sink	19	± 62	0	± 0
40	Deck in front of aft sink	64	± 70	0	± 0
41	Fwd sink area	31	± 74	0	± 0
42	Inside fume hood	1	± 0	0	± 0
43	Deck in front of fwd sink	33	± 61	0	± 0
44	Deck inside stbd fwd entrance	43	± 81	0	± 0
45	Deck between port benchtops	15	± 0	3	± 0
46	Inside Percival 00010565	2	± 29	0	± 35
47	Inside Revco 00010117	35	± 70	0	± 0
<u>Hydro Lab (Figure 5)</u>					
48	Hydro Lab - Fwd benchtop	0	± 0	1	± 0
49	Bench aft of fwd sink	39	± 81	1	± 17
50	Deck in front of fwd sink	13	± 0	0	± 0
51	Inside fume hood	0	± 0	0	± 0
52	Deck in front of fume hood	8	± 0	0	± 0
53	Inside stbd door	37	± 155	0	± 0
54	Aft stbd benchtop	25	± 144	0	± 0
55	Deck inside darkroom	18	± 159	0	± 0
56	Deck inside Enviro Room	16	± 64	0	± 0
57	Final bucket blank	36	± 107	0	± 0

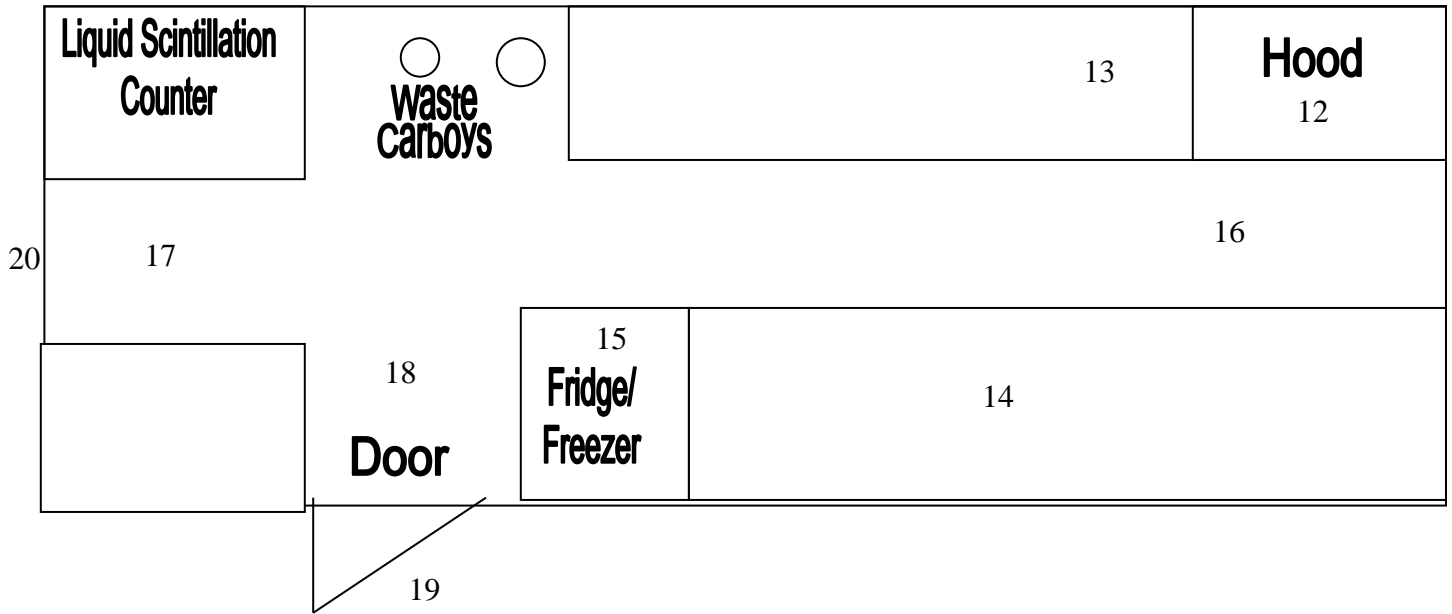
Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. All areas tested on the ship were free from radioisotope contamination that requires cleaning. Tritium and a small amount of radiocarbon were found in the Rad Vans. The deck in Van #1 should be cleaned to prevent tracking of contamination into the ship.

SWAB # 617
Polar Programs Van #2
Figure #1



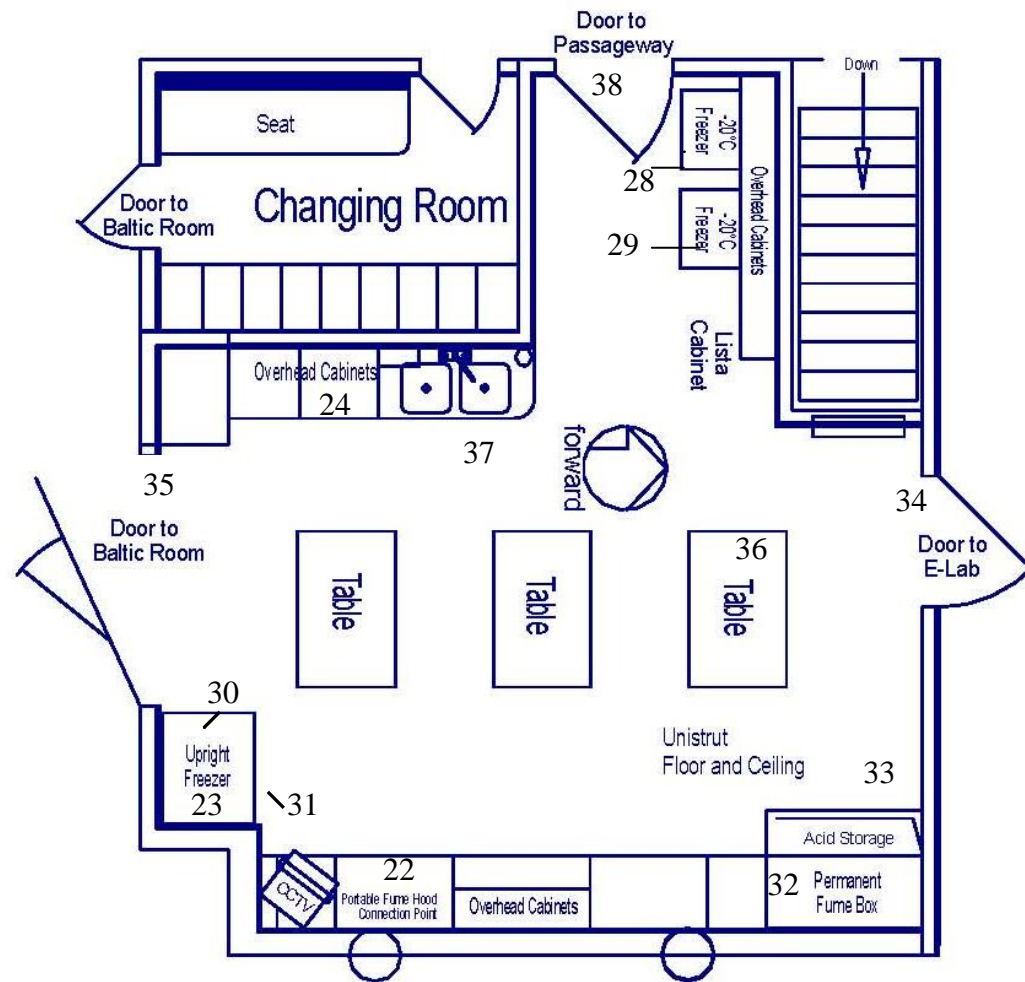
SWAB #617
Polar Programs Van #1
Figure 2



SWAB# 617
L. M. Gould
Figure 3.

Dry Lab

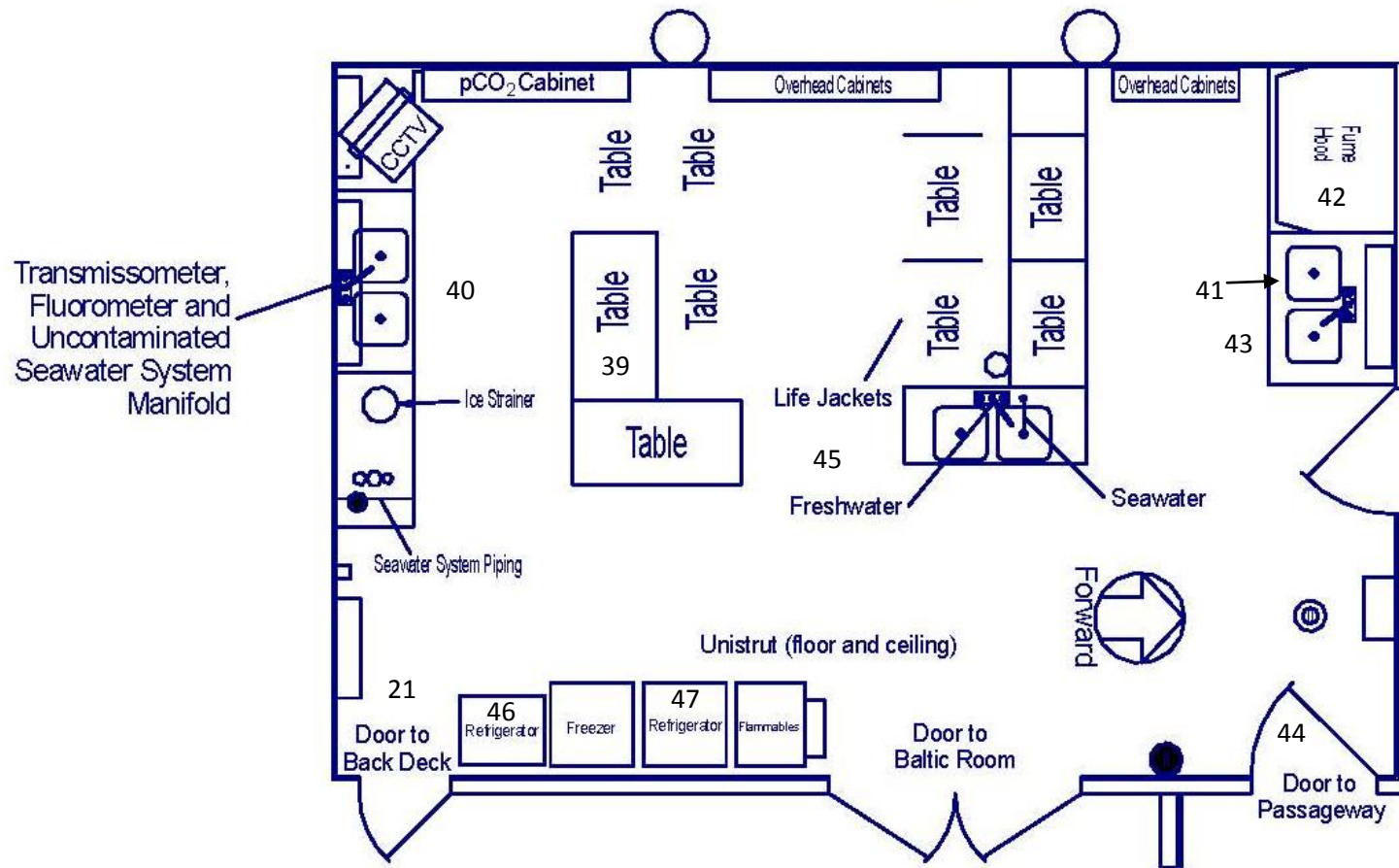
356 sq. ft.



SWAB #617
 Laurence M. Gould
 Figure 4

Wet Lab

425 sq. ft.



SWAB #617
Laurence M. Gould
Figure 5

Hydro Lab

526 sq. ft.

