



Tritium Laboratory
18 September 2015

SWAB REPORT #788

SWAB DATE: 2 September 2015

R/V Laurence M Gould

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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 # 788

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

DATE: 2 September 2015
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	-14	± 33	18	± 35
	<u>Dry Lab (Figure 1)</u>				
3	Port sink area	2	± 15	9	± 33
4	Forward section of bench across from port sink	25	± 60	-9	± 32
5	Aft section of bench across from port sink	6	± 20	18	± 33
6	Forward section of bench across from white board	-22	± 53	27	± 36
7	Aft section of bench across from white board	-24	± 56	21	± 36
8	Inside fume hood	-9	± 45	17	± 35
9	Deck inside door to Electronic Lab	130	± 56	19	± 25
10	Deck inside port entrance	195	± 63	16	± 21
11	Inside Consul refrigerator bottom	-5	± 30	30	± 34
12	Inside Consul freezer top	113	± 46	48	± 31
13	Bench adjacent to Consul refrigerator	6	± 32	8	± 32
14	Bench adjacent to fume hood	-9	± 114	26	± 35
15	Deck below starboard bench	285	± 68	3	± 5
16	Deck in front of Consul refrigerator	315	± 67	11	± 13
17	Deck inside aft entrance to Baltic Room	*1257	± 109	59	± 18
	<u>Electronic Lab (Figure 2)</u>				
18	Deck between forward & starboard benches	-20	± 48	9	± 38
19	Deck in front of plotter	-16	± 38	13	± 36
20	Deck inside aft entrance	-40	± 95	27	± 37
	<u>Hydro Lab (Figure 3)</u>				
21	Inside fume hood	-11	± 52	18	± 35
22	Aft sink area	-28	± 96	*90	± 37
23	Center sink area	125	± 9	*3092	± 99
24	Bench top port of center sink	-41	± 98	48	± 36
25	Deck between ice machine & Kenmore freezer	2	± 6	39	± 34
26	Small benchtop aft of Revco -80 freezer	-13	± 31	12	± 35
27	Bench forward of Fisher refrigerator 00010558	-19	± 46	22	± 35
28	Bench forward of Kenmore freezer	14	± 19	48	± 34
29	Inside Kenmore -20 freezer	-25	± 61	22	± 36
30	Inside Fisher refrigerator 00010558	-61	± 145	36	± 38
31	Forward starboard sink area	-10	± 24	-2	± 6

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
32	Starboard bench next to starboard forward sink	-20	± 47	27	± 36
33	Forward section of starboard benchtop	-33	± 78	20	± 38
34	Deck in front of forward sink	-19	± 44	7	± 38
35	Deck inside starboard entrance	-24	± 57	21	± 36
<u>Wet Lab (Figure 4)</u>					
36	Final bucket blank CO #3	-14	± 34	-6	± 21
37	Initial bucket blank CO #4	-5	± 141	14	± 34
38	Forward sink area	9	± 9	82	± 36
39	Inside fume hood	10	± 25	21	± 33
40	Deck inside starboard entrance	-3	± 14	4	± 34
41	Deck between center sink and Baltic Room door	-24	± 57	-2	± 7
42	Aft sink area	-9	± 86	30	± 35
43	Inside Fisher refrigerator 00010559	-22	± 53	22	± 36
44	Deck in front of aft sink	41	± 57	-3	± 10
45	Inside Thermo -80 freezer	1	± 8	11	± 33
<u>Aft Deck (Figure 5)</u>					
46	Deck outside Baltic Room aft entrance	-2	± 14	21	± 34
47	Deck at opening of ¹⁴ C Rad Van	8	± 39	4	± 30
48	Deck at opening of ³ H Rad Van	-29	± 69	38	± 36
49	Final bucket blank CO #4	6	± 102	-8	± 28

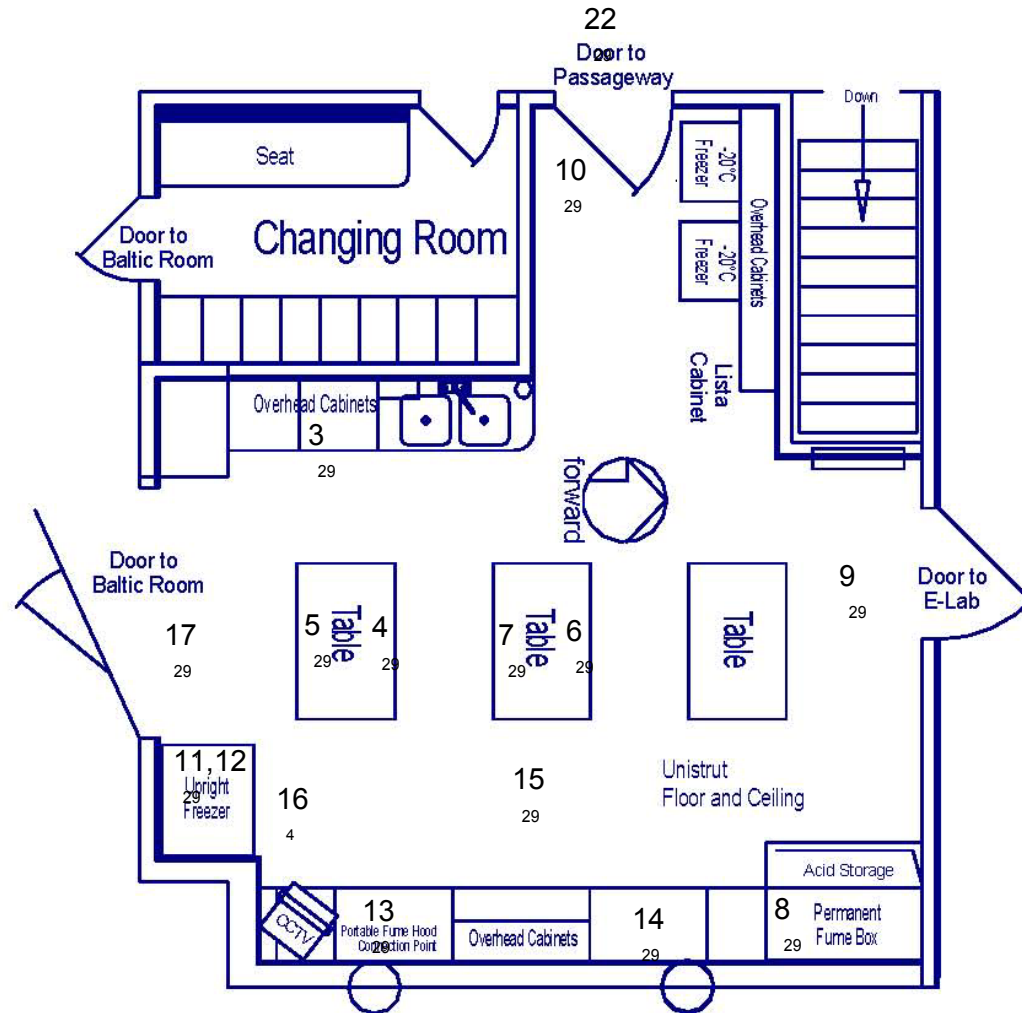
Comments

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. Minor ³H contamination was found in the dry lab. Minor ¹⁴C contamination was found in the Hydro Lab. These areas should be cleaned before any further use.

Laurence M. Gould
 SWAB #788
 2 September 2015
 Figure 1

Dry Lab

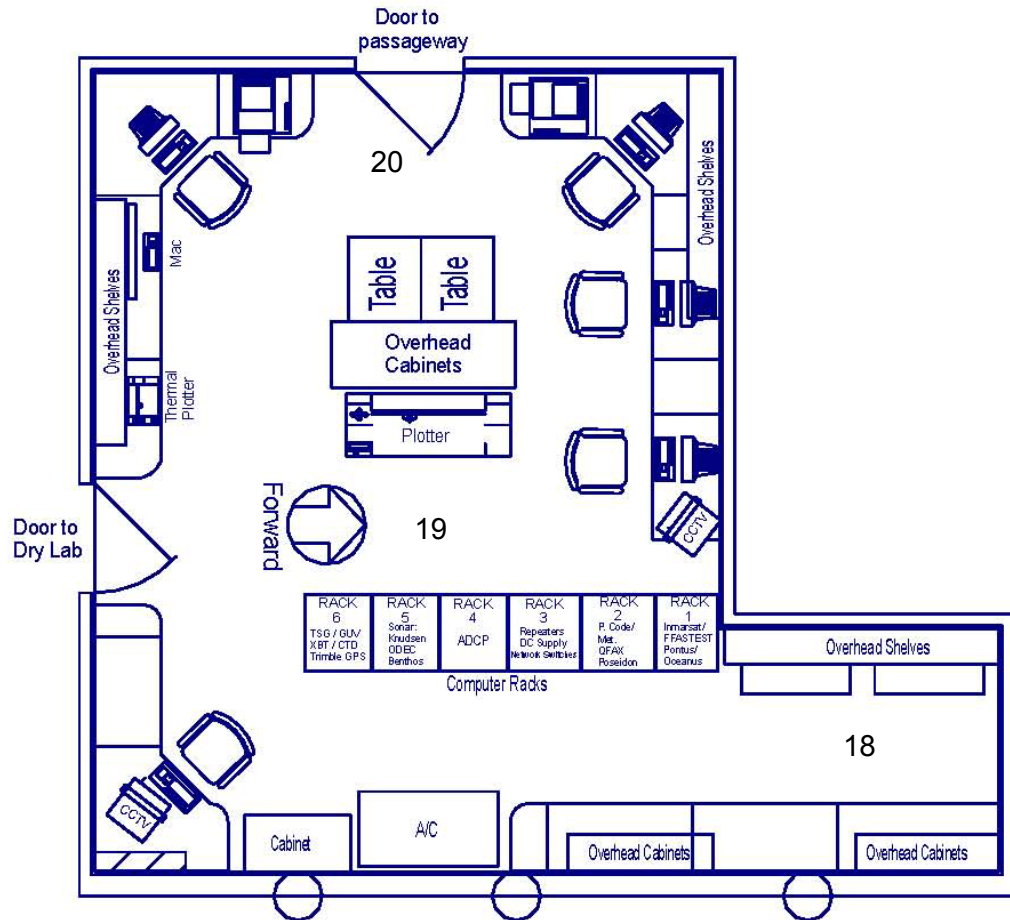
356 sq. ft.



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 Figure 2

Electronics Lab

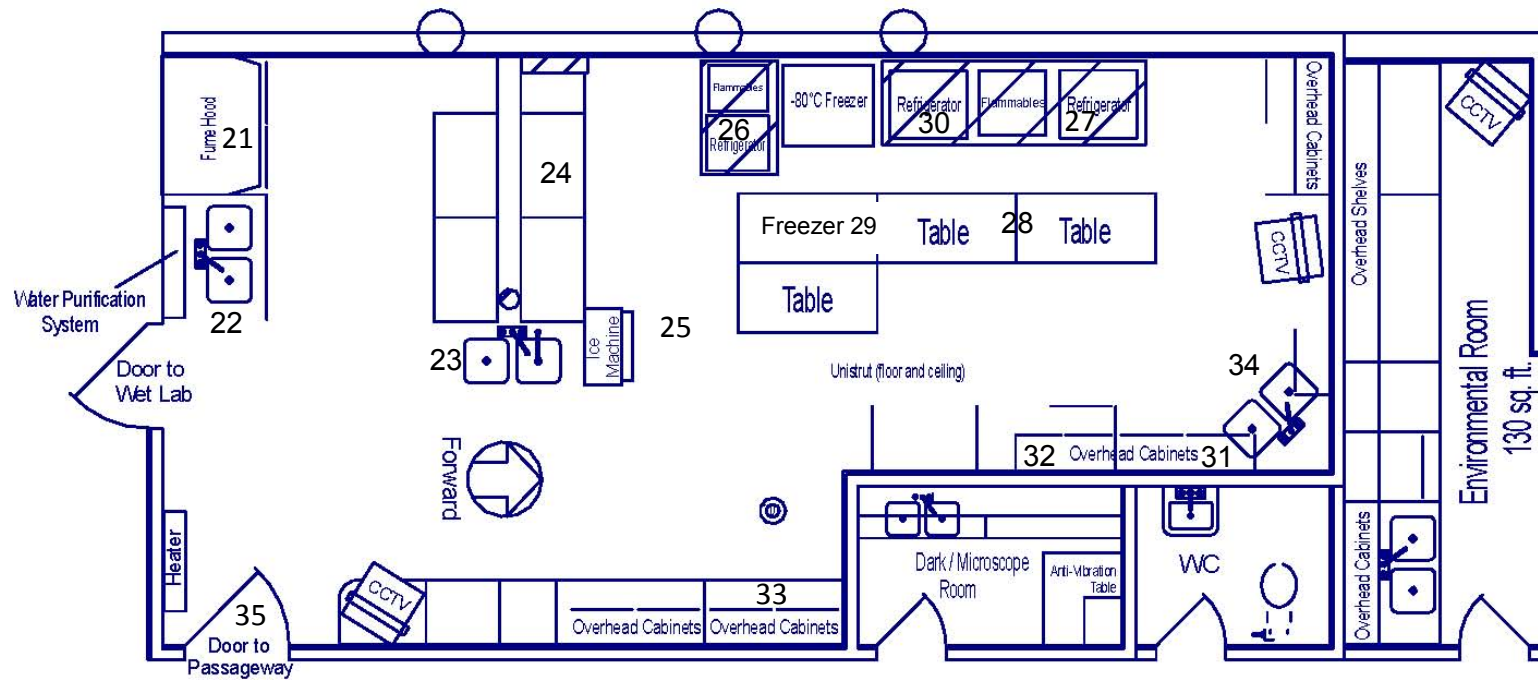
460 sq. ft.



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Figure 3

Hydro Lab

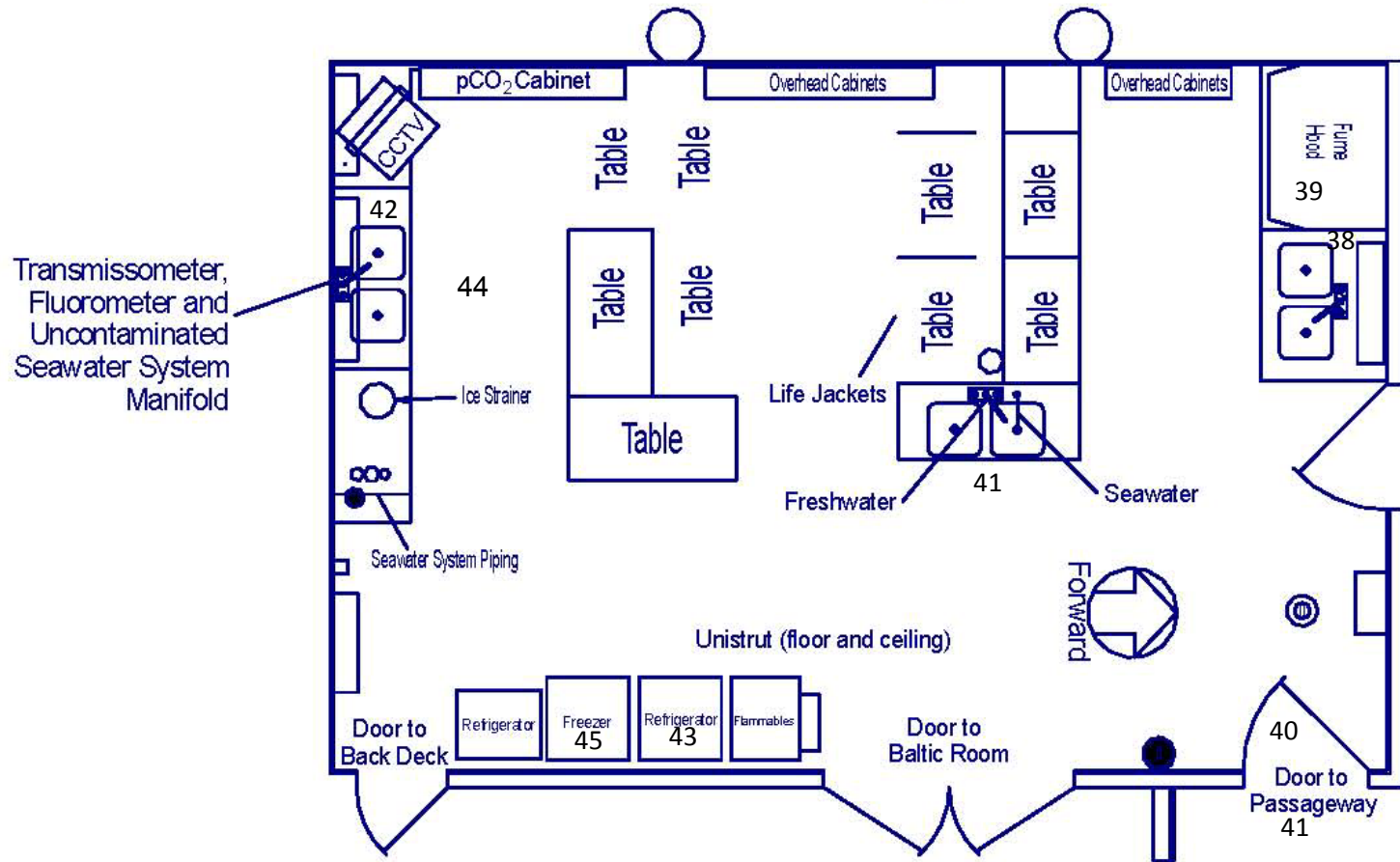
526 sq. ft.



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Figure 4

Wet Lab

425 sq. ft.



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Figure 5

