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

Tritium Laboratory
3 November 2014

SWAB REPORT #746

SWAB DATE: 23 October 2014

R/V Laurence M. Gould

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Jamee Johnson
Tim McGovern

COMMENTS TO SWAB REPORTS 12 May 2014

Typical LSC instrument background values for ^{3}H 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	^{3}H (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 Proceedure

Wearing ordinary household rubber gloves:

^{3}H: 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 $^{14}CO_2$). Follow up with wash as if for ^{3}H.

Disposal of Cleaning Materials (gloves, sponges, etc)

Categories A & B dispose as ordinary garbage, C & D contact your institution's radiation safety offi

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

REPORT FOR SWAB # 746

LOCATION: Punta Arenas, Chile
VESSEL: *R/V Luurence M. Gould*

DATE: 23 October 2014
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 C.O. # 1	0	±	0	44	±	36
	Dry Lab (Figure 1)						
3	Port Sink area	0	±	0	28	±	35
4	Benchtop across from sink area	25	±	33	22	±	33
5	Benchtop across from -20 Fisher freezer	39	±	58	0	±	0
6	Benchtop across from fume hood	15	±	33	13	±	32
7	Inside fume hood	0	±	0	23	±	35
8	Deck inside port entrance	20	±	45	0	±	0
9	Deck inside door to Electronic Lab	48	±	53	0	±	0
10	Deck inside aft entrance	40	±	40	14	±	30
11	Inside Consul refrigerator (bottom)	65	±	51	0	±	0
12	Inside Consul freezer (top)	475	±	71	0	±	0
13	Starboard benchtop below cabinets	22	±	46	1	±	18
	Wet Lab (Figure 2)						
14	Deck at forward entrance	32	±	51	0	±	0
15	Deck at stbd entrance near Baltic door	15	±	28	21	±	34
16	Aft sink area	9	±	11	*59	±	36
17	Aft benchtop across from aft sink area	15	±	97	0	±	0
18	Deck in front of aft sink	29	±	36	21	±	32
19	Forward sink area	0	±	0	16	±	35
20	Inside Fume hood	1	±	5	20	±	35
21	Deck in front of fume hood	7	±	15	31	±	35
22	Port forward section of aft benchtop	29	±	53	0	±	0
23	Deck in front of -80 freezer	37	±	49	1	±	11
24	Inside Fisher 00010559 refrigerator	7	±	25	10	±	33
25	Inside Percival 0010565 incubator	22	±	42	1	±	17
	Hydro Lab (Figure 3)						
26	Inside fume hood	27	±	41	5	±	27
27	Aft sink area	10	±	21	23	±	34
28	Benchtop across from fume hood	38	±	49	0	±	0
29	Deck in front of -80 freezer	23	±	55	0	±	0
30	Inside Fisher 00010558 refrigerator	24	±	56	0	±	0
31	Deck in front of center sink	19	±	64	0	±	0

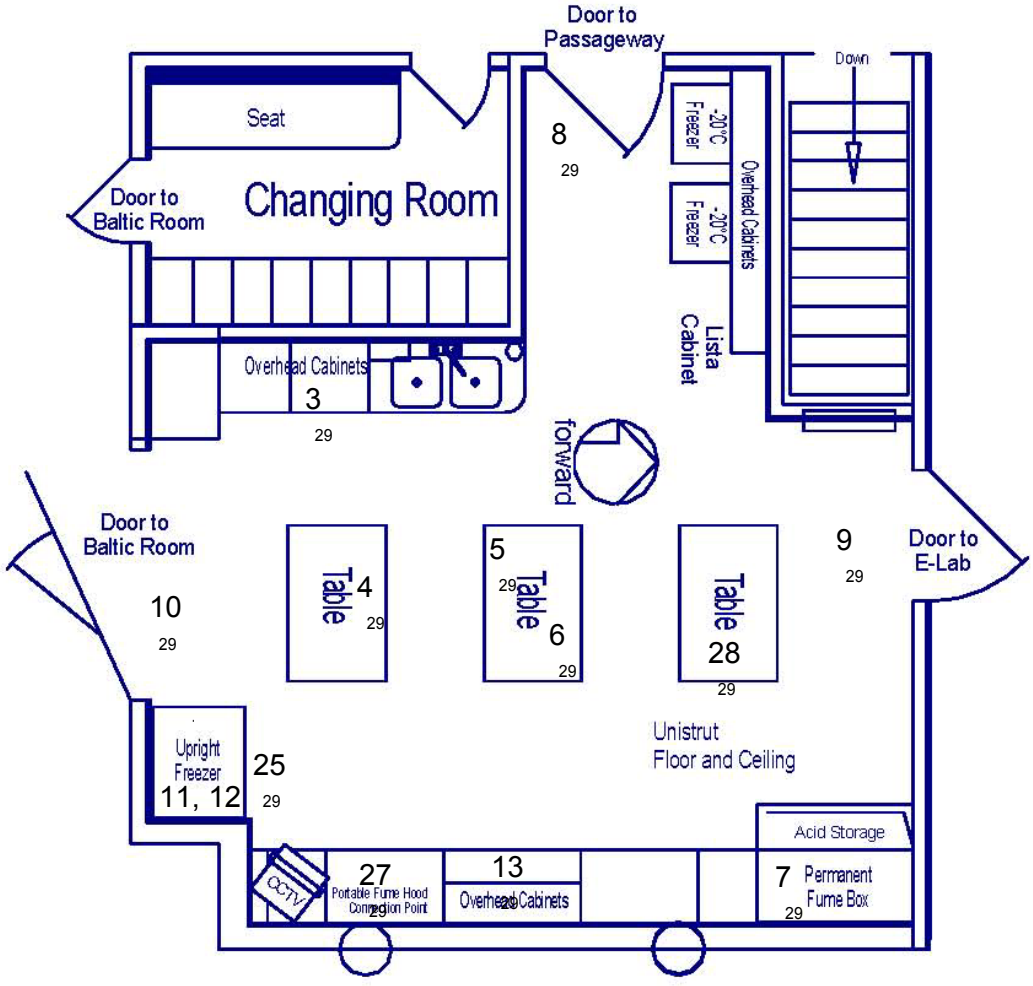
32	Starboard benchtop opposite of sink	8	±	36	6	±	32
33	Staboard benchtop forward section	0	±	0	25	±	35
34	Deck in front of -20 freezer	15	±	53	0	±	0
35	Deck inside starboard aft entrance	36	±	69	0	±	0
	Dark Room (Figure 3)						
36	Benchtop	12	±	35	6	±	31
37	Deck inside entrance	0	±	0	17	±	36
	Environmental Room (Figure 3)						
38	Deck in center of lab	0	±	0	2	±	47
	Electronics Lab (Figure 4)						
39	Deck inside port entrance	0	±	0	17	±	40
40	Deck inside aft entrance	0	±	0	12	±	37
41	Final bucket blank C.O. # 1	16	±	54	0	±	0
42	Initial bucket blank C.O. # 2	14	±	0	0	±	0
	Aft Deck (Figure 5)						
43	Deck where Rad Van #4 door opened	12	±	42	2	±	26
44	Deck where Rad Van #1 door opened	0	±	0	0	±	0
	Misc areas (Figure 5)						
45	Passage outside laundry room	29	±	75	0	±	0
46	Deck at aft entrance to Conference Room	29	±	54	0	±	0
47	Deck at Fwd entrance to Conf Rm/lo	17	±	92	0	±	0
48	Passageway outside of gym	4	±	17	14	±	34
49	Final bucket blank (CO #2)	8	±	60	0	±	0

Comments

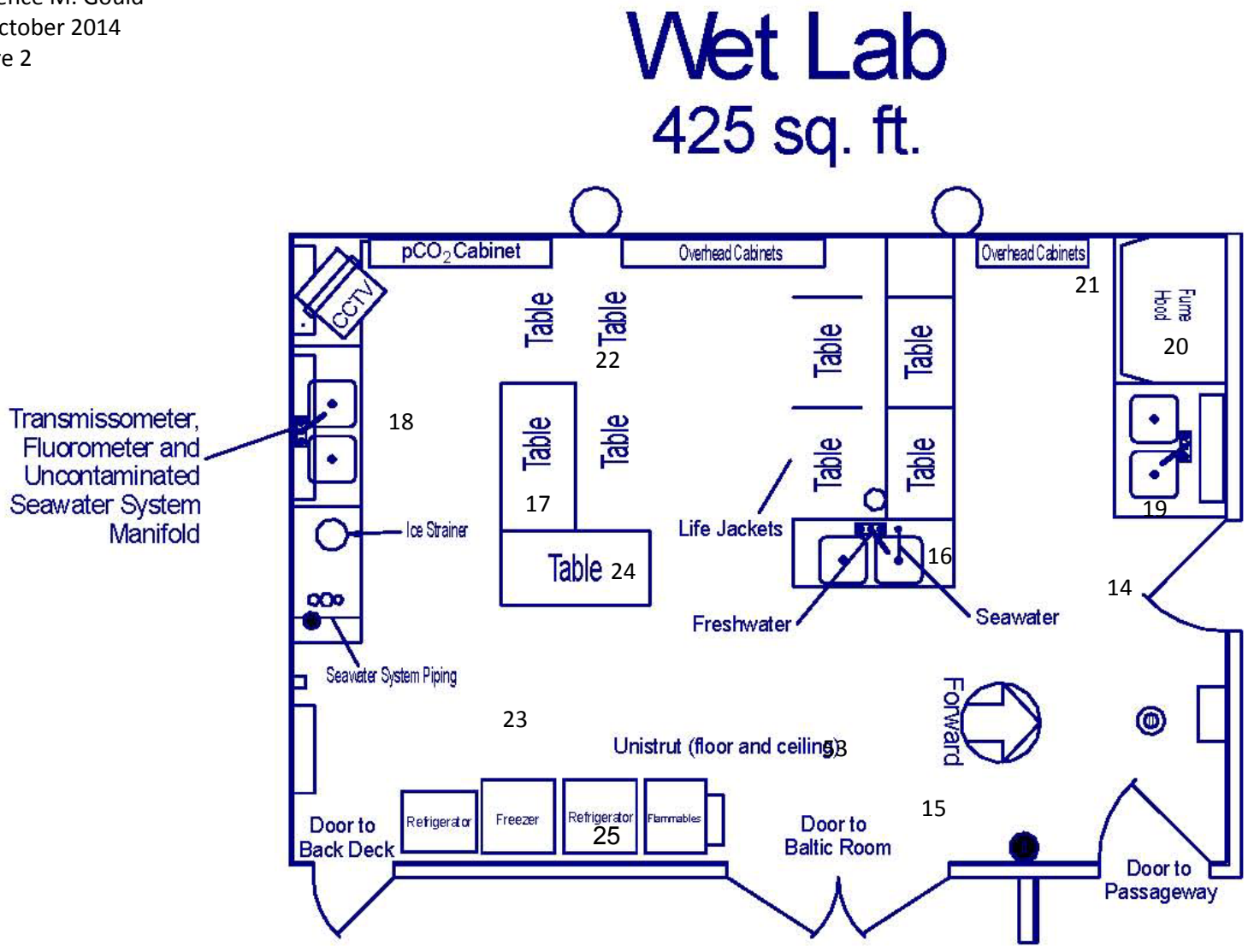
Please note that the error reported for each isotope is the two-standard deviation counting error. All areas on tested in the labs were free of radioisotope contamination that requires cleaning, expect for the aft sink area in the wet lab. This area should be cleaned before any further use.

SWAB #746
Laurence M. Gould
23 October 2014
Figure 1

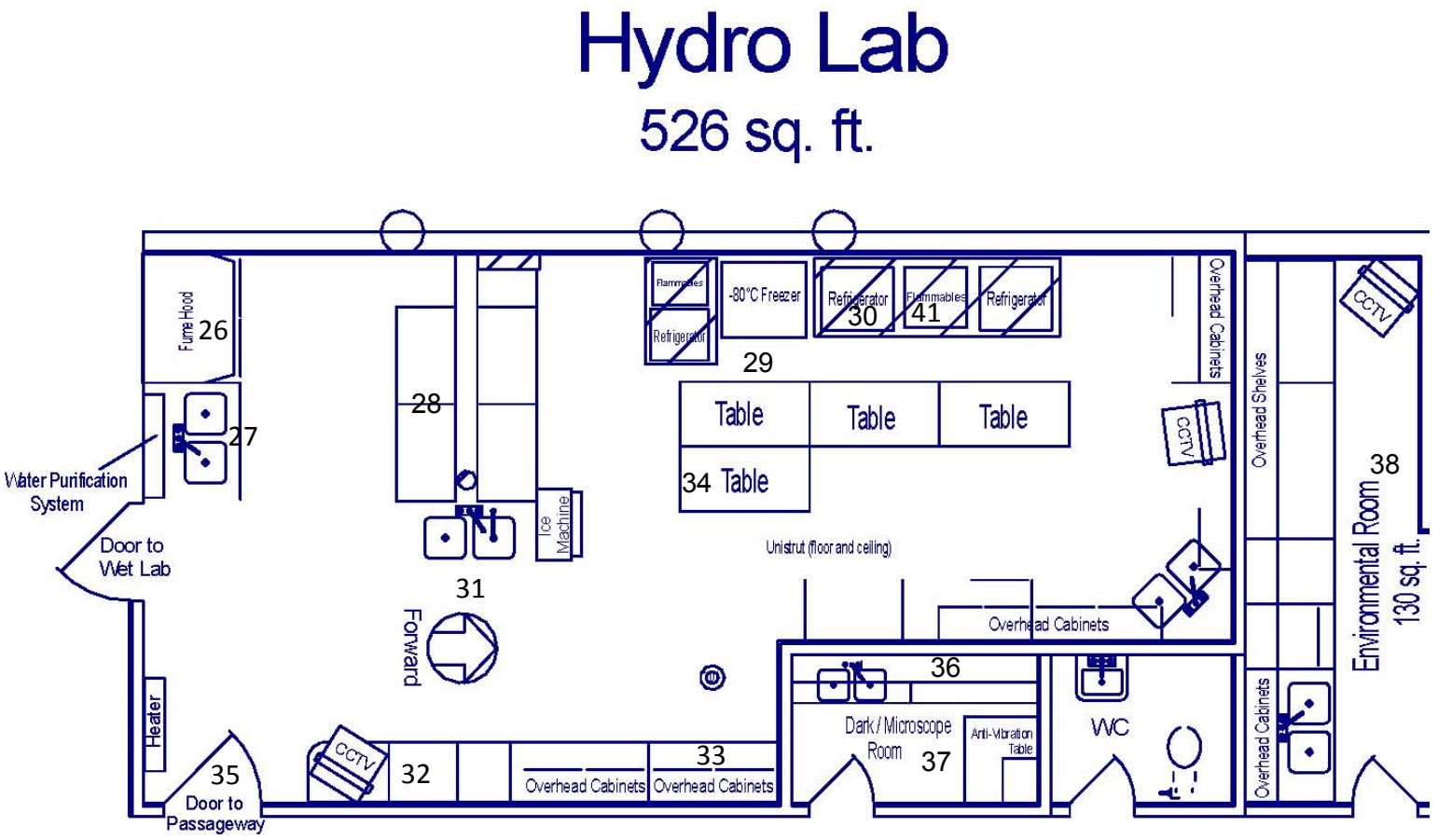
Dry Lab
356 sq. ft.



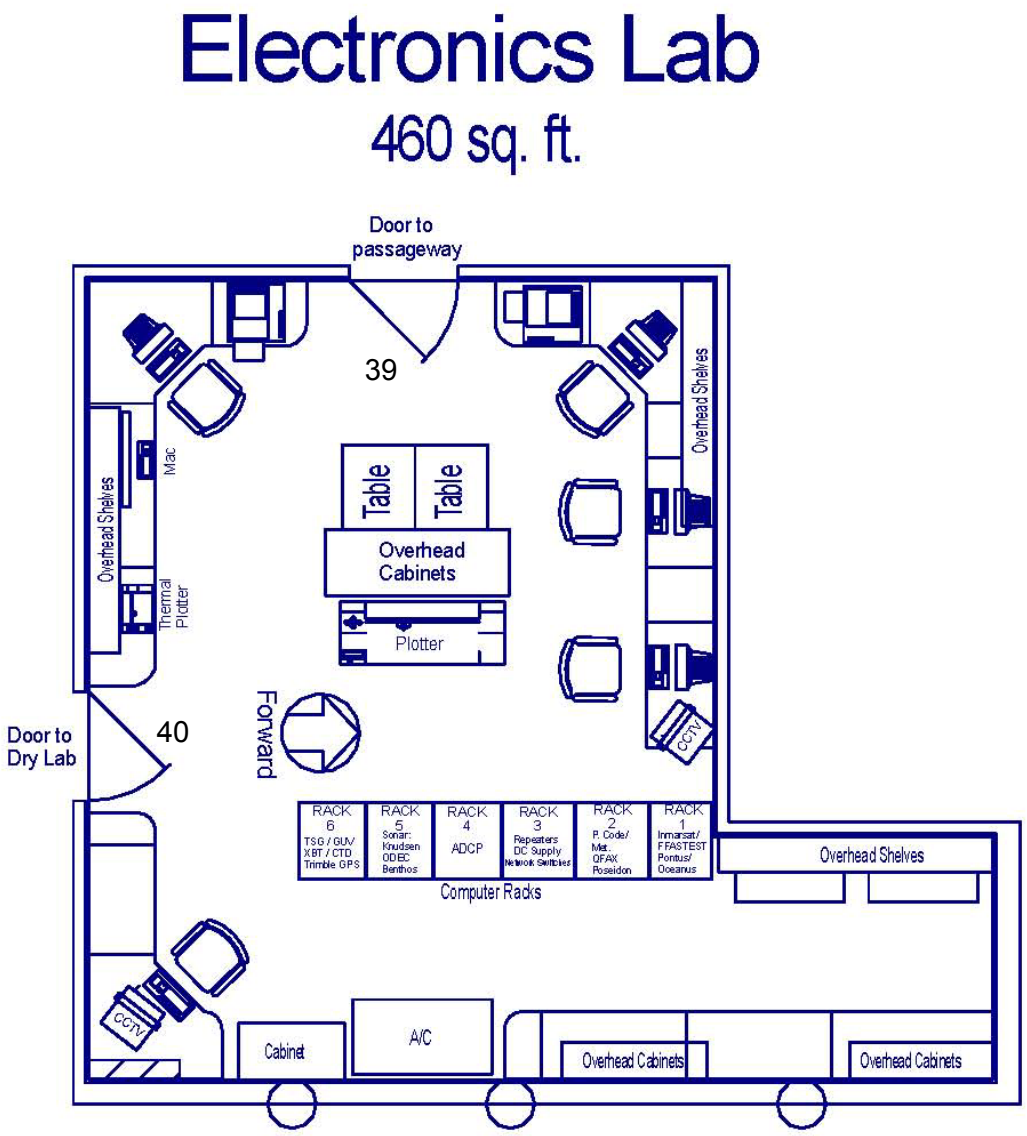
SWAB #746
Laurence M. Gould
23 October 2014
Figure 2



SWAB #746
Laurence M. Gould
23 October 2014
Figure 3



SWAB #746
Laurence M. Gould
23 October 2014
Figure 4



SWAB #746
Laurence M Gould
23 October 2014
Figure 5