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
9 April 2018

SWAB REPORT # 895

SWAB DATE: 11 February 2018

R/V Laurence M. Gould
and Radioisotope Vans #1 & #2

James Happell

Digitally signed by James Happell
DN: cn=James Happell, o=University of Miami, ou=RSMAS, email=jhappell@miami.edu, c=US
Date: 2018.04.09 16:04:23 -04'00'

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Jamee Johnson

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 office.

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

REPORT FOR SWAB # 895

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

DATE: 11 February 2018
TECHNICIAN: D. Hutt

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank	-6	±	33	31	±	36
	01 Deck (Figure 1)						
3	Deck under lounge conference table	17	±	28	22	±	33
4	Deck by HAZ drums	25	±	20	*71	±	36
	Environmental Room (Figure 2)						
5	Deck by Public phone	2	±	39	1	±	30
	Electronics Lab (Figure 3)						
6	Deck of forward computer public station	-8	±	33	40	±	36
7	Deck in front of public tool bench	-14	±	28	22	±	36
	Dry Lab (Figure 4)						
8	Companionway entrance deck to Dry Lab	14	±	27	20	±	34
9	Deck between middle benches	73	±	39	*51	±	34
	Hydro Lab (Figure 5)						
10	Deck inside entrance	24	±	32	24	±	33
11	Deck near middle sink	2	±	6	28	±	35
	Wet Lab (Figure 6)						
12	Wet Lab deck in front of incubator	16	±	48	-2	±	70
13	Wet Lab deck by door to main deck	60	±	33	*55	±	34
14	Deck under MLT desk	-14	±	28	20	±	36
15	Main Deck outside Wet Lab	-15	±	30	21	±	36

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
	USAP Rad Van #2 (Figure 7)						
16	Deck in front of hood	13	±	5	*324	±	46
17	Starboard benchtop	20	±	11	*156	±	40
18	Port benchtop	-1	±	0	*245	±	43
19	Deck between benches	67	±	18	*325	±	45
20	Deck in front of waste area	36	±	8	*592	±	53
21	Deck of doorway	-7	±	2	*401	±	48
22	Main deck outside of Van #2	17	±	15	*82	±	37
	USAP Rad Van #1 (Figure 8)						
23	Deck in front of hood by waste area	*3722	±	179	*174	±	22
24	Deck between benches	*1629	±	115	*143	±	26
25	Port benchtop	*2782	±	141	*157	±	23
26	Starboard benchtop	314	±	52	*106	±	33
27	Deck in front of LSC	*1248	±	100	*116	±	26
28	Deck in doorway	459	±	66	*112	±	32
29	Main deck outside Van 1	23	±	17	*94	±	37
30	MT shop floor	9	±	8	*104	±	38
31	Final bucket blank	8	±	7	*98	±	38

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 ^{14}C contamination was found in 3 places on the ship. These areas should be cleane ASAP. Minor ^{14}C contamination found in Rad Van #2. No action is necessary. Minor ^{3}H and ^{14}C was found in Rad Van #1. No action is necessary. The final bucket blank had detectable ^{14}C in it.

Figure #1
SWAB #895
11 February 2018

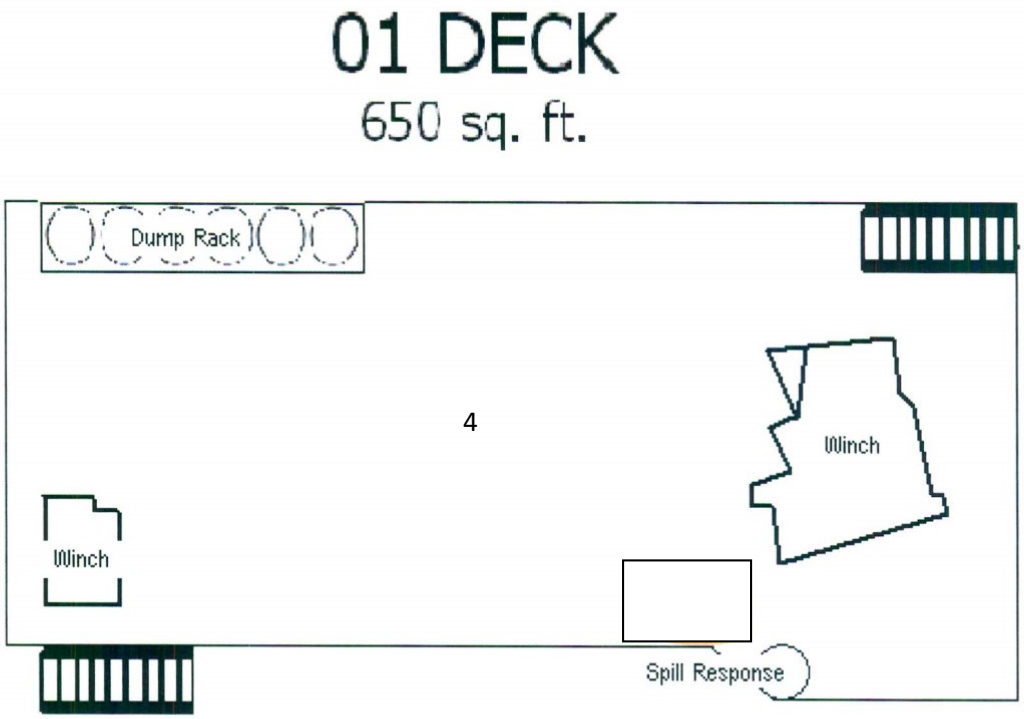
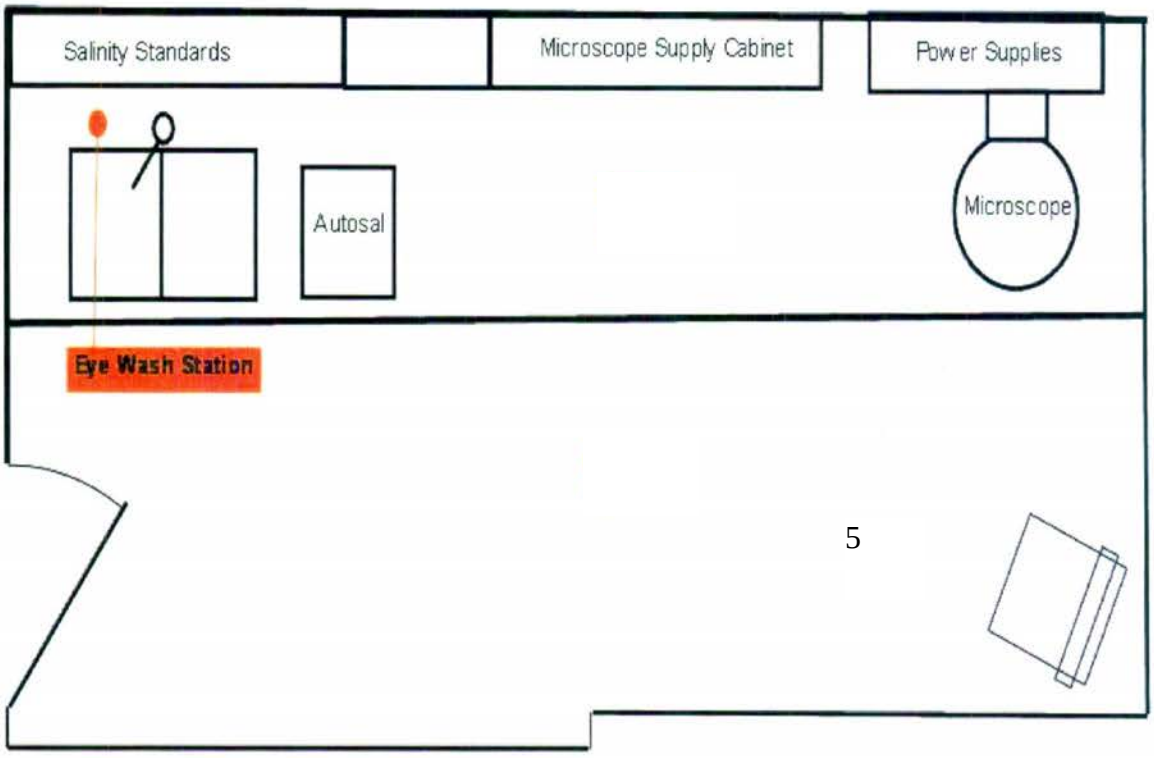


Figure 2
SWAB # 895
11 February 2018



ENVIRONMENTAL ROOM

Figure 3
SWAB #856
9 February 2017

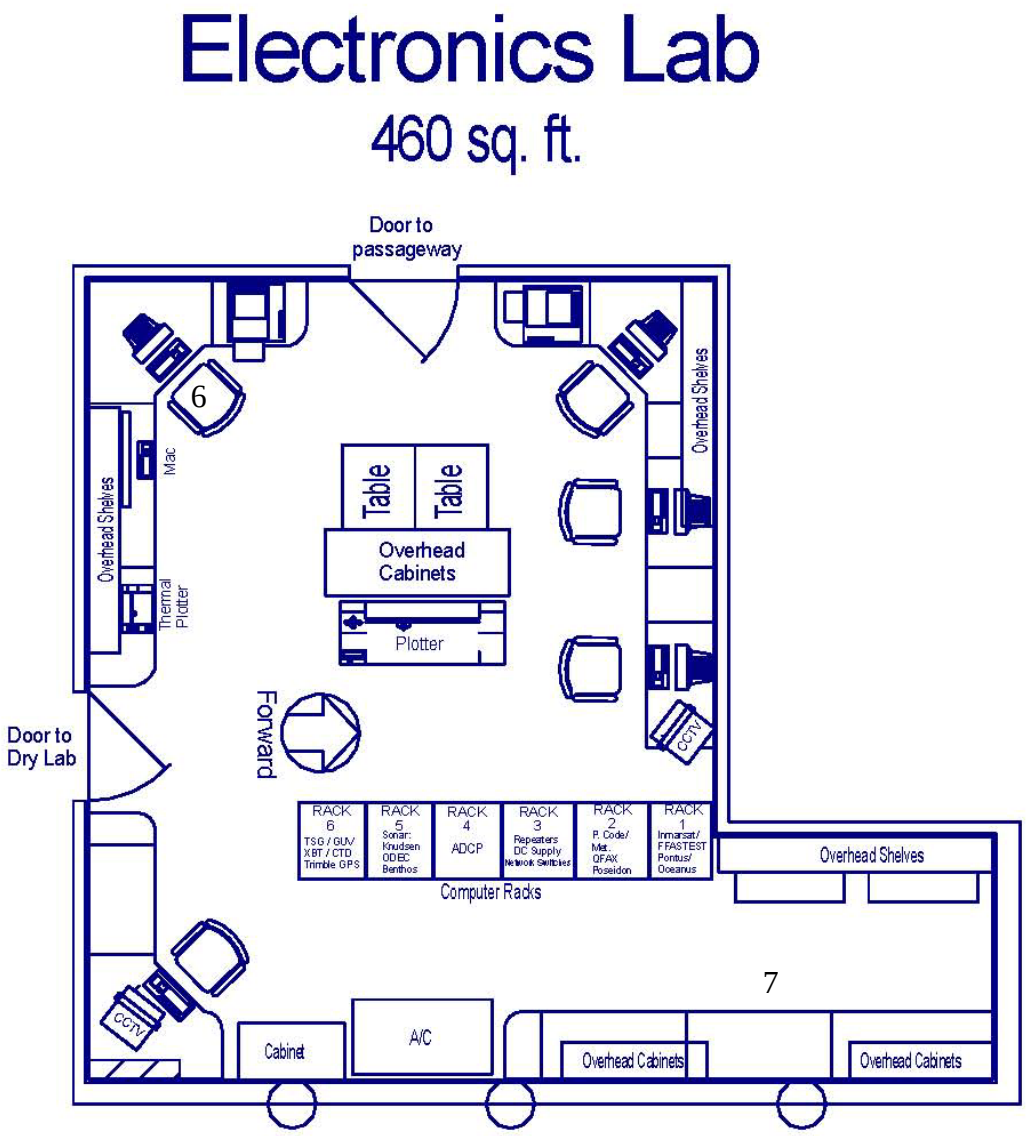


Figure 4
SWAB #895
11 February 2018

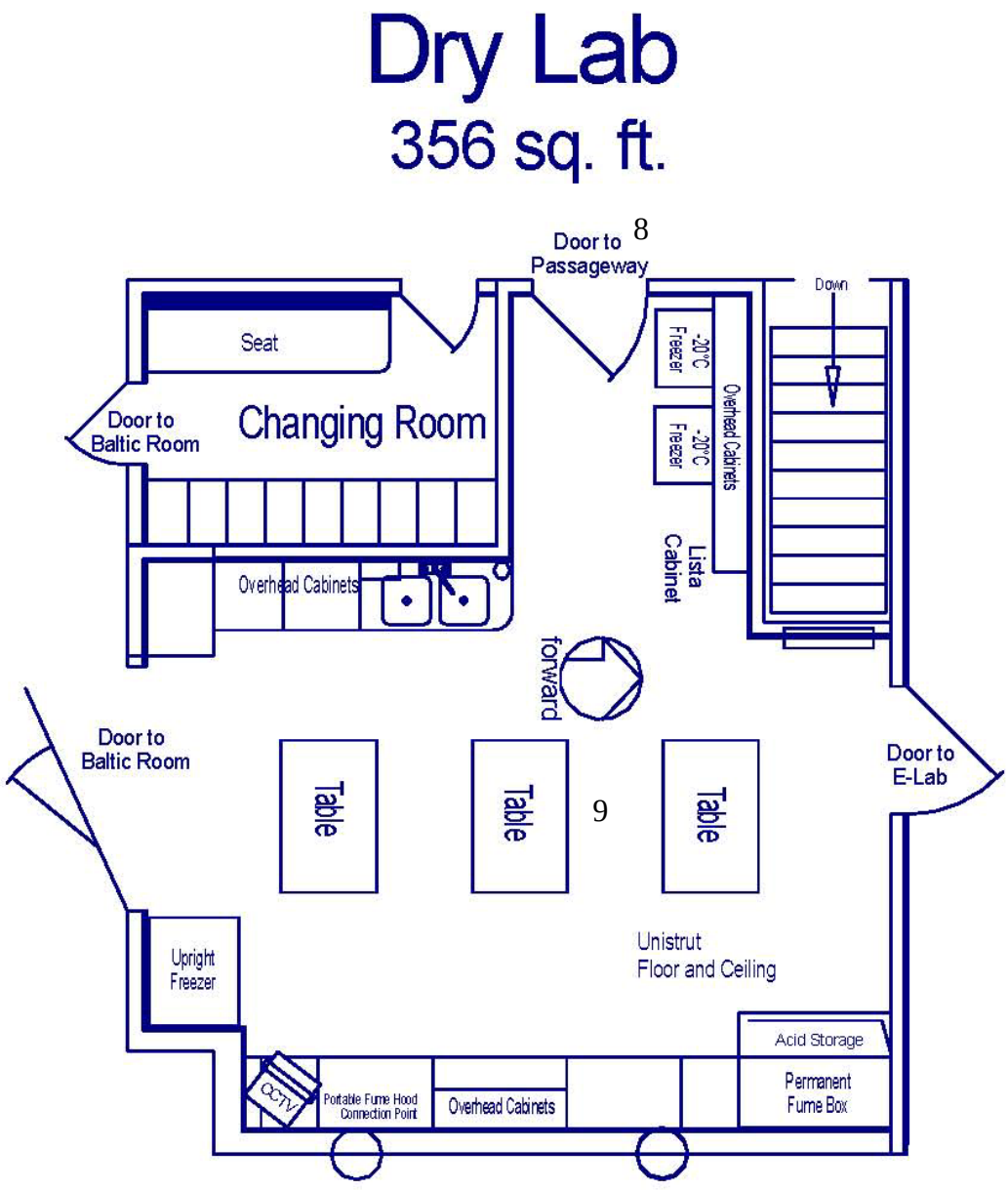


Figure 5
SWAB #895
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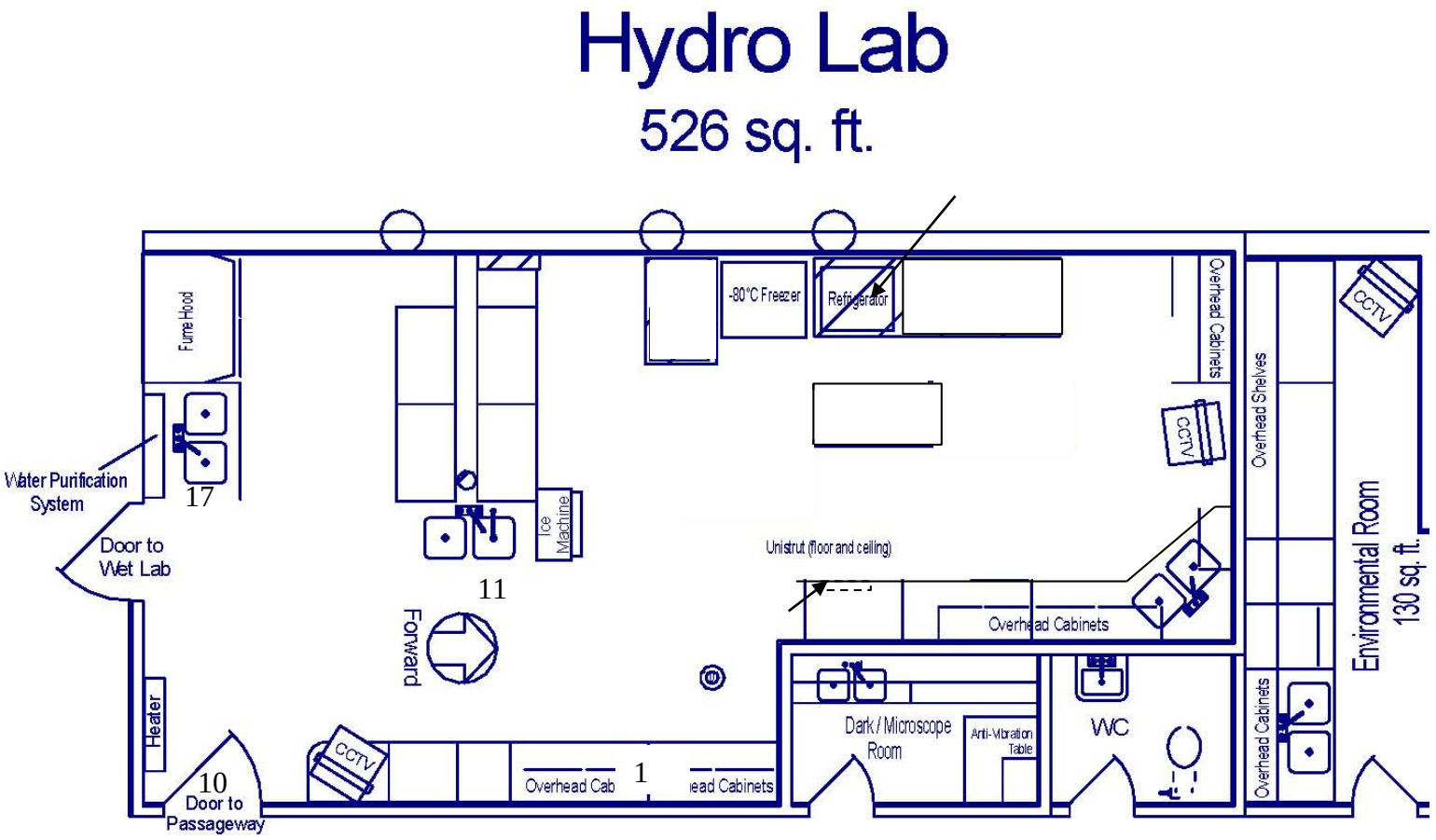
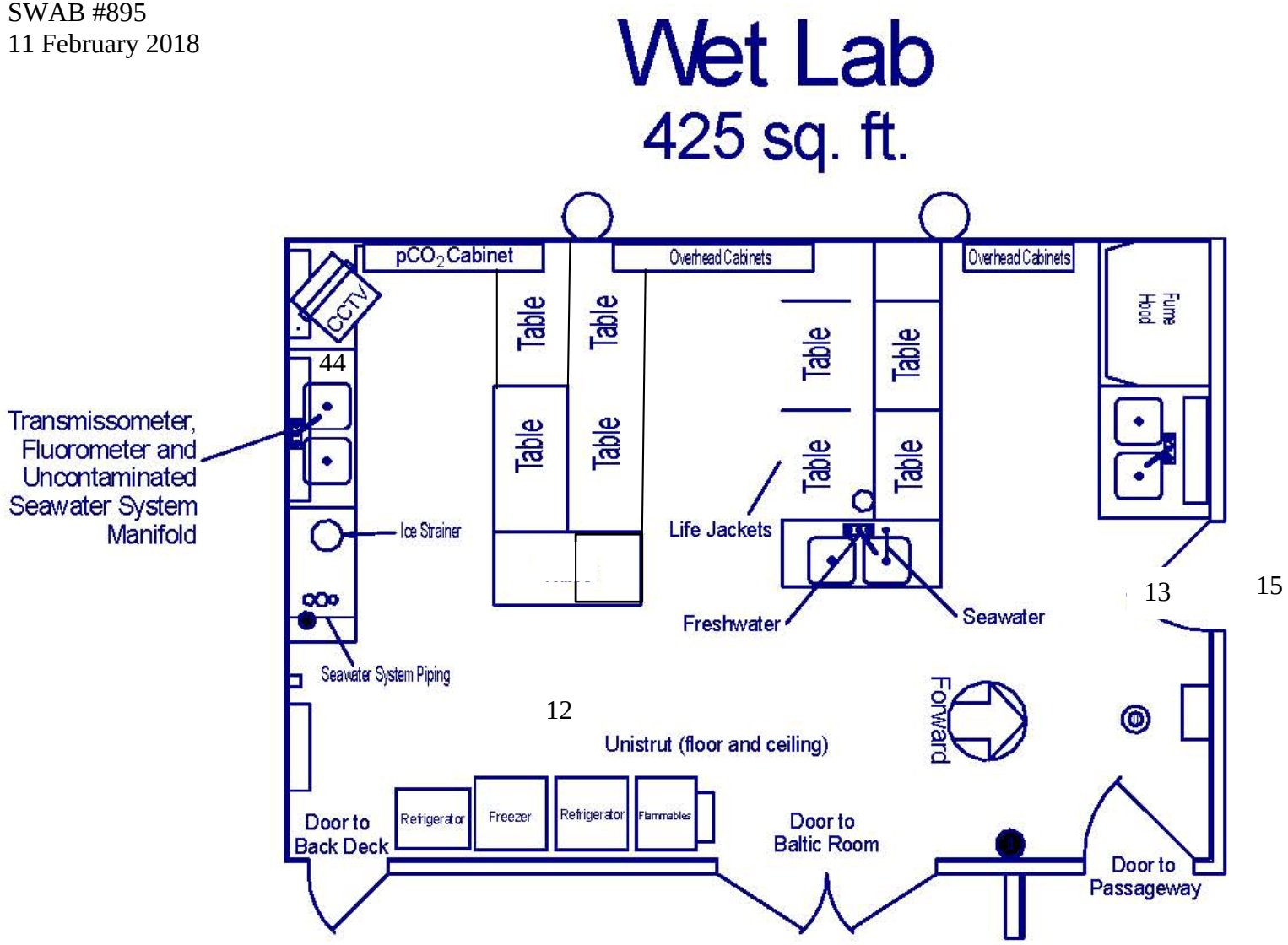
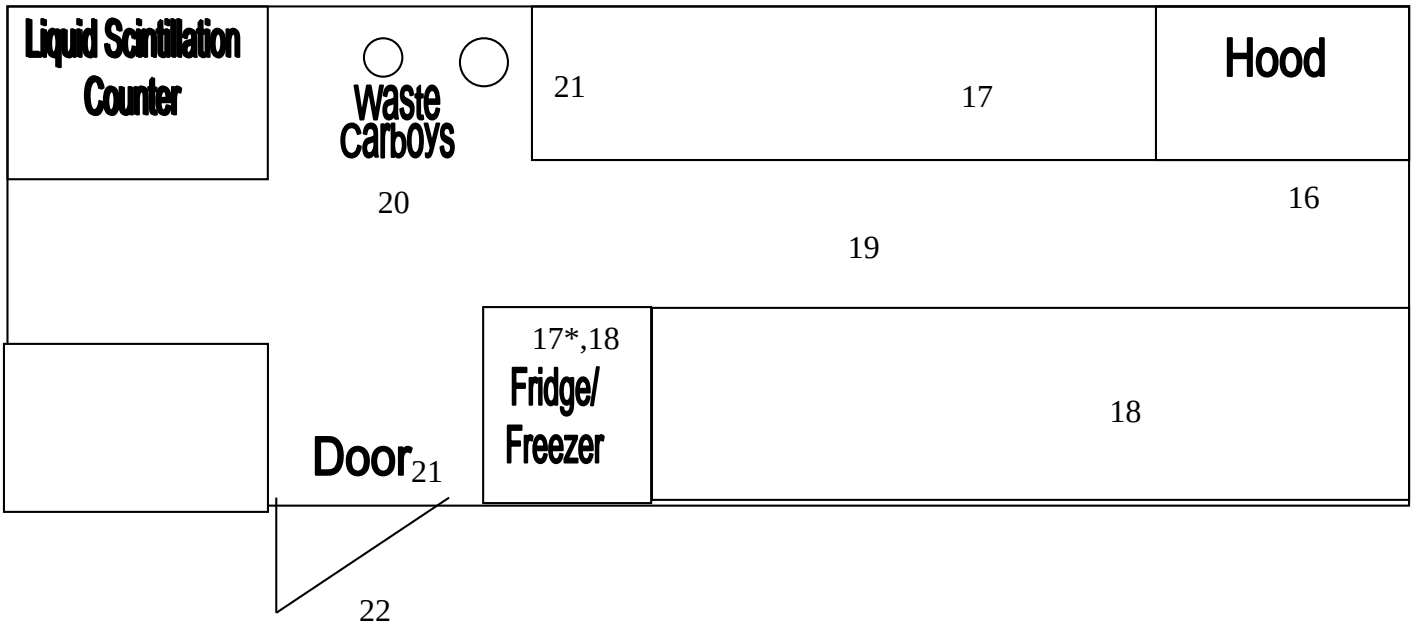


Figure 6
SWAB #895
11 February 2018



USAP Van #2
Figure 7
SWAB #895
11 February 2018



USAP Van #1
Figure 8
SWAB #879
11 February 2018