UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory
16 June 2016

SWAB REPORT #815

SWAB DATE: 8 June 2016

R/V Atlantis

James Happell

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Date: 2016.06.20 11:40:29 -04'00'

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
David Fisichella

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 # 815

LOCATION: Woods Hole, MA
VESSEL/LAB: *R/V Atlantis*

DATE: 8 June 2016
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	47	±	51	-3	±	6
	<u>Main Lab (Figure 3)</u>						
3	Port sink area	-15	±	0	23	±	39
4	Deck at port entrance aft of sink	14	±	27	25	±	37
5	Deck at port entrance forward of sink	58	±	50	4	±	21
6	Forward benchtop	-18	±	39	22	±	40
7	Inside starboard freezer top	-10	±	20	-2	±	39
8	Inside starboard refrigerator bottom	33	±	44	11	±	33
9	Starboard sink area	31	±	38	21	±	35
10	Center benchtop across from icemaker	2	±	10	-24	±	43
11	Starboard benchtop aft of sink	-8	±	22	-30	±	56
12	Starboard benchtop forward of fume hood	23	±	68	-15	±	31
13	Aftmost center benchtop	9	±	339	-16	±	31
14	Inside fume hood	42	±	59	-14	±	30
15	Deck inside aft entrance	6	±	87	-5	±	23
16	Deck inside port aft entrance	-1	±	22	-7	±	29
	<u>Bio-Analytical Lab (Figure 2)</u>						
17	Forward sink area	8	±	88	-23	±	42
18	Benchtop starboard of forward sink	20	±	65	-12	±	31
19	Deck inside starboard entrance	-13	±	33	14	±	40
20	Starboard benchtop	-7	±	29	-1	±	21
21	Deck inside aft entrance	-10	±	22	7	±	41
22	Aft sink area	23	±	58	-7	±	29
23	Center benchtop	-13	±	34	-27	±	37
24	Deck in front of fume hood	34	±	54	-3	±	10
25	Deck in front of forward sink	22	±	61	-9	±	18
26	Inside Cospolich top refrigerator	-23	±	40	-1	±	10
27	Inside Cospolich bottom freezer	60	±	54	-7	±	29
	<u>Walk-In Coolers (Figure 1)</u>						
28	Forward cooler benchtop	-26	±	55	-9	±	29
29	Deck of forward cooler	7	±	39	-27	±	52
30	Aft cooler benchtop	6	±	41	2	±	32
31	Aft cooler deck	-20	±	38	23	±	40

Sample #	Sample Identification	^{3}H dpm/m^{2}			^{14}C dpm/m^{2}		
		activity		error	activity		error
	Computer Lab (Figure 1)						
32	Deck inside starboard entrance	13	±	90	-13	±	37
33	Deck inside forward entrance	-10	±	36	-4	±	47
	Hydrographic Lab (Figure 1)						
34	Inside Cospolich freezer	26	±	68	-17	±	33
35	Inside Cospolich refrigerator	11	±	44	3	±	31
36	Port sink area	-16	±	30	6	±	44
37	Starboard sink area	72	±	37	82	±	39
38	Inside fume hood	-7	±	28	-8	±	30
39	Final bucket sample (CO#1)	1	±	13	-20	±	43
40	Initial bucket sample (CO#2)	-4	±	18	-12	±	38
41	Deck inside aft entrance	0	±	2	8	±	37
42	Deck inside starboard entrance	17	±	29	27	±	37
43	Port benchtop	-19	±	35	25	±	40
	Wet Lab (Figure 2)						
44	Sink area	*514	±	63	*371	±	47
45	Fume hood area	*644	±	69	*423	±	48
46	Starboard benchtop	*591	±	67	*409	±	48
47	Port benchtop	375	±	58	*247	±	43
48	Deck at center of lab	138	±	46	*88	±	37
	WHOI Radioisotope Van 625.6.03 (Figure 3)						
49	Sink area	367	±	67	35	±	25
50	Benchtop adjacent to sink	-5	±	39	-2	±	38
51	Fume hood area	17	±	16	*86	±	40
52	Inside freezer across from fume hood	-26	±	4	*1131	±	68
53	Inside refrigerator next to and below sink	307	±	60	*115	±	37
54	Benchtop across from fume hood	107	±	49	36	±	33
55	Benchtop across from refrigerator	354	±	69	6	±	9
56	Inside black Haier refrigerator	*2046	±	128	*145	±	26
57	Deck in front of sink and fridge	*1193	±	102	*60	±	20
58	Clean benchtop across from sink	76	±	63	-12	±	21
59	Final bucket blank C.O. # 2	0	±	17	-3	±	37

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. Some ^{3}H and ^{14}C contamination was found throughout the Wet Lab. These areas should be cleaned before any background ^{14}C work is conducted.
Some ^{3}H and ^{14}C contamination was found in the Radioisotope Van, but no action is needed.

Figure 1
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8 June 2016

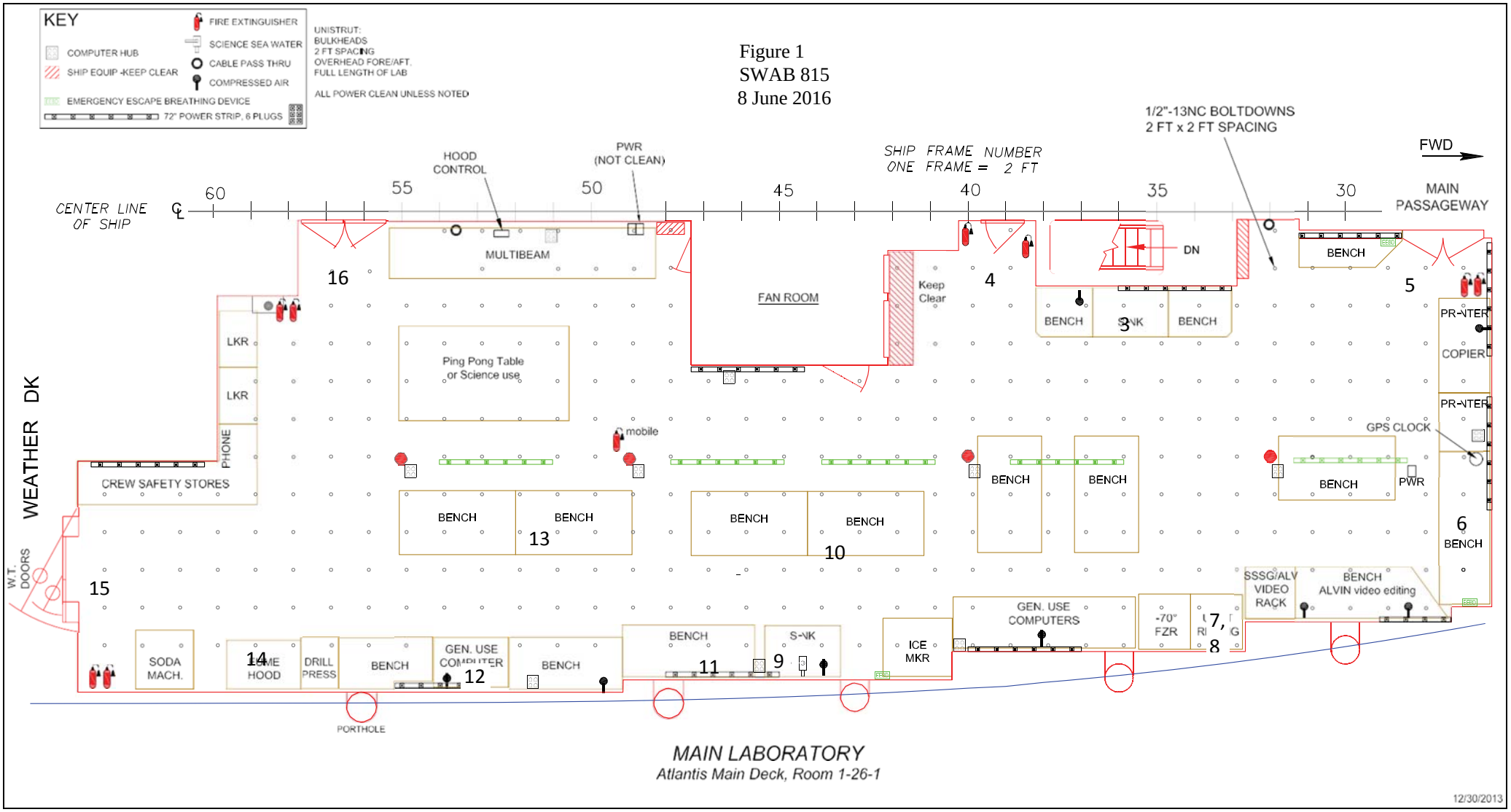
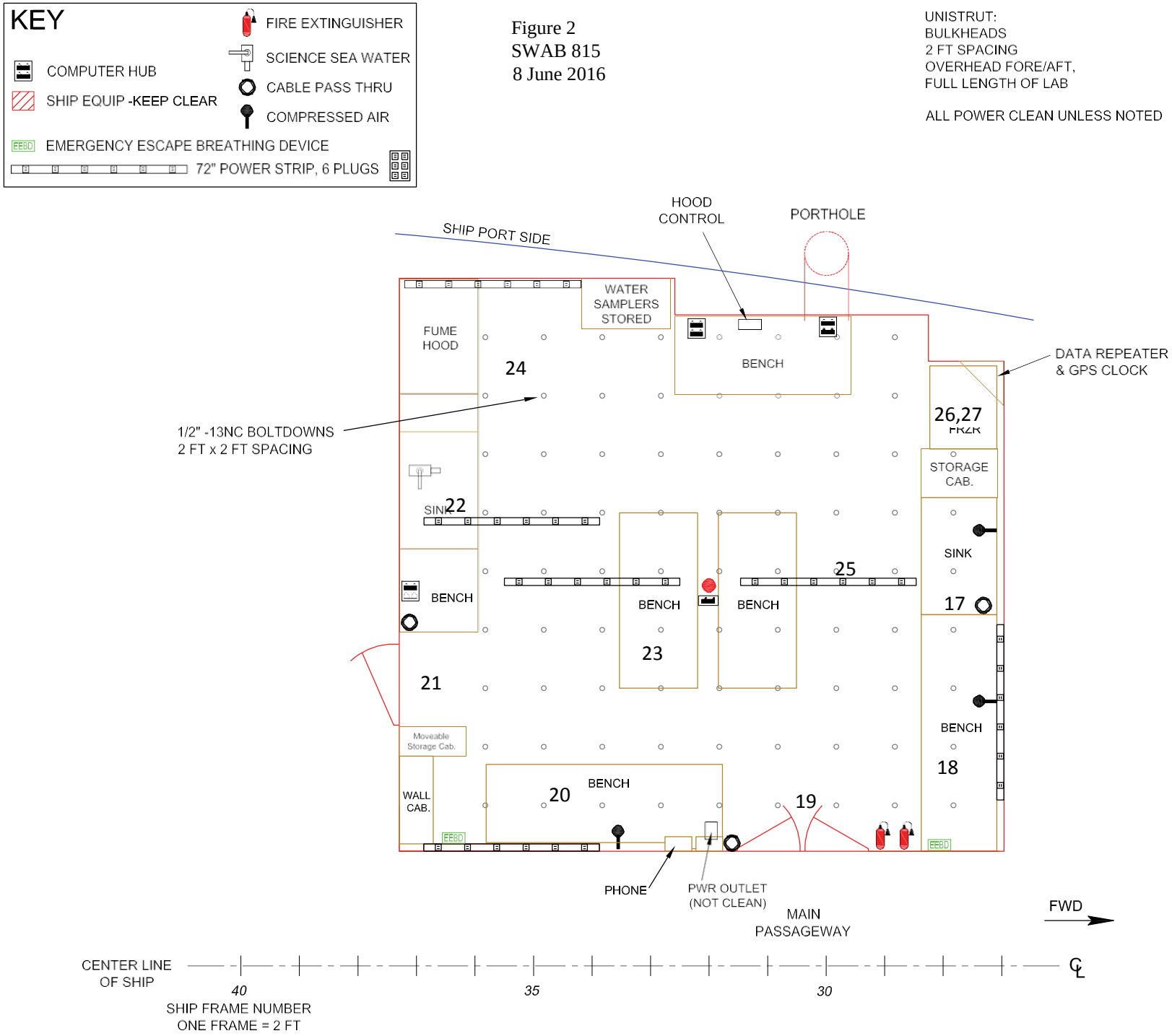


Figure 2
SWAB 815
8 June 2016

UNISTRUT:
BULKHEADS
2 FT SPACING
OVERHEAD FORE/AFT,
FULL LENGTH OF LAB

ALL POWER CLEAN UNLESS NOTED

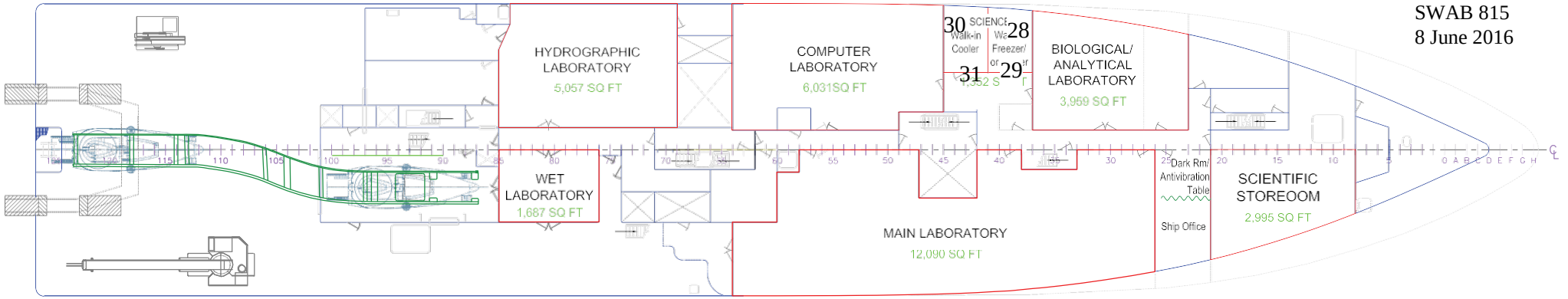


BIOLOGICAL/ANALYTICAL CLEAN LABORATORY

Atlantis Main Deck, Room 1-27-2

12/30/2013

Figure 3
SWAB 815
8 June 2016



Laboratories & Scientific Storeroom

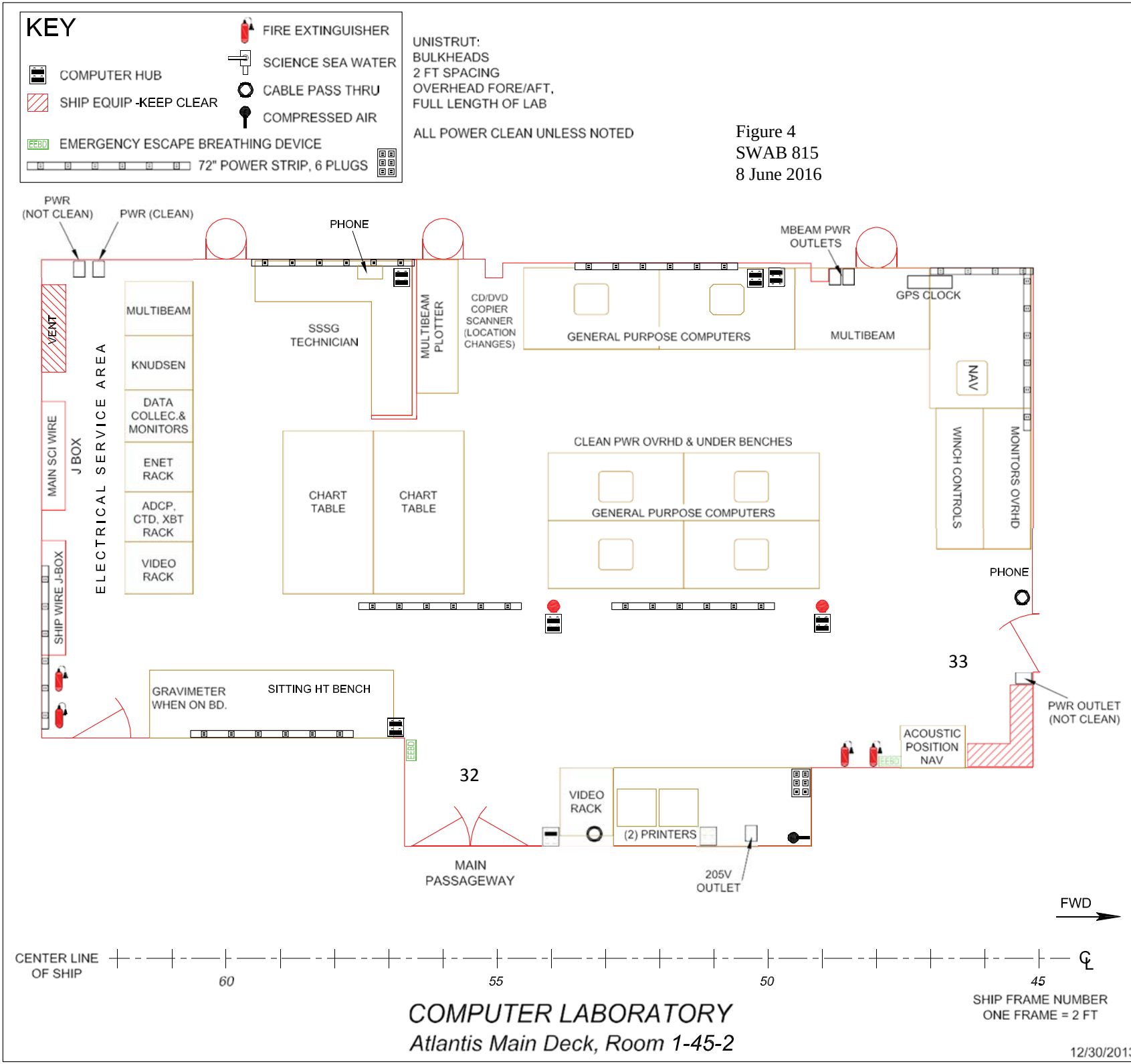


Figure 4
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SHIP EQUIP -KEEP CLEAR

COMPRESSED AIR

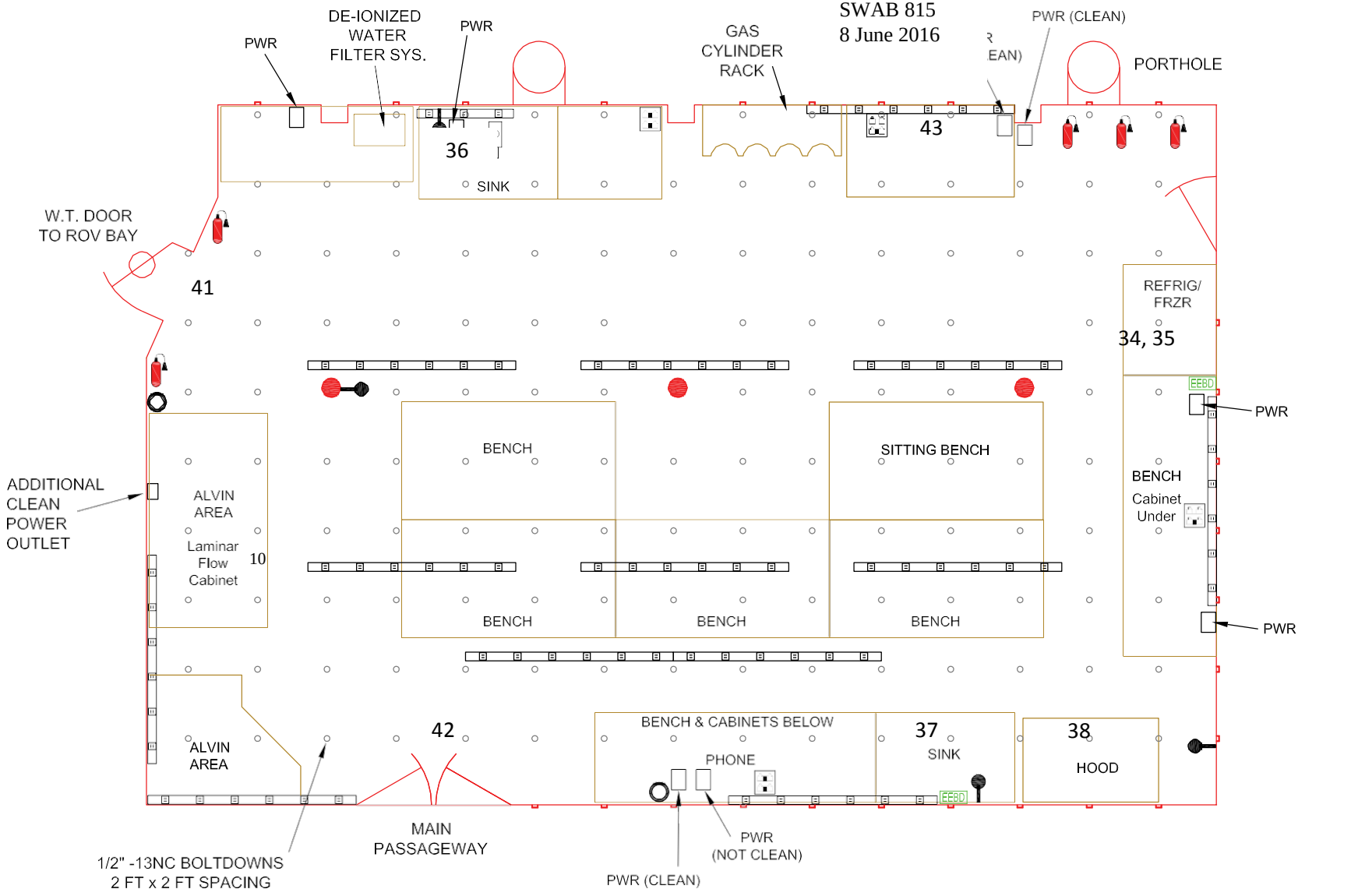
EEBD EMERGENCY ESCAPE BREATHING DEVICE

72" POWER STRIP, 6 PLUGS

FULL LENGTH OF LAB

ALL POWER CLEAN UNLESS NOTED

Figure 5
SWAB 815
8 June 2016



HYDROGRAPHIC LABORATORY

Atlantis Main Deck, Room 1-64-2

12/30/2013

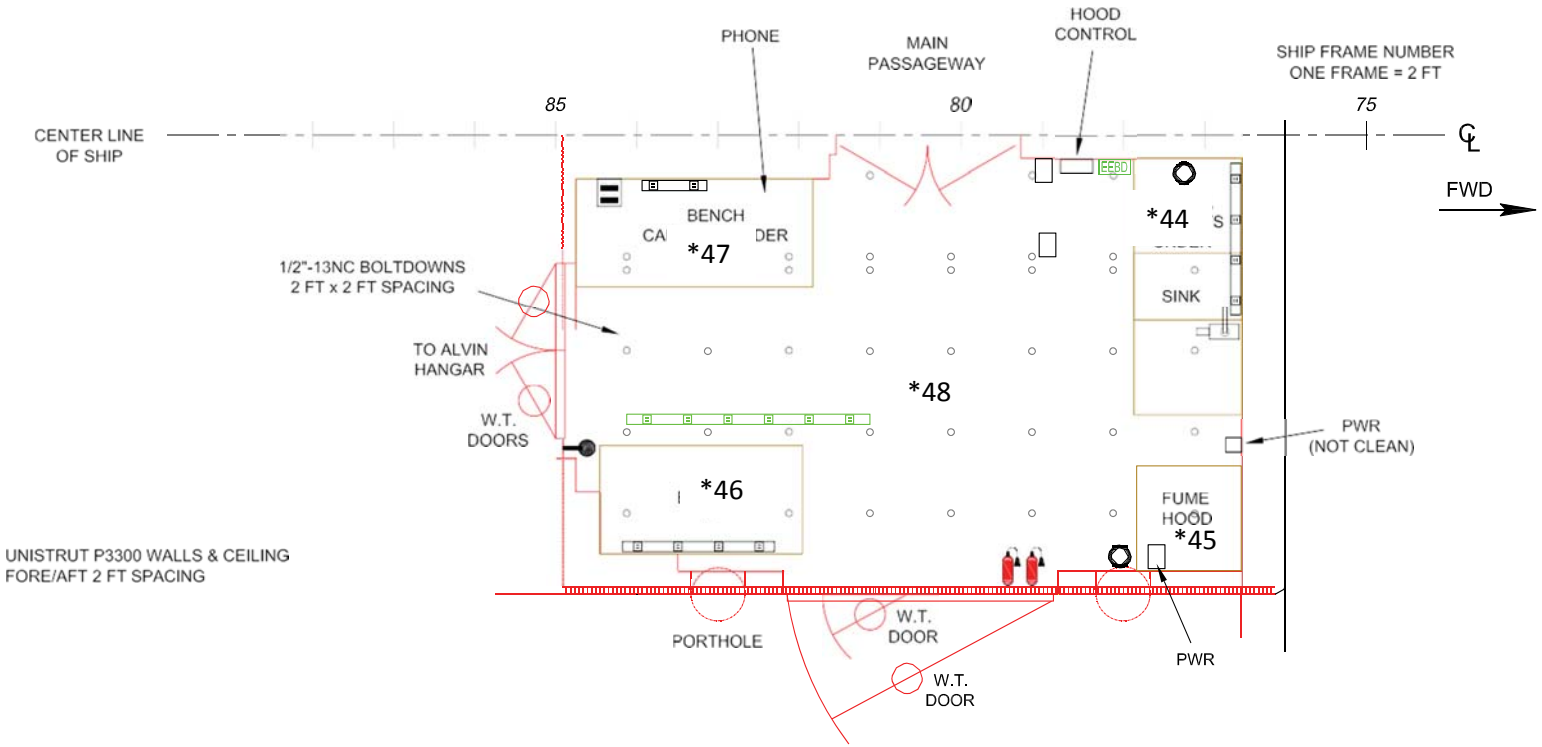
Figure 6
SWAB 815
8 June 2016

KEY

- FIRE EXTINGUISHER
- SCIENCE SEA WATER
- COMPUTER HUB
- CABLE PASS THRU
- SHIP EQUIP -KEEP CLEAR
- COMPRESSED AIR
- EEBD EMERGENCY ESCAPE BREATHING DEVICE
- 72" POWER STRIP, 6 PLUGS

UNISTRUT:
BULKHEADS
2 FT SPACING
OVERHEAD FORE/AFT,
FULL LENGTH OF LAB

ALL POWER CLEAN UNLESS NOTED



WET LABORATORY

Atlantis Main Deck, Rm 1-76-1

12/30/2013

Figure 7
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