



Tritium Laboratory
15 November 2016

SWAB REPORT #838

SWAB DATE: 1 November 2016

R/V Atlantis

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
David Fisichella

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 # 838

LOCATION: Manzanillo, Mexico
VESSEL/LAB: *R/V Atlantis*

DATE: 1 November 2016
TECHNICIAN: Yudy Mendoza

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	-19	± 50	6	± 44
	<u>Main Lab (Figure 1)</u>				
3	Port sink area	-23	± 61	-33	± 41
4	Deck at port entrance aft of sink	-39	± 102	15	± 42
5	Deck at port entrance forward of sink	-27	± 71	16	± 40
6	Center bench top scross from ice maker	-22	± 58	5	± 49
7	Inside starboard freezer top	-21	± 55	20	± 39
8	Inside starboard refrigerator bottom	-66	± 172	25	± 43
9	Starboard sink area	9	± 187	-14	± 51
10	Deck in front of sink	5	± 13	-11	± 41
11	Inside fume hood	-15	± 38	-6	± 22
12	Deck in front of fume hood	-33	± 86	7	± 47
13	Deck inside port entrance	-39	± 101	12	± 44
14	Deck inside aft entrance	-1	± 19	10	± 36
15	Deck in front of freezer	-34	± 90	-4	± 14
16	Deck in front of port sink	0	± 0	-5	± 19
	<u>Bio-Analytical Lab (Figure 2)</u>				
17	Forward sink srea	-13	± 33	-19	± 68
18	Benchtop starboard of forward sink	-20	± 53	4	± 51
19	Deck inside starboard entrance	-57	± 148	-12	± 42
20	Starboard benchtop	-11	± 30	-9	± 32
21	Deck inside aft entrance	-25	± 66	11	± 41
22	Aft sink area	-17	± 45	11	± 40
23	Center benchtop	-46	± 120	32	± 40
24	Deck in front of fume hood	-41	± 108	20	± 41
25	Benchtop across from forward sink	-38	± 99	20	± 41
26	Inside Cospolich top refrigerator	-33	± 86	-3	± 12
27	Deck in front of Cospolich freezer	-54	± 141	24	± 42
	<u>Walk-In Coolers (Figure 3)</u>				
28	Forward cooler benchtop	-18	± 47	14	± 39
29	Deck outside forward cooler	9	± 89	-8	± 30
30	Aft cooler benchtop	-26	± 68	-8	± 29
31	Deck outside aft cooler	-24	± 64	3	± 60

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
	<u>Computer Lab (Figure 4)</u>				
32	Deck inside forward entrance	-37	± 96	-18	± 63
33	Deck inside starboard entrance	-36	± 94	17	± 41
	<u>Hydrographic Lab (Figure 5)</u>				
34	Hydro Lab Inside Cospolich freezer	-29	± 77	-10	± 36
35	Inside Cospolich freezer	-42	± 109	0	± 1
36	Port sink area	-17	± 44	11	± 39
37	Starboard sink area	6	± 22	16	± 36
38	Deck in front of fume hood	-42	± 111	18	± 42
39	Deck inside aft entrance	-6	± 15	2	± 42
40	Deck outside starboard entrance	-38	± 99	2	± 8
	<u>Wet Lab (Figure 6)</u>				
41	Starboard benchtop	-12	± 32	4	± 43
42	Port benchtop	16	± 43	6	± 31
43	Intermediate bucket blank	6	± 246	-10	± 35
	<u>WHOI Radioisotope Van 625.6.03 (Figure 7)</u>				
44	Sink area	-35	± 90	14	± 42
45	Benchtop adjacent to sink	-19	± 48	-3	± 10
46	Fume hood area	13	± 5	*352	± 48
47	Inside freezer across from fume hood	-38	± 11	*552	± 53
48	Inside refrigerator below sink	18	± 25	44	± 37
49	Benchtop across from fume hood	-13	± 35	-2	± 7
50	Benchtop across from refrigerator	-27	± 71	2	± 113
51	Deck in front of Hairer refrigerator	62	± 39	*52	± 36
52	Deck in front of sink and refrigerator	182	± 54	*67	± 34
53	Clean benchtop across from sink	-26	± 68	-7	± 26
54	Deck outside van entrance	-16	± 43	5	± 44
55	Final bucket blank	-7	± 20	-22	± 80

Comments

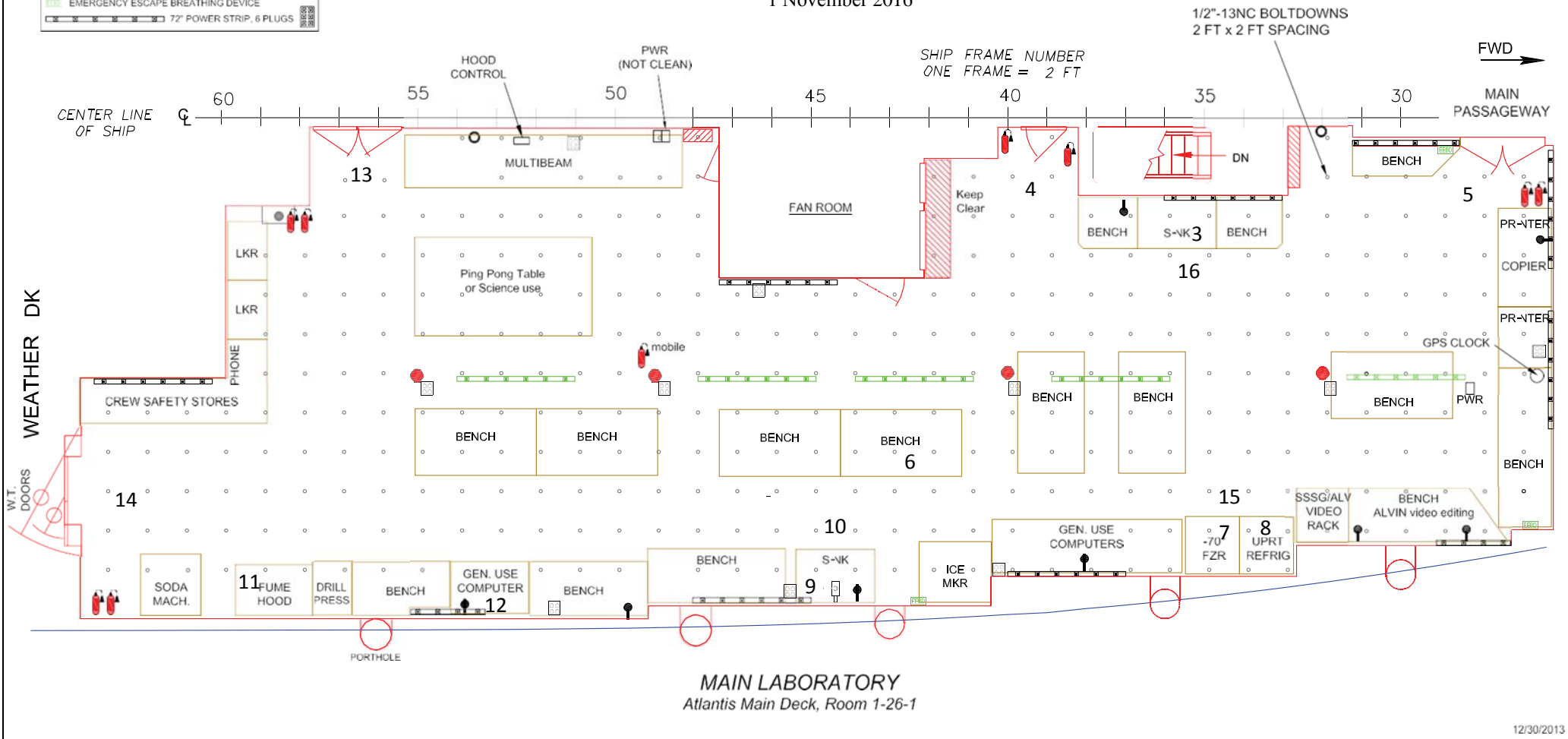
Please note that the error reported for each isotope is the two-standard deviation counting error. The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. All areas tested on the ship are free from contamination that requires cleaning. Minor ^{14}C contamination was found in the Rad Van. No action is needed.

KEY

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

UNISTRUT:
 BULKHEADS
 2 FT SPACING
 OVERHEAD FORE/AFT,
 FULL LENGTH OF LAB
 ALL POWER CLEAN UNLESS NOTED

Figure 1
 SWAB 838
 1 November 2016



MAIN LABORATORY
 Atlantis Main Deck, Room 1-26-1

KEY









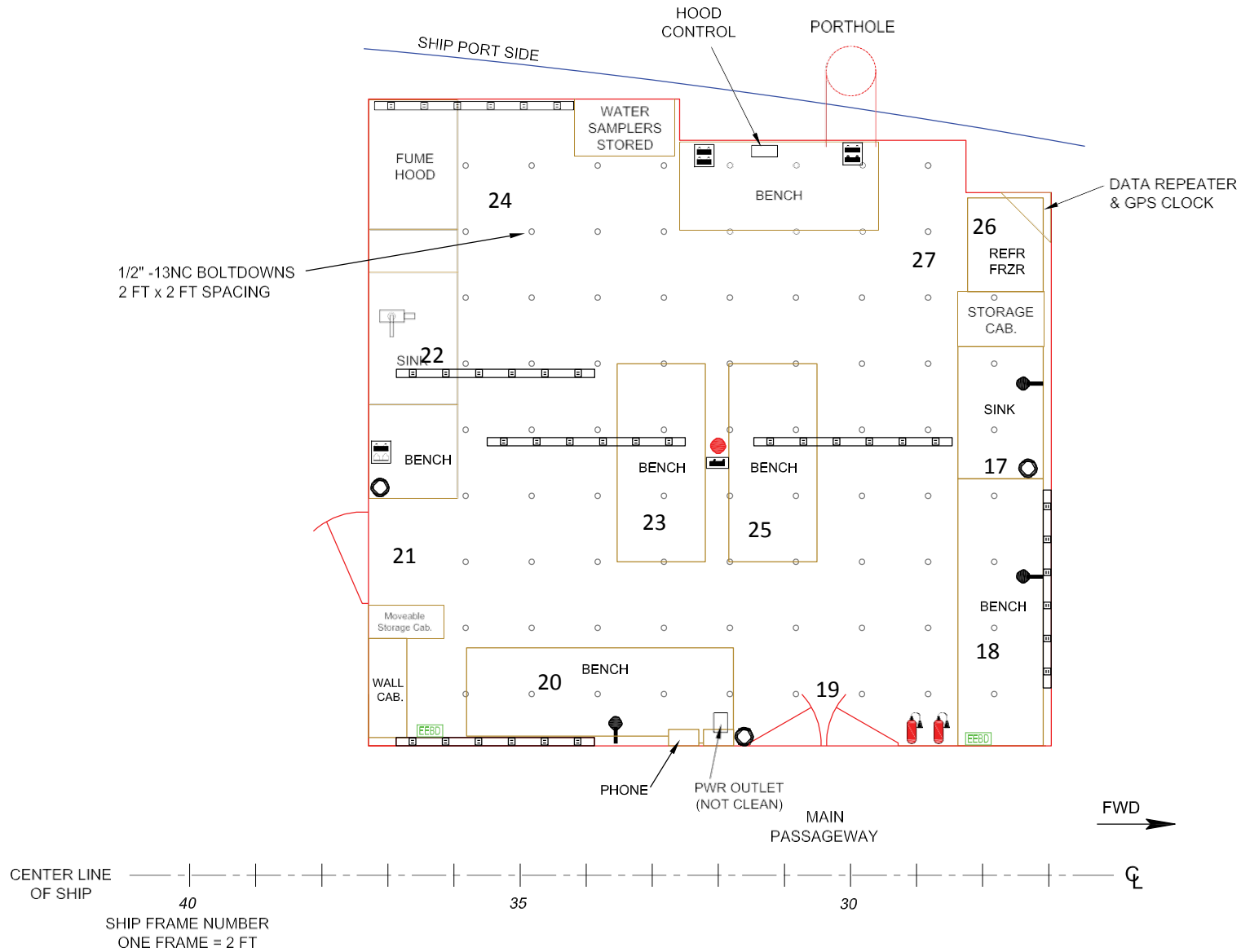
-  COMPUTER HUB
-  SHIP EQUIP -KEEP CLEAR
-  EMERGENCY ESCAPE BREATHING DEVICE
-  72" POWER STRIP, 6 PLUGS
-  FIRE EXTINGUISHER
-  SCIENCE SEA WATER
-  CABLE PASS THRU
-  COMPRESSED AIR

Figure 2
SWAB 838
1 November 2016

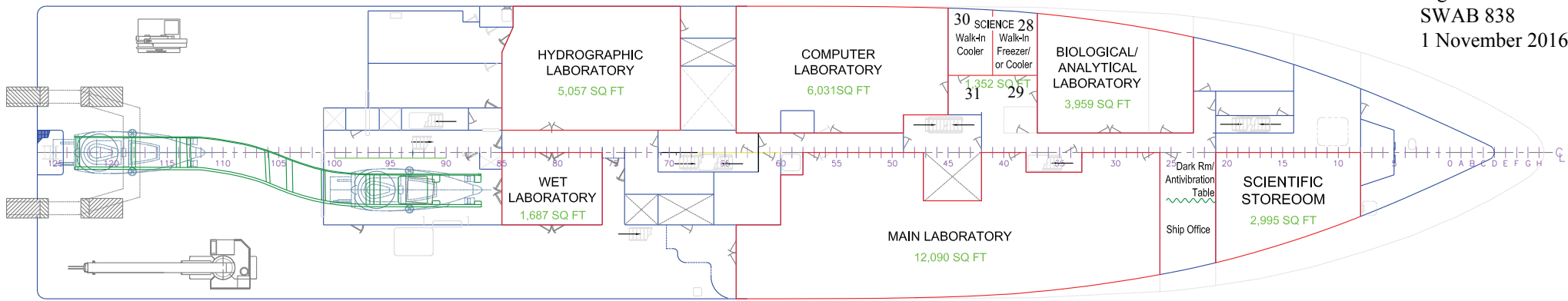
UNISTRUT:
BULKHEADS
2 FT SPACING
OVERHEAD FORE/AFT,
FULL LENGTH OF LAB

ALL POWER CLEAN UNLESS NOTED






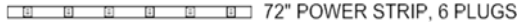




BIOLOGICAL/ANALYTICAL CLEAN LABORATORY
Atlantis Main Deck, Room 1-27-2

Figure 3
 SWAB 838
 1 November 2016



*Laboratories & Scientific Storeroom General Locations
 Atlantis Main Deck*

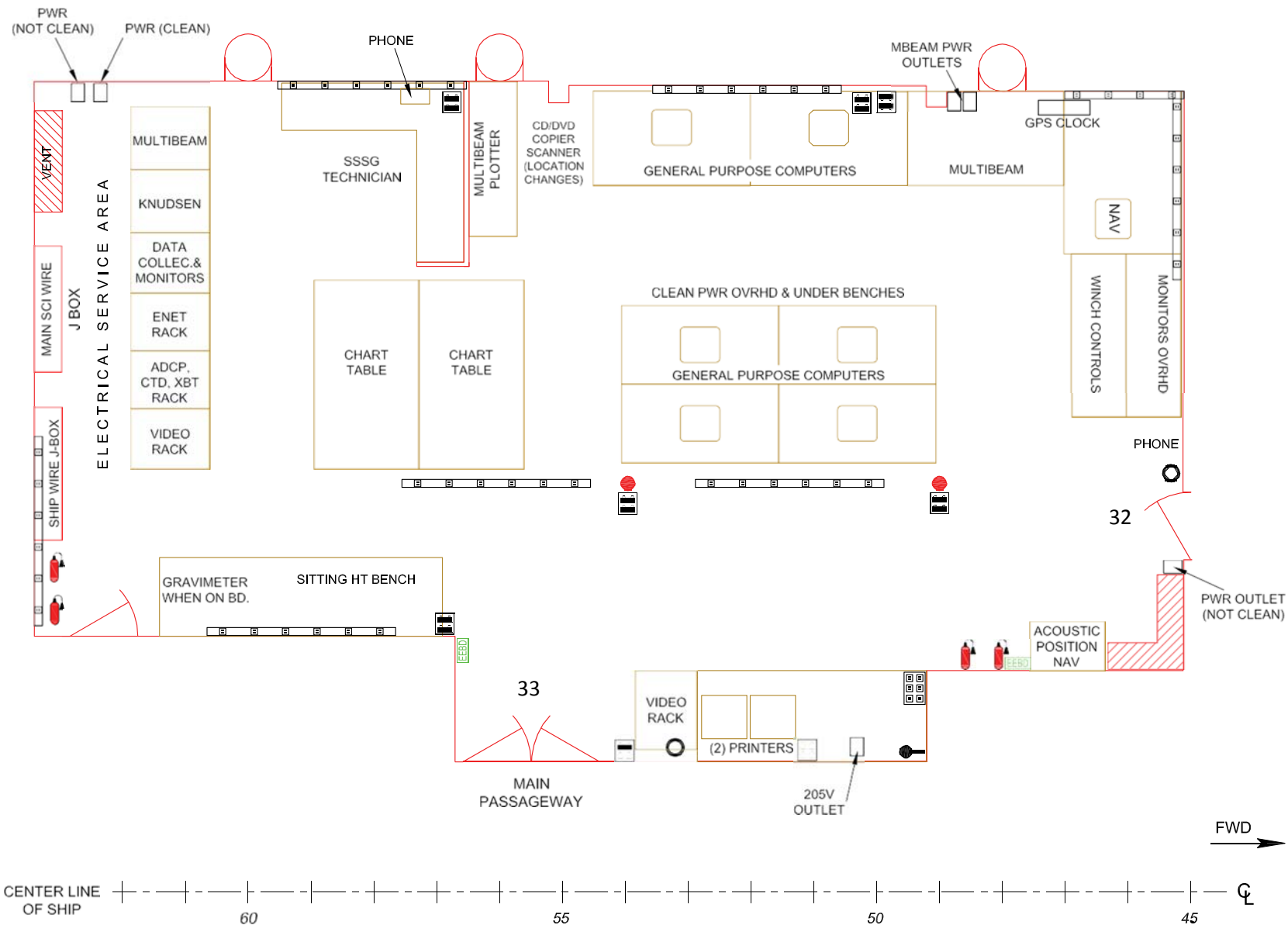
KEY

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

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

ALL POWER CLEAN UNLESS NOTED

Figure 4
SWAB 838
1 November 2016

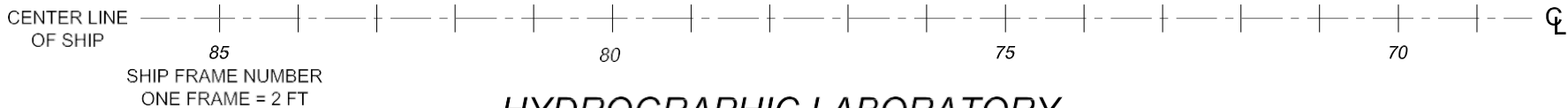
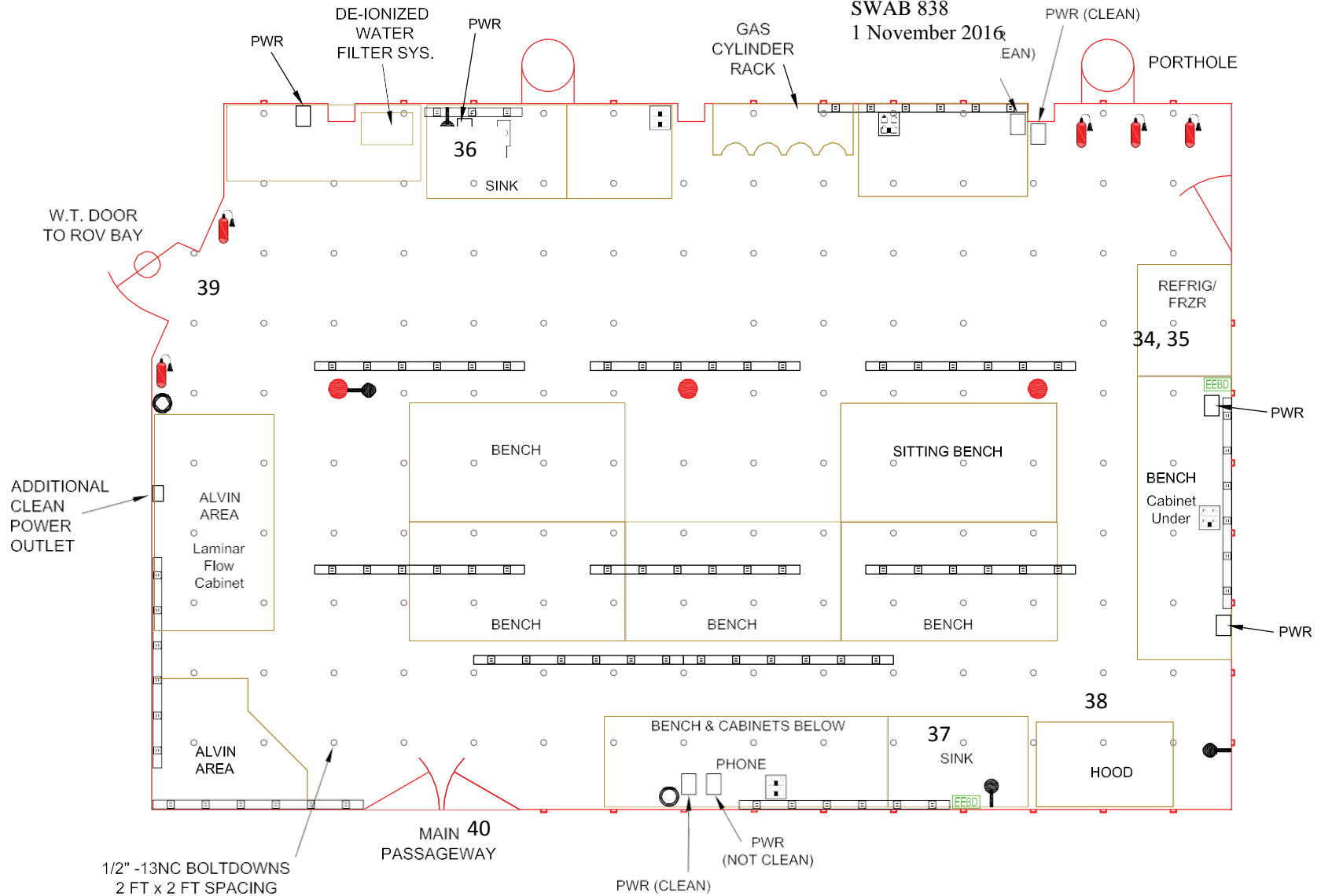


COMPUTER LABORATORY
Atlantis Main Deck, Room 1-45-2











FULL LENGTH OF LAB
ALL POWER CLEAN UNLESS NOTED

Figure 5
SWAB 838
1 November 2016



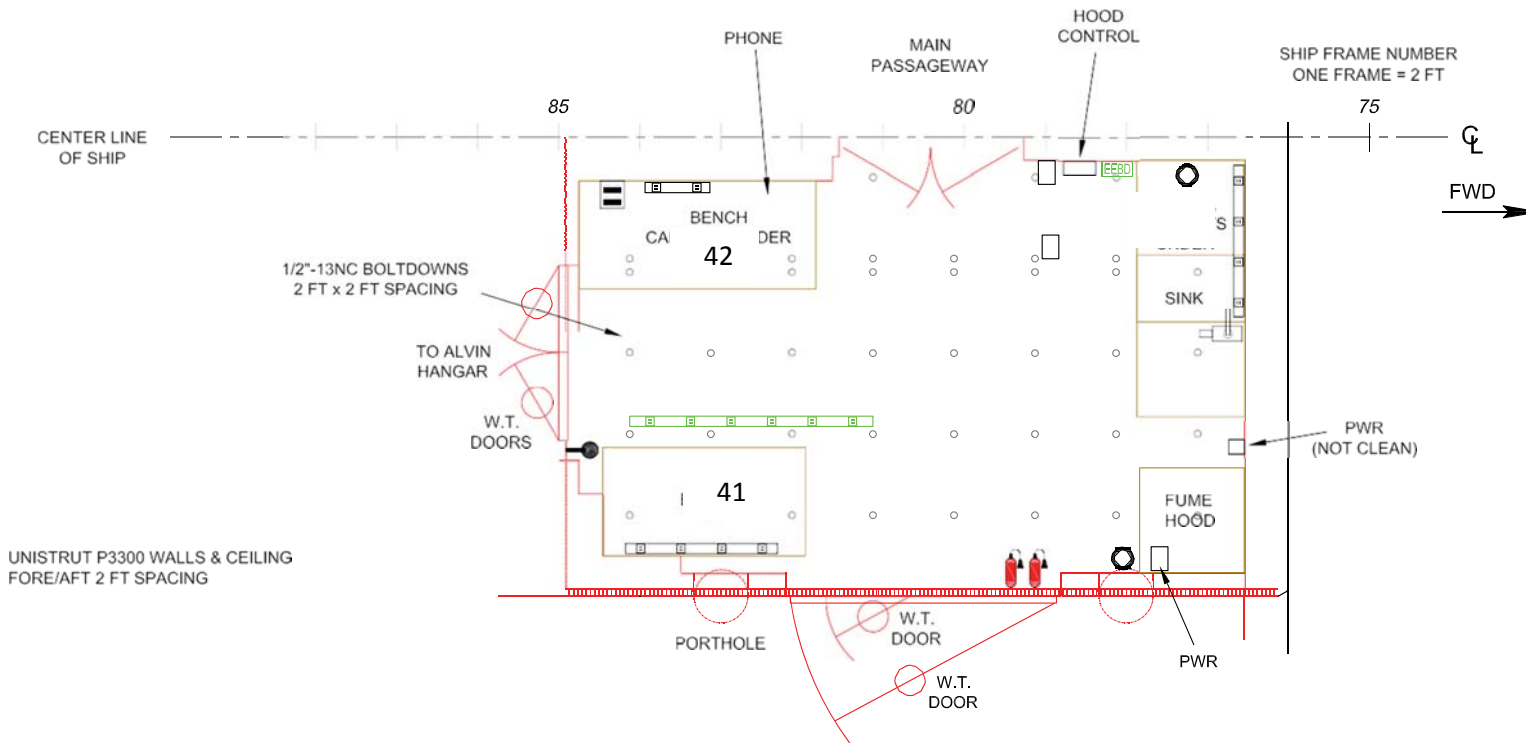
HYDROGRAPHIC LABORATORY
Atlantis Main Deck, Room 1-64-2

KEY

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

UNISTRUT:
 BULKHEADS
 2 FT SPACING
 OVERHEAD FORE/AFT,
 FULL LENGTH OF LAB
 ALL POWER CLEAN UNLESS NOTED

Figure 6
 SWAB 838
 1 November 2016



WET LABORATORY
Atlantis Main Deck, Rm 1-76-1

WHOI RADIOISOTOPE VAN

#625.6.03

Figure 7
SWAB # 838
1 November 2016

