UNIVERSITY
OF MIAMI

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Tritium Laboratory
24-Feb-2025

SWAB REPORT #1112

SWAB DATE: 18 February 2025

R/V Atlantis & Rad Van #625.6.03

James Happell Digitally signed by James Happell Date: 2025.02.24 12:42:15 -05'00'

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Sarah Fuller
Finn Morrison

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 #1112

LOCATION: San Diego, CA
VESSEL/LAB: *R/V Atlantis*

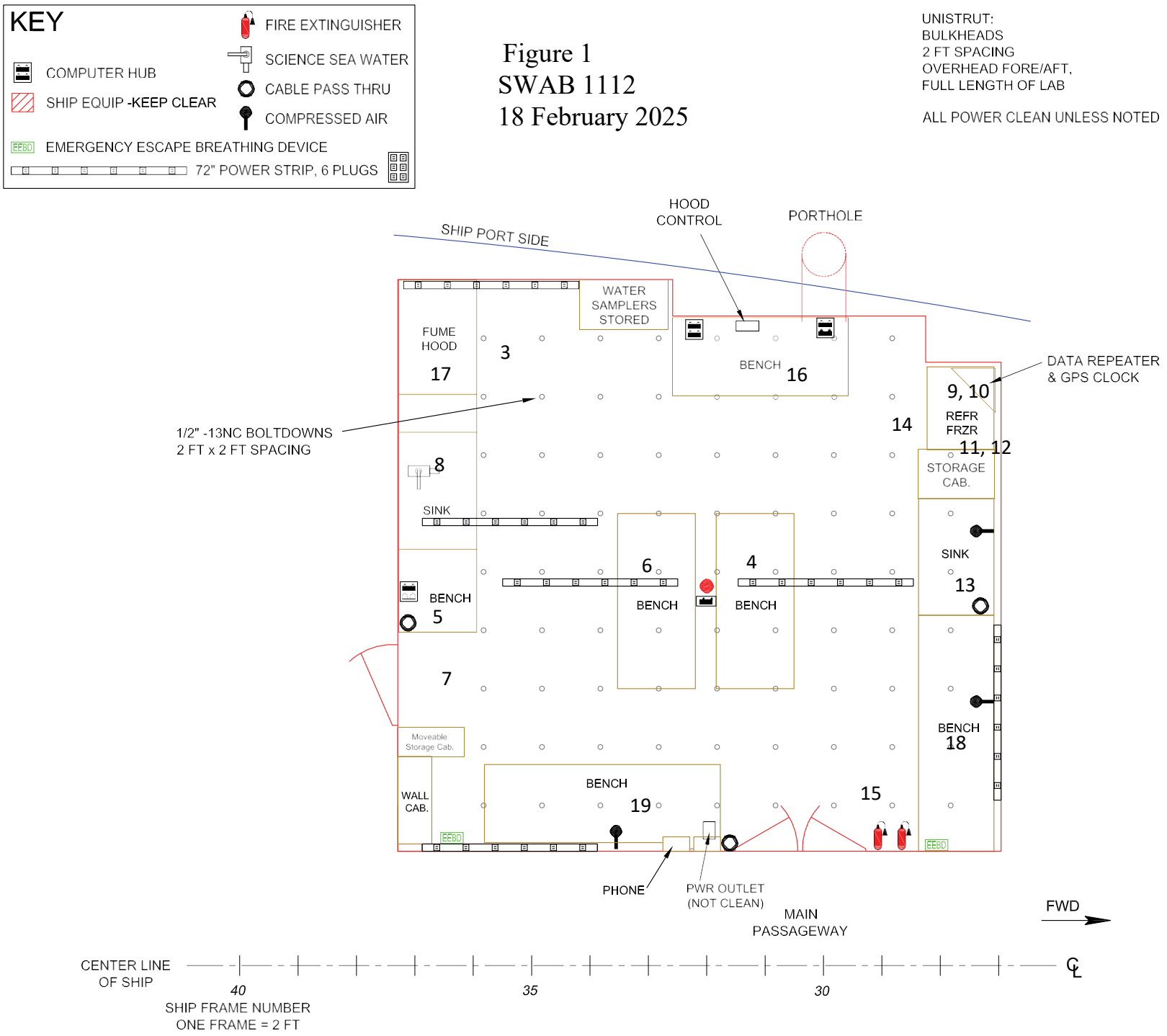
DATE: 18 February 2025
TECHNICIAN: Jim Happell

Sample #	Sample Identification	^{3}H dpm/m^{2} activity	±	^{3}H dpm/m^{2} error	^{14}C dpm/m^{2} activity	±	^{14}C dpm/m^{2} error
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank	-1	±	5	-13	±	34
	<u>Bio-Analytical Lab (Figure 1)</u>						
3	Deck in front of fume hood	4	±	17	1	±	11
4	Benchtop across from forward sink	-3	±	15	-10	±	28
5	Benchtop adjacent to aft sink	**32**	±	**26**	-10	±	26
6	Benchtop across from aft sink	13	±	34	-12	±	32
7	Deck inside aft entrance	-1	±	5	-17	±	45
8	Aft sink area	-20	±	21	-5	±	12
9	Inside Cospolich refrigerator	8	±	18	-17	±	45
10	Inside Cospolich freezer	-5	±	22	-14	±	38
11	Inside Frigidaire refrigerator	-10	±	21	11	±	16
12	Inside Frigidaire freezer	-4	±	18	1	±	21
13	Forward sink area	-16	±	17	7	±	16
14	Deck in front of refrigerators	16	±	24	-6	±	15
15	Deck inside starboard entrance	-4	±	18	-11	±	28
16	Port benchtop	22	±	24	-6	±	15
17	Inside fume hood	3	±	13	-6	±	16
18	Forward benchtop	5	±	19	0	±	103
19	Starboard benchtop	-19	±	21	-16	±	41
	<u>Main Lab (Figure 2)</u>						
20	Inside fume hood	-33	±	35	-5	±	14
21	Deck inside forward port entrance	-7	±	30	0	±	4
22	Benchtop adjacent to port sink	-17	±	19	-27	±	72
23	Port sink area	-43	±	46	-26	±	69
24	Deck inside port entrance located aft of sink	5	±	65	-4	±	10
25	Starboard benchtop forward of ice machine	25	±	40	-26	±	69
26	Starboard benchtop forward of fume hood	-14	±	15	-8	±	20
27	Deck inside aft port entrance	**69**	±	**34**	-26	±	69
28	Deck inside aft entrance	12	±	48	-15	±	40
29	Starboard sink area	16	±	21	2	±	10
30	Benchtop aft of starboard sink	22	±	30	-13	±	34
31	Deck in front of starboard sink	3	±	45	-4	±	11
	<u>Miscellaneous Areas (Figure 3)</u>						
32	Deck between walk in coolers	9	±	20	-1	±	10
33	Deck ouside entrance of Science Storeroom	1	±	4	-14	±	38
34	Deck inside starboard entrance of Comp. Lab	18	±	23	-3	±	9

Sample #	Sample Identification	^{3}H dpm/m^{2} activity	error	^{14}C dpm/m^{2} activity	error
	Hydro Lab (Figure 4)				
35	Deck in front of port sink	15 ±	19	5 ±	13
36	Deck inside starboard entrance	**57 ±**	**32**	-25 ±	65
37	Deck around the sink in ROV bay	-1 ±	6	0 ±	15
38	Inside fume hood.	5 ±	57	-8 ±	21
	Wet Lab (Figure 5)				
39	Starboard benchtop	-5 ±	22	-9 ±	25
40	Inside fume hood	26 ±	43	-31 ±	82
41	Port benchtop	-2 ±	7	-11 ±	30
42	Forward sink area with wood benchtops	8 ±	27	-5 ±	14
43	Deck inside starboard entrance	-13 ±	14	-14 ±	37
44	Deck inside aft entrance	-5 ±	22	-8 ±	20
45	Deck inside port entrance	14 ±	33	-12 ±	31
	Radioisotope Van #625.6.03 (Figure 6)				
46	Inside ATVIO refrigerator under bench	-9 ±	21	-20 ±	53
47	Inside fume hood	**73 ±**	**29**	-2 ±	22
48	Benchtop adjacent to fume hood	**106 ±**	**30**	**35 ±**	**14**
49	Benchtop above ATVIO & Haier refrigerators	**57 ±**	**27**	1 ±	3
50	Sink area	**106 ±**	**31**	**16 ±**	**12**
51	Benchtop across from refrigerators	**411 ±**	**57**	**21 ±**	**8**
52	Benchtop across from fume hood	**457 ±**	**59**	**30 ±**	**10**
53	Inside Hotpoint refrigerator	**52 ±**	**23**	**24 ±**	**14**
54	Inside Hotpoint freezer	**36 ±**	**26**	-8 ±	21
55	Inside Haier refrigerator	**91 ±**	**27**	**48 ±**	**16**
56	Benchtop ascross from sink next to LSC	**51 ±**	**25**	3 ±	8
57	Deck in front of fume hood	**331 ±**	**50**	**53 ±**	**14**
58	Deck between refrigerator and sink	**462 ±**	**59**	**52 ±**	**13**
59	Deck inside entrance	**155 ±**	**36**	**25 ±**	**12**
60	Final bucket blank	12 ±	74	-19 ±	51

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. There wwas no contamination requiring cleaning in any of the samples collec from the ship or in the Radiation Van



BIOLOGICAL/ANALYTICAL CLEAN LABORATORY

Figure 2
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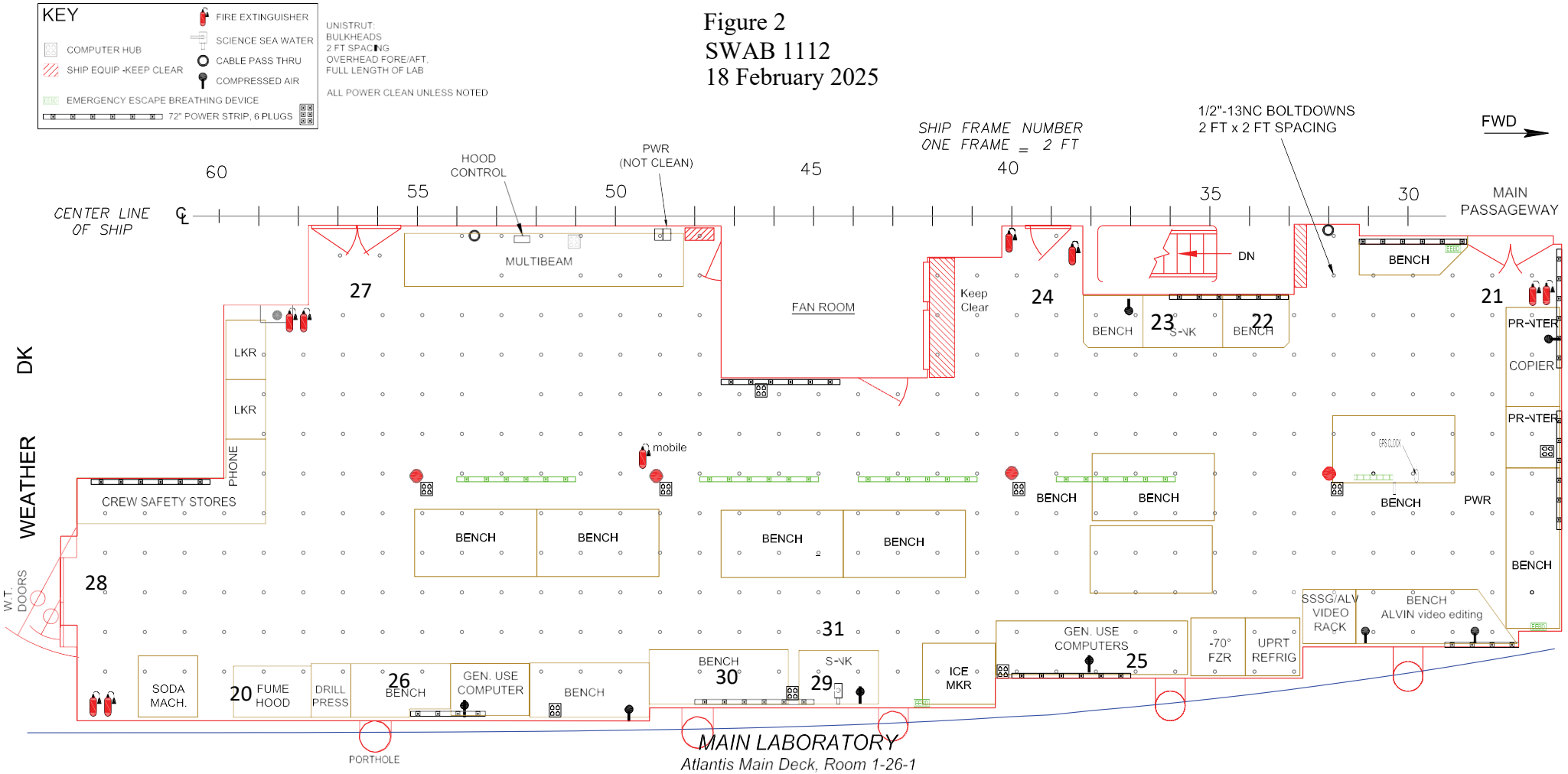

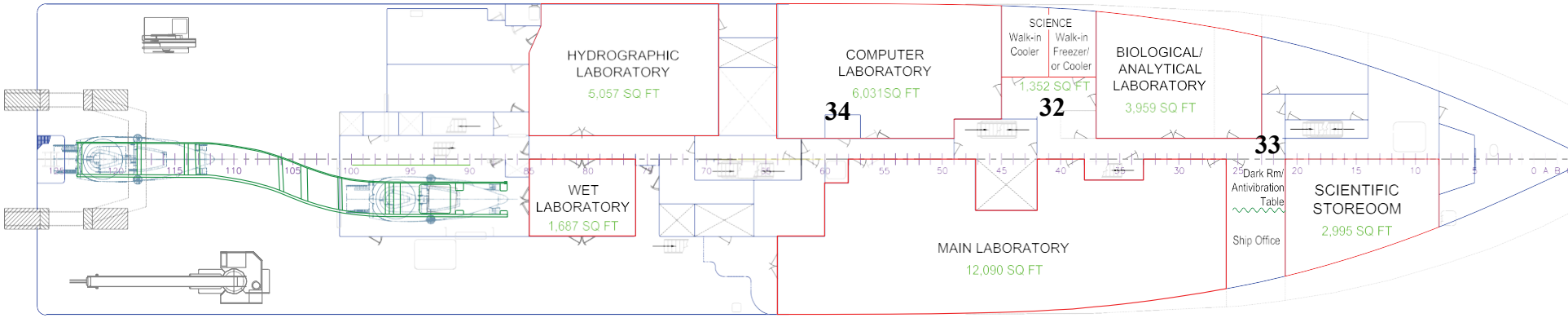

Atlantis Laboratories and Scientific Storeroom General Locations

Figure 3
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Figure 4
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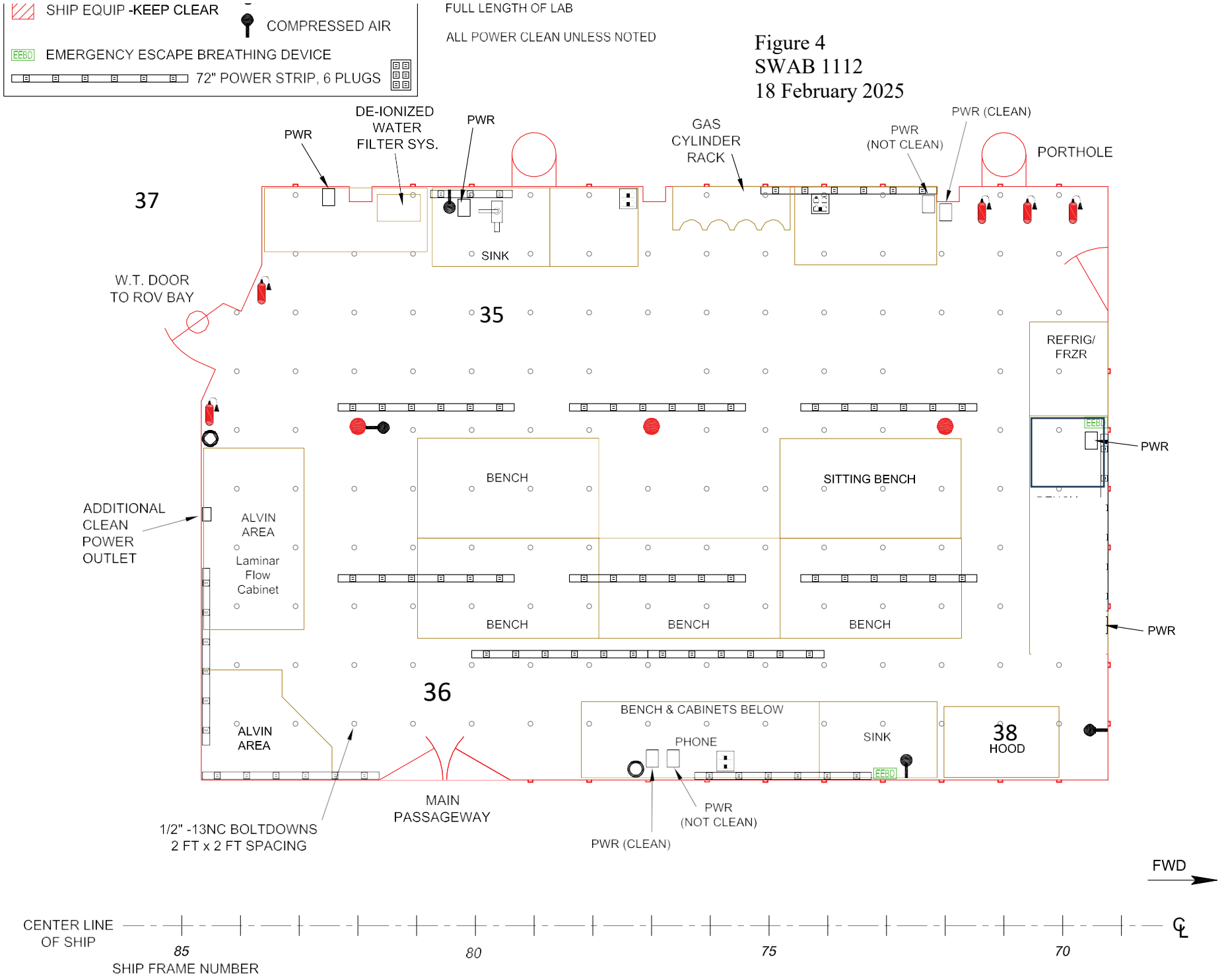

HYDROGRAPHIC LABORATORY

Atlantis Main Deck, Room 1-64-2

12/30/2013

Figure 5
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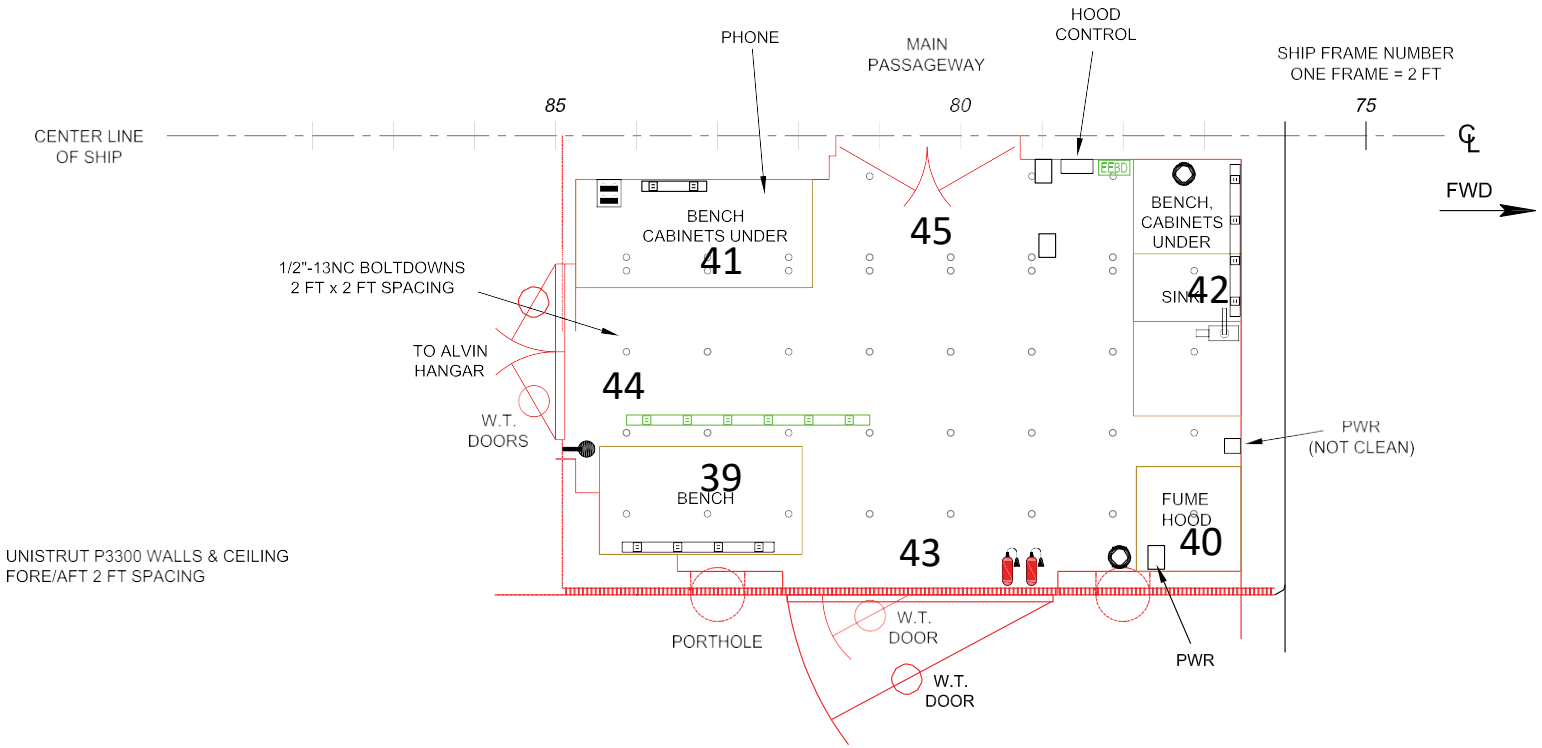
KEY

- FIRE EXTINGUISHER
- SCIENCE SEA WATER
- CABLE PASS THRU
- COMPRESSED AIR
- COMPUTER HUB
- SHIP EQUIP -KEEP CLEAR
- 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 6
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