



Tritium Laboratory
27 June 2023

SWAB REPORT #1063

SWAB DATE: 21 June 2023

R/V Atlantis and WHOI Rad Van #2408-02

James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Sarah Fuller

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 # 1063

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

DATE: 21 June 2023
TECHNICIAN: Catie Graver

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 #1	-1	± 15	-14	± 18
	<u>Hydro Lab (Figure 1)</u>				
3	Freestanding benchtop between 2 forward posts	8	± 88	-5	± 12
4	Perimeter benchtop outboard forward	20	± 55	-16	± 22
5	Perimeter benchtop adjacent to fume hood	0	± 4	-4	± 10
6	Deck near main passageway door	44	± 24	-23	± 30
7	Deck between sink and aft door	28	± 25	-8	± 19
8	Deck near sink and hood	7	± 76	-2	± 5
	<u>Wet Lab (Figure 2)</u>				
9	Aft inboard benchtop	-5	± 54	-12	± 16
10	Inside fume hood	-8	± 79	-14	± 19
11	Deck near outboard door	-15	± 41	34	± 13
12	Deck near main passageway door	1	± 13	-6	± 13
	<u>Computer Lab (Figure 3)</u>				
13	Deck near main passageway door	12	± 32	-5	± 12
14	Deck near forward door	28	± 25	-5	± 11
15	Deck aft of CTD station	4	± 40	-11	± 15
	<u>Walk-in Coolers (Figure 3)</u>				
16	Deck near Computer Lab	-1	± 7	-2	± 5
17	Deck inside aft walk-in	-2	± 23	-15	± 36
18	Deck near Bio Lab door	-5	± 56	-2	± 5
19	Deck inside aft walk-in	-5	± 50	-4	± 10
20	Aft benchtop inside aft walk-in	19	± 52	-24	± 32
	<u>Bioanalytical Lab (Figure 4)</u>				
21	Outboard benchtop	3	± 31	-22	± 29
22	Forward inboard benchtop	11	± 30	-8	± 19
23	Inboard benchtop	6	± 67	-2	± 6
24	Benchtop inboard of aft sink	9	± 91	-8	± 18
25	Inside fumehood	6	± 58	-14	± 32
26	Forward freestanding benchtop	29	± 26	3	± 7
27	Deck inside main passageway door	6	± 67	-3	± 6
28	Deck between hood and outboard benchtop	0	± 4	-12	± 29
29	Deck aft of refers	42	± 22	6	± 8
30	Final bucket blank #1	13	± 36	-18	± 42

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
<u>Main Lab (Figure 5)</u>					
31	Initial bucket blank #2	-10	± 101	-17	± 39
32	Benchtop forward of inboard sink	20	± 55	-5	± 12
33	Freestanding benchtop aft of forward post	3	± 31	-21	± 28
34	Freestanding benchtop opposite outboard sink	20	± 24	-26	± 34
35	Aft freestanding benchtop	11	± 29	8	± 10
36	Benchtop forward of outboard sink	-27	± 32	-7	± 10
37	Deck near forward main passageway doors	0	± 0	-15	± 20
38	Deck near middle main passageway doors	0	± 4	-2	± 6
39	Deck near icemaker	-4	± 44	-10	± 13
40	Deck near aft main passageway doors	-10	± 28	-3	± 8
41	Deck near weather door	-9	± 96	-3	± 6
<u>Rad Van #2408-02 (Figure 6)</u>					
42	Benchtop aft of fume hood, above freezer	338	± 118	1	± 1
43	Benchtop above refer	113	± 61	-6	± 8
44	Benchtop forward of sinks	81	± 43	*91	± 16
45	Benchtop aft of LSC	75	± 40	-11	± 15
46	Benchtop forward of entrance door	70	± 38	7	± 7
47	Inside freezer	127	± 57	39	± 12
48	Inside refrigerator	75	± 40	5	± 6
49	Inside fume hood	44	± 24	-15	± 21
50	Deck between LSC and hood	*1129	± 113	*93	± 12
51	Deck between sink and entrance door	*644	± 116	*60	± 11
52	Deck outside entrance door	-7	± 77	-1	± 2
53	Final bucket blank #2	-9	± 91	-8	± 11

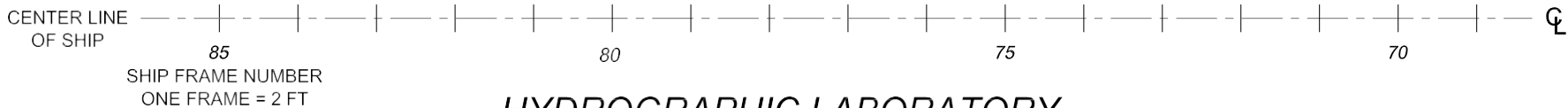
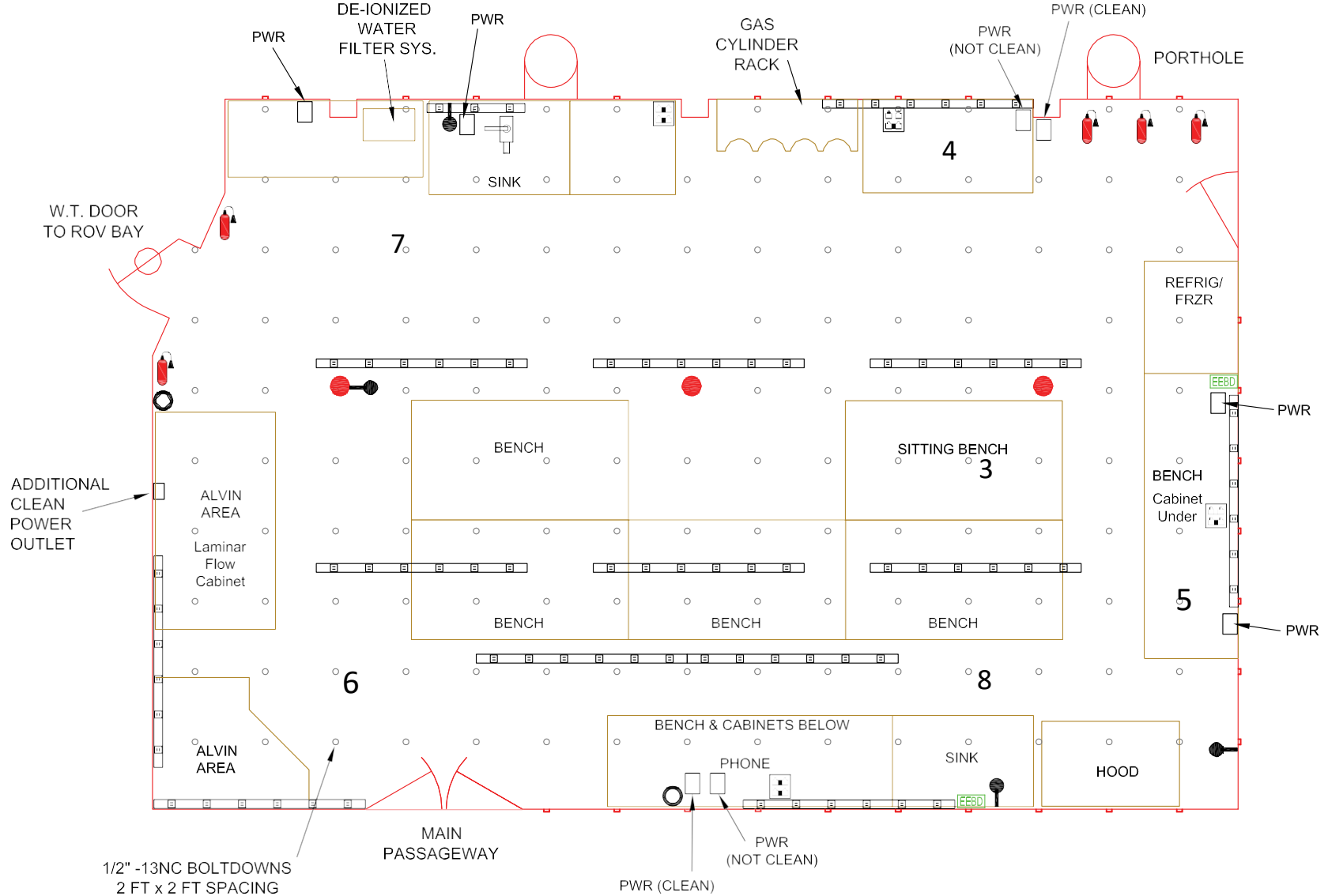
Comments

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 were free of isotope contamination. Minor ¹⁴C and ³H contamination was found in the Rad Van. No action is necessary.



FULL LENGTH OF LAB
ALL POWER CLEAN UNLESS NOTED









Figure 1
SWAB 1063
21 June 2023



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

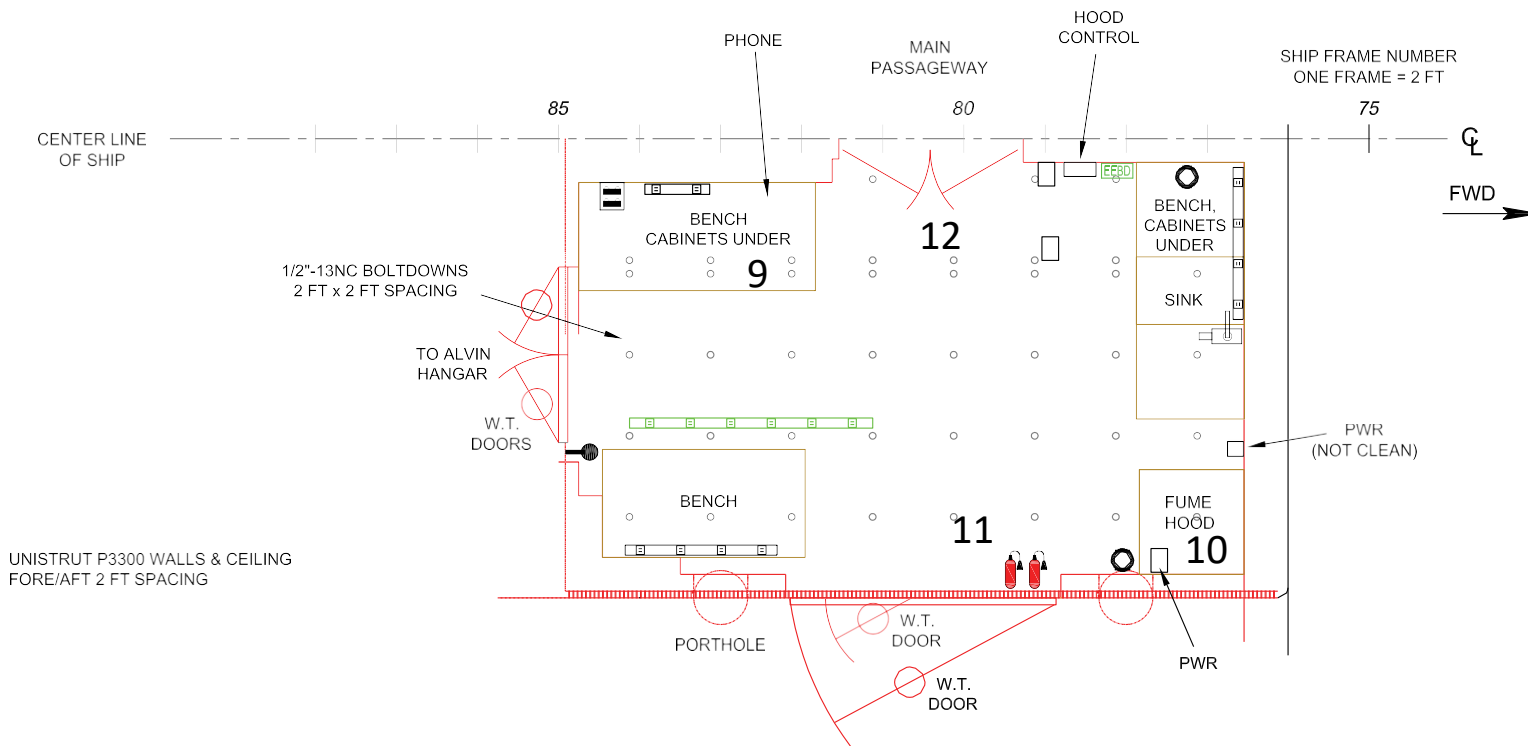
FWD →

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 2
SWAB 1063
 21 June 2023



UNISTRUT P3300 WALLS & CEILING
 FORE/AFT 2 FT SPACING

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

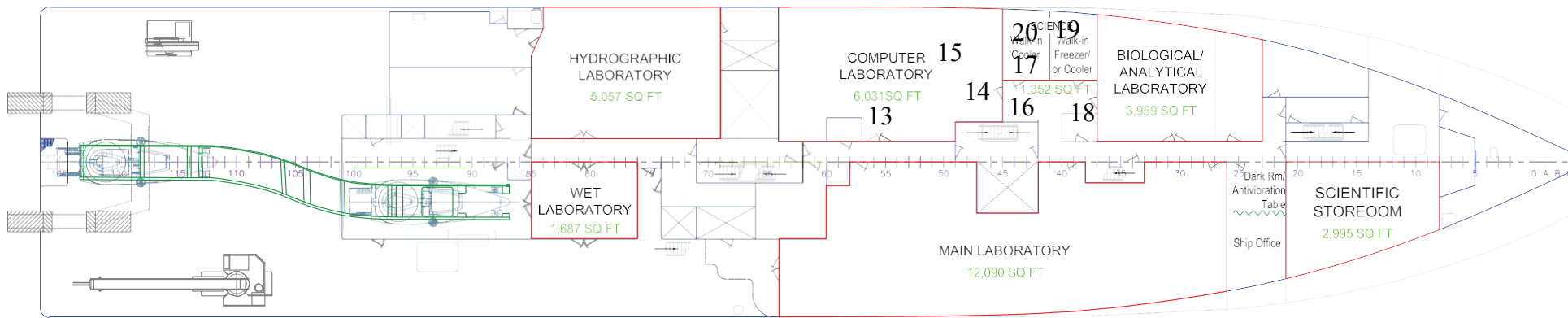


Figure 3
 SWAB 1063
 21 June 2023

Atlantis Laboratories and Scientific Storeroom General Locations

KEY








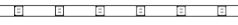

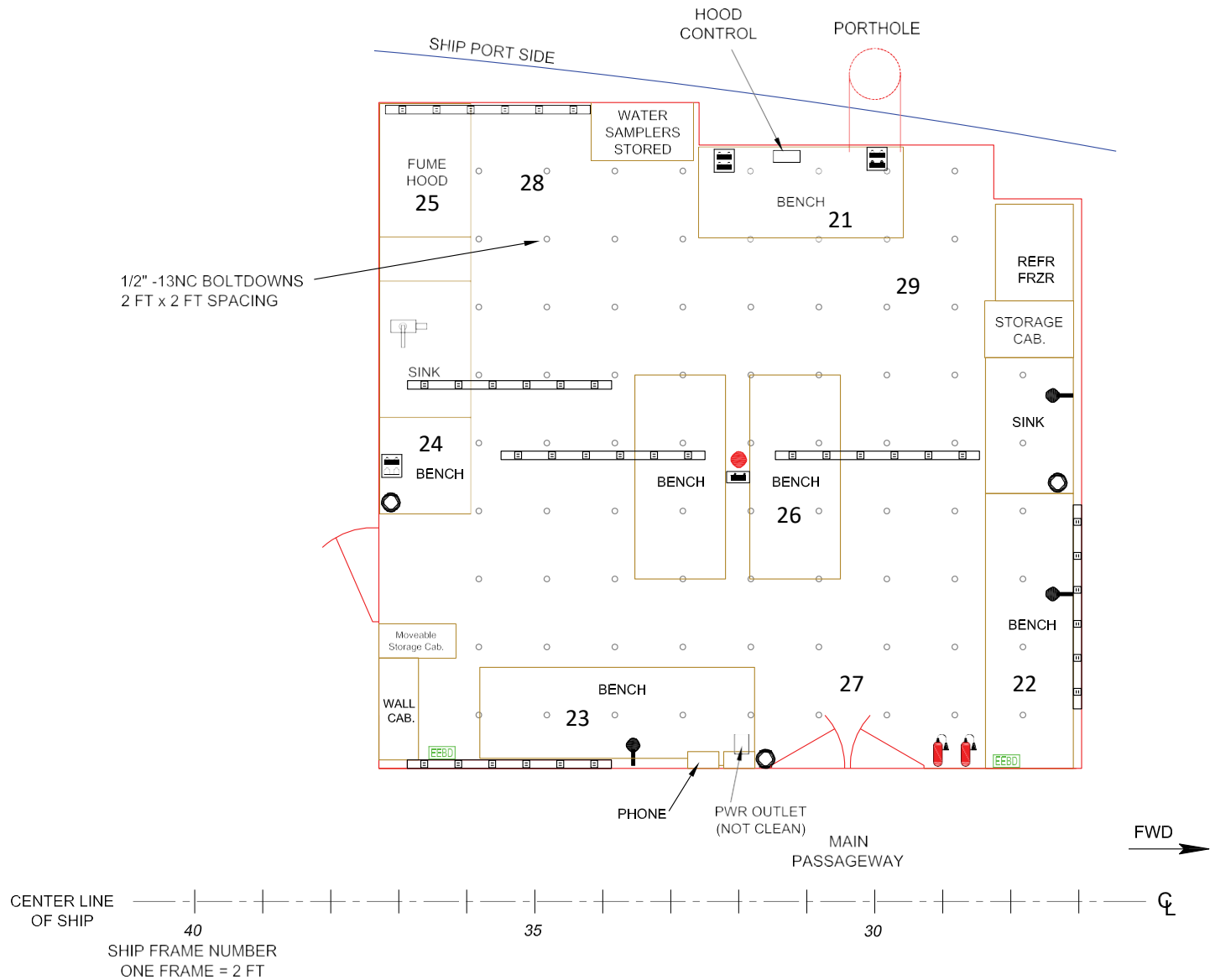
-  FIRE EXTINGUISHER
-  SCIENCE SEA WATER
-  COMPUTER HUB
-  CABLE PASS THRU
-  SHIP EQUIP -KEEP CLEAR
-  COMPRESSED AIR
-  EMERGENCY ESCAPE BREATHING DEVICE
-  72" POWER STRIP, 6 PLUGS
- 

Figure 4
SWAB 1063
21 June 2023

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

Rad Van #2408-02

Figure 6
SWAB #1063
21 June 2023

