



28 September 2026

SWAB REPORT #1146

SWAB DATE: September 19, 2026

R/V Atlantis, Rad Vans #625.6.03 & #625.5.02

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Distribution:
SWAB Committee
Sarah Fuller
Finn Morrison

COMMENTS TO SWAB REPORTS

15 December 2021

The LSC is now a Quantulus GCT 6220, with the SWAB counting assay having background cpm of 0.3 & 1.2 for ^3H & ^{14}C . This replaces an LSC with background cpm of 1.6 & 5.5 for ^3H & ^{14}C .

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. All activities significantly above background will be in **bold**.

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 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 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 #1146

LOCATION: Norfolk, VA
VESSEL/LAB: *R/V Atlantis*

DATE: 19 September 2026
TECHNICIAN: Jim Happell

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0 ±	0	0 ±	0
2	Initial bucket blank	6 ±	0	-23 ±	33
	<u>Bio-Analytical Lab (Figure 1)</u>				
3	Deck in front of fume hood	24 ±	32	8 ±	13
4	Benchtop across from forward sink	-26 ±	35	-12 ±	17
5	Benchtop adjacent to aft sink	-58 ±	78	-5 ±	9
6	Benchtop across from aft sink	-3 ±	9	-11 ±	16
7	Deck inside aft entrance	-16 ±	24	1 ±	42
8	Aft sink area	4 ±	12	-9 ±	15
9	Inside Cospolich refrigerator	-13 ±	19	-18 ±	25
10	Inside Cospolich freezer	6 ±	17	-12 ±	17
11	Inside Frigidaire refrigerator	-25 ±	33	-7 ±	12
12	Inside Frigidaire freezer	-27 ±	36	-7 ±	13
13	Forward sink area	-6 ±	18	-17 ±	24
14	Deck in front of refrigerators	-27 ±	36	6 ±	18
15	Deck inside starboard entrance	-40 ±	54	4 ±	26
16	Port benchtop	-25 ±	34	0 ±	1
17	Inside fume hood	-25 ±	33	-13 ±	19
18	Forward benchtop	16 ±	117	-24 ±	34
19	Starboard benchtop	-12 ±	17	-17 ±	23
	<u>Main Lab (Figure 2)</u>				
20	Inside fume hood	-2 ±	6	-7 ±	12
21	Deck inside forward port entrance	27 ±	40	-10 ±	14
22	Benchtop adjacent to port sink	-28 ±	37	-18 ±	26
23	Port sink area	-23 ±	30	-18 ±	26
24	Deck inside port entrance located aft of sink	-24 ±	32	-16 ±	22
25	Starboard benchtop forward of ice machine	-12 ±	18	-22 ±	31
26	Starboard benchtop forward of fume hood	5 ±	15	10 ±	15
27	Deck inside aft port entrance	-26 ±	35	-14 ±	20
28	Deck inside aft entrance	-21 ±	29	-10 ±	17
29	Starboard sink area	19 ±	102	-26 ±	37
30	Benchtop aft of starboard sink	-27 ±	36	-22 ±	31
31	Deck in front of starboard sink	-1 ±	3	-15 ±	21
	<u>Miscellaneous Areas (Figure 3)</u>				
32	Deck between walk in coolers	0 ±	4	5 ±	15
33	Deck outside entrance of Science Storeroom	-17 ±	25	-19 ±	26
34	Deck inside starboard entrance of Comp. Lab	-11 ±	16	-9 ±	15

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
	<u>Hydro Lab (Figure 4)</u>				
35	Deck in front of port sink	-16 ±	24	-1 ±	1
36	Deck inside starboard entrance	-30 ±	40	12 ±	17
37	Deck around the sink in ROV bay	-9 ±	27	-5 ±	35
38	Inside fume hood	-11 ±	17	-3 ±	20
	<u>Wet Lab (Figure 5)</u>				
39	Starboard benchtop	-8 ±	23	-6 ±	39
40	Inside fume hood	-6 ±	17	-11 ±	16
41	Port benchtop	-21 ±	28	0 ±	3
42	Forward sink area with wood benchtops	-24 ±	32	-19 ±	26
43	Deck inside starboard entrance	-11 ±	17	4 ±	17
44	Deck inside aft entrance	-2 ±	6	-9 ±	16
45	Deck inside port entrance	-18 ±	28	-5 ±	37
	<u>Radioisotope Van #625.6.03 (Figure 6)</u>				
46	Inside Whirlpool refrigerator on bench	25 ±	44	-13 ±	18
47	Inside fume hood	-12 ±	18	7 ±	16
48	Benchtop adjacent to fume hood	-19 ±	28	-4 ±	29
49	Benchtop above refrigerators	-53 ±	71	52 ±	18
50	Sink area	20 ±	28	8 ±	13
51	Benchtop across from sink next to LSC	8 ±	30	2 ±	12
52	Benchtop across from refrigerators	42 ±	41	-10 ±	15
53	Inside Hotpoint refrigerator	2 ±	6	-7 ±	12
54	Inside Hotpoint freezer	2 ±	5	-6 ±	11
55	Deck in front of fume hood	15 ±	22	15 ±	15
56	Benchtop across from fume hood	-23 ±	31	-2 ±	16
57	Deck between refrigerator and sink	5 ±	4	70 ±	18
58	Deck inside entrance	41 ±	28	28 ±	15
59	Bucket blank	-2 ±	7	-10 ±	15
	<u>Radioisotope Van #625.5.02 (Figure 7)</u>				
60	Benchtop across from sink	98 ±	45	6 ±	9
61	Benchtop adjacent to LSC	41 ±	36	3 ±	10
62	Sink Area	77 ±	21	*265 ±	26
63	Benchtop adjacent to sink	126 ±	47	-3 ±	14
64	Benchtop adjacent to fume hood	58 ±	37	7 ±	11
65	Inside fume hood	70 ±	42	-6 ±	10
66	Inside refrigerator	-12 ±	17	20 ±	16
67	Inside freezer	229 ±	54	24 ±	12
68	Deck between fume hood and LSC	346 ±	65	21 ±	10
69	Deck in center of van	83 ±	41	9 ±	11
70	Deck near entrance	348 ±	63	50 ±	14
71	Final bucket blank	14 ±	42	-8 ±	14

COMMENTS

Please note that the error reported for each isotope is the two-standard deviation counting error. Reports may now contain values less than zero. 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. Please note that we are now using a Quantulus 6220 LSC which counts very near natural background. While the cleanup standards have not changed all values above background will now be in bold. All areas tested inside the ship were free from isotope contamination that requires cleaning.

Minor ^{14}C contamination was found in Rad Van 625.5.02. No action is necessary.

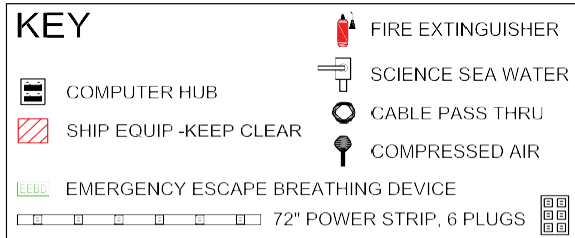
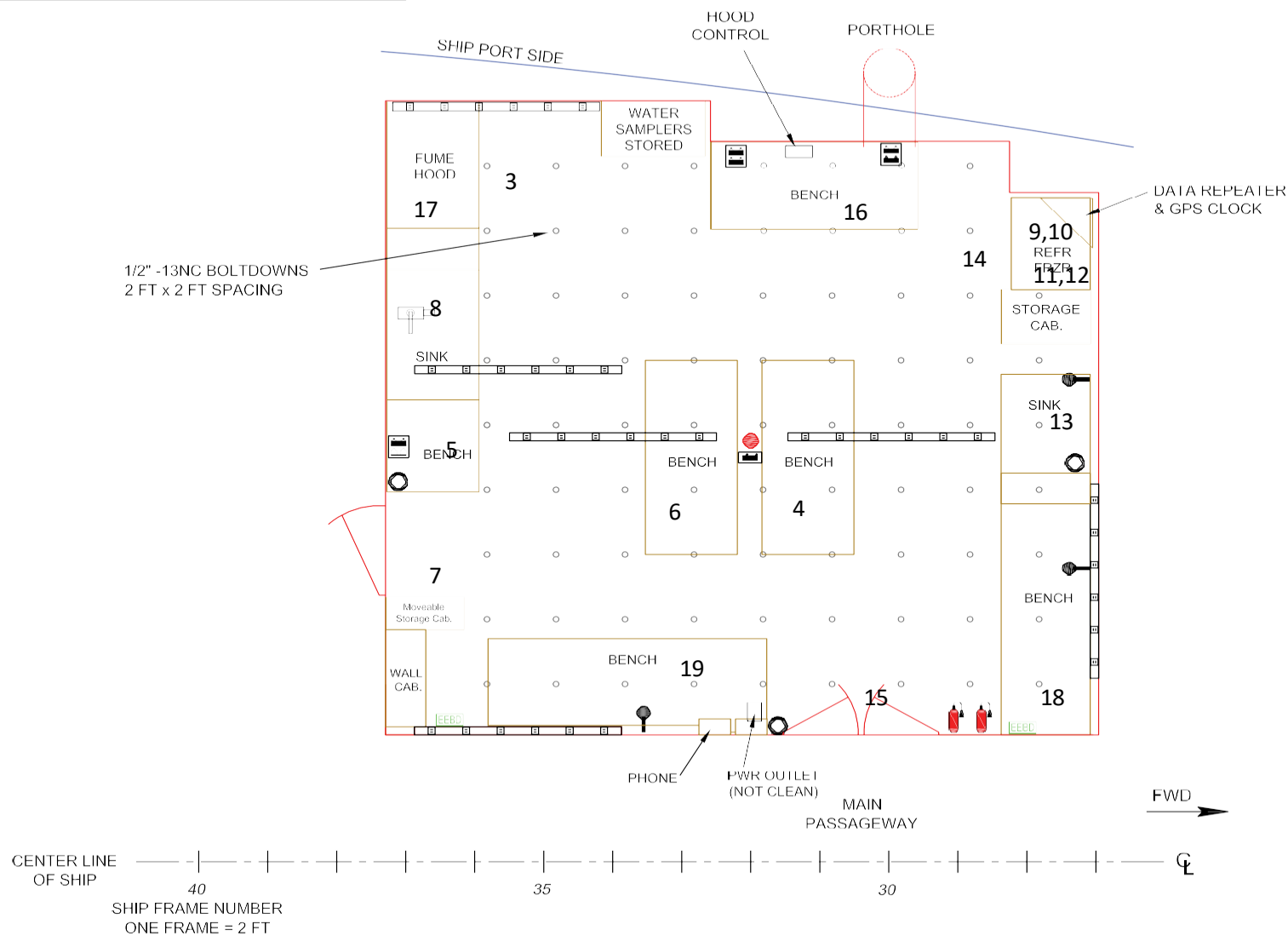


Figure 1
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UNISTRUT:
 BULKHEADS
 2 FT SPACING
 OVERHEAD FORE/AFT,
 FULL LENGTH OF LAB
 ALL POWER CLEAN UNLESS NOTED



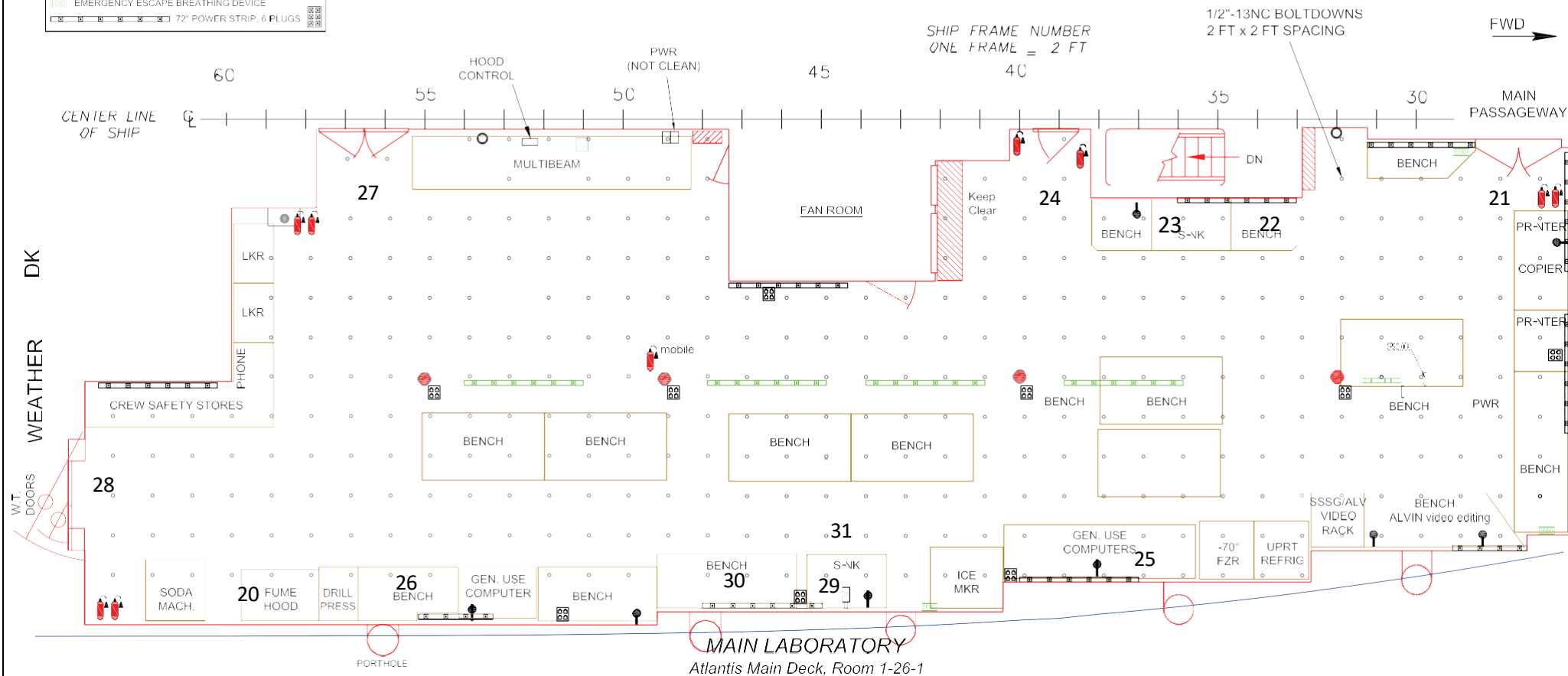
BIOLOGICAL/ANALYTICAL CLEAN LABORATORY
Atlantis Main Deck, Room 1-27-2

KEY



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

Figure 2
SWAB 1146
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MAIN LABORATORY
Atlantis Main Deck, Room 1-26-1

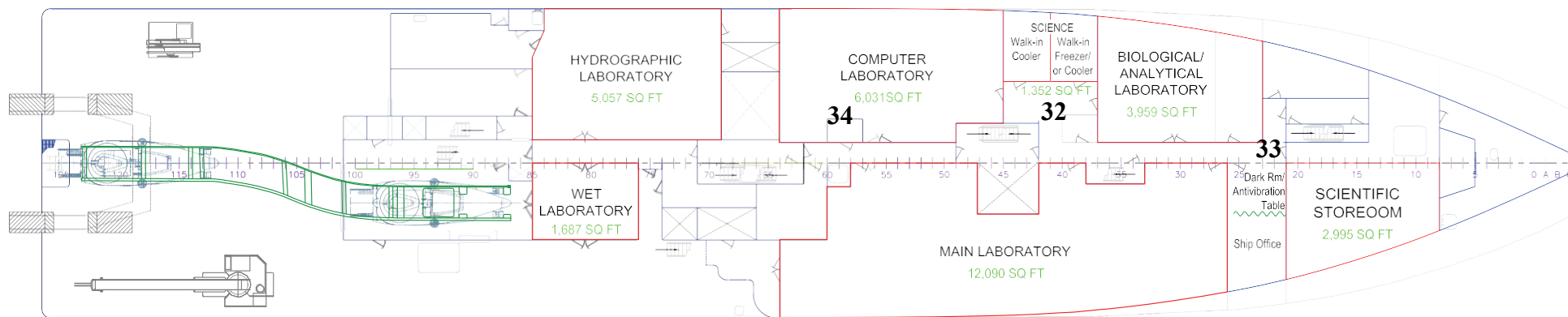
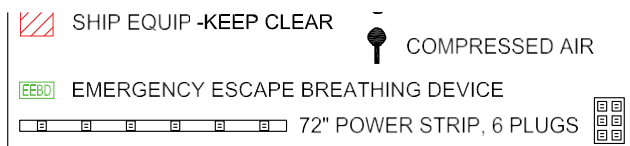


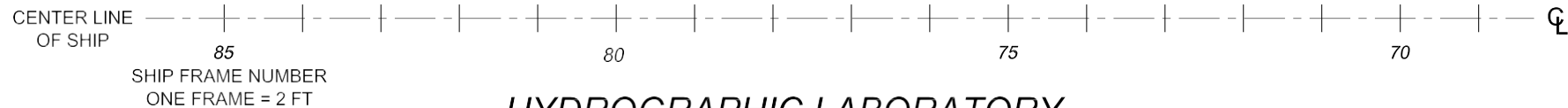
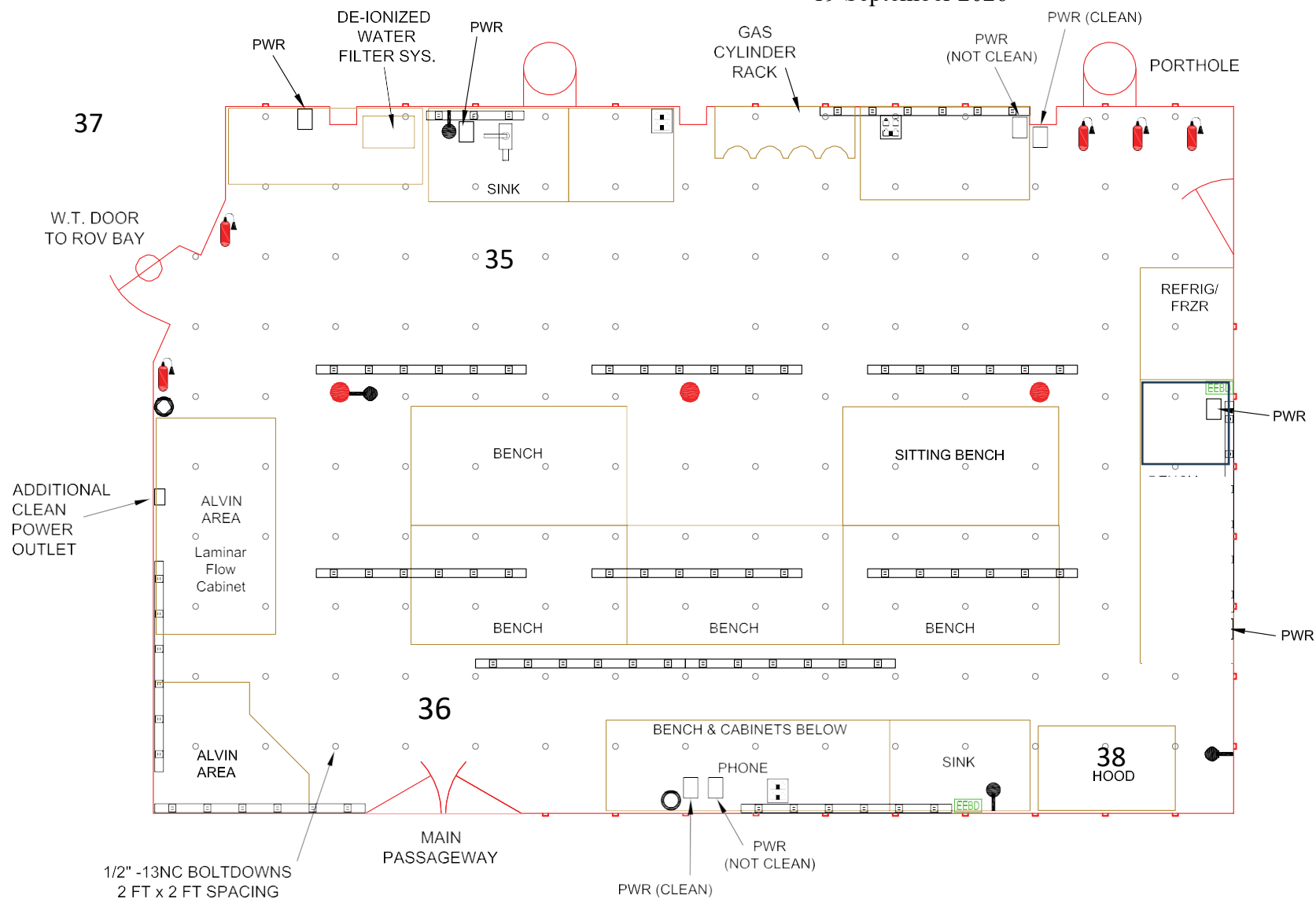
Figure 3
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Atlantis Laboratories and Scientific Storeroom General Locations



FULL LENGTH OF LAB
ALL POWER CLEAN UNLESS NOTED

Figure 4
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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

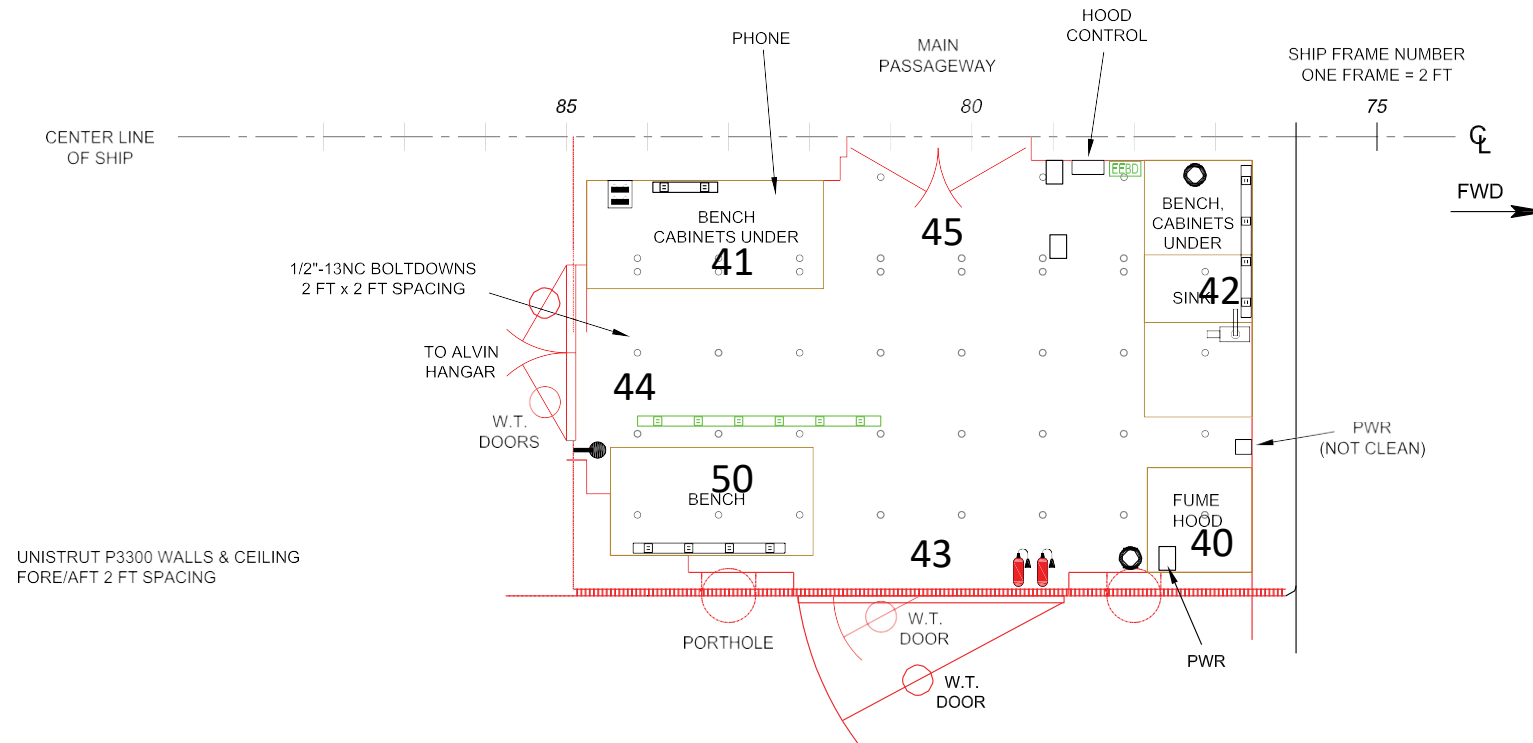
FIRE EXTINGUISHER
SCIENCE SEA WATER
CABLE PASS THRU
COMPRESSED AIR



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

ALL POWER CLEAN UNLESS NOTED

Figure 5
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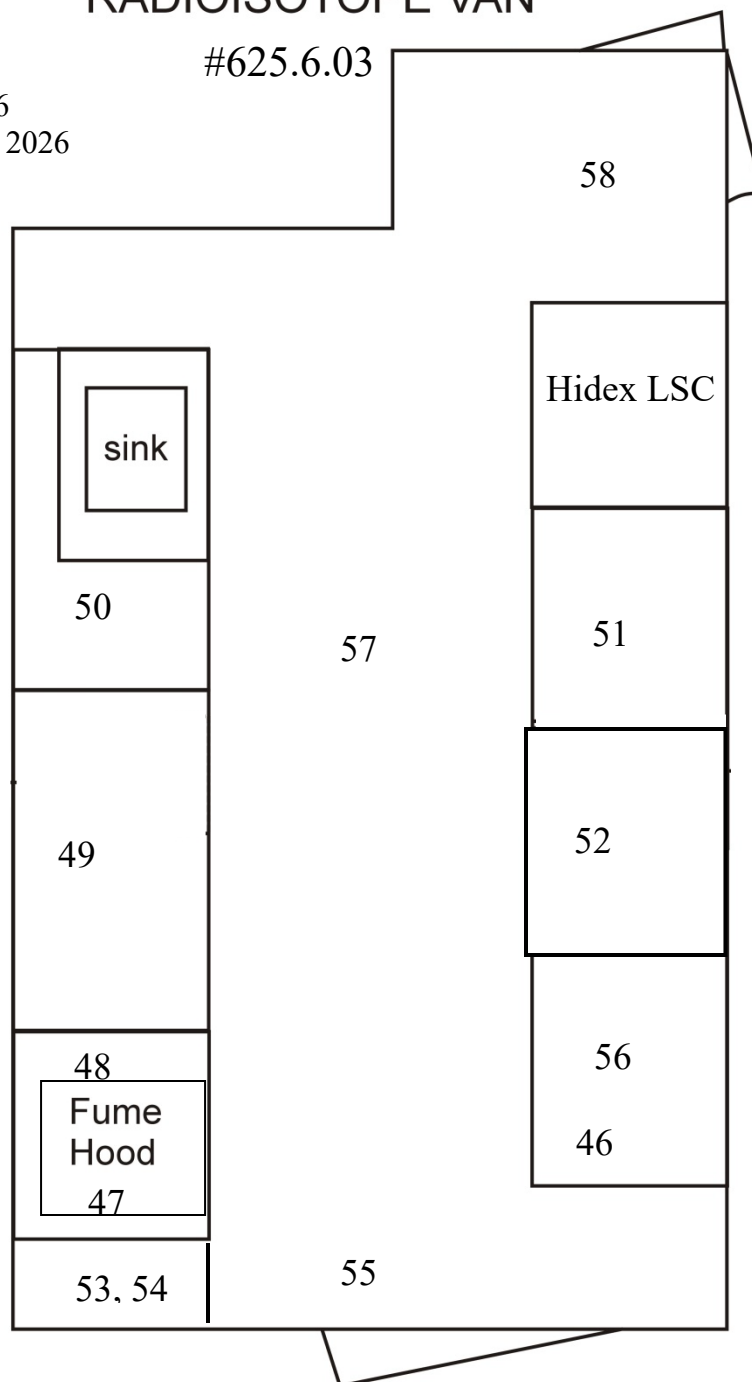


WET LABORATORY
Atlantis Main Deck, Rm 1-76-1

WHOI RADIOISOTOPE VAN

Figure 6
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#625.6.03



UNOLS Rad Van #625.5.02

Figure 7
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