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Tritium Laboratory
4 January 2016

SWAB REPORT #800

SWAB DATE: 20 December 2015

R/V Atlantis

James Happell

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Date: 2016.01.04 17:04:26 -05'00'

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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 # 800

LOCATION: Charleston, SC
VESSEL/LAB: *R/V Atlantis*

DATE: 20 December 2015
TECHNICIAN: Jim Happell

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>Hydrographic Lab (Figure 1)</u>						
3	Inside Cospolich freezer	103	±	60	-25	±	47
4	Inside Cospolich refrigerator	412	±	54	*69	±	31
5	Deck in front of Cospolish	47	±	49	5	±	26
6	Deck inside aft door	79	±	63	-29	±	55
7	Port sink area	35	±	48	2	±	18
8	Starboard sink area	48	±	61	-17	±	31
9	Deck inside starboard doors	61	±	52	-2	±	39
10	Inside fume hood	34	±	58	-11	±	20
11	Starboard bench top	6	±	30	8	±	38
12	Forward bench top	30	±	48	3	±	24
13	Port bench top	76	±	47	17	±	32
14	Center bench top	10	±	52	-35	±	67
	<u>Wet Lab (Figure 2)</u>						
15	Inside fume hood	102	±	53	2	±	10
16	Forward sink area	279	±	56	*137	±	40
17	Deck at port door	100	±	60	-23	±	43
18	Starboard benchtop	186	±	49	*106	±	39
	<u>Main Lab (Figure 3)</u>						
19	Top of Revco freezer 1	35	±	71	-23	±	43
20	Top of Revco freezer 2	38	±	79	-30	±	56
21	Inside starboard freezer top	51	±	80	-43	±	81
22	Deck in front of video rack	52	±	59	-16	±	31
23	Deck inside forward port entrance	38	±	63	-18	±	34
24	Port sink area	52	±	78	-42	±	78
25	Starboard sink area	52	±	56	-10	±	20
26	Center bench top	74	±	74	-49	±	92
27	Inside fume hood	40	±	80	-34	±	63
28	Starboard bench top	39	±	133	-54	±	102
29	Deck inside mid port door	50	±	78	-39	±	73
	<u>Bioanalytical/Clean Lab (Figure 4)</u>						

30	Forward deck	38	±	51	-1	±	22
31	Aft center bench top	62	±	100	-67	±	125
32	Inside Cospolich refrigerator top	19	±	93	-20	±	37
33	Inside Cospolich refrigerator bottom	21	±	113	-25	±	47
34	Deck in front of Cospolich	14	±	68	-33	±	63
35	Inside fume hood	30	±	200	-48	±	91
36	Deck in front of fume hood	31	±	178	-47	±	88
37	Aft sink area	88	±	71	-51	±	96
38	Forward sink area	48	±	89	-47	±	88
39	Deck inside starboard door	29	±	72	-19	±	36
	Walk-in Coolers (no figure)						
40	Benchtop in aft walk-in cooler	53	±	106	-64	±	120
41	Deck in aft walk-in cooler	63	±	82	-53	±	100
42	Bench top in farward walk-in cooler	37	±	95	-41	±	76
43	Deck in forward walk-in cooler	65	±	79	-52	±	98
44	Final bucket blank	36	±	89	-38	±	71

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. Minor ^{14}C contamination was found in one spot of the Hydro Lab and in two spots in the Wet Lab. These areas should be cleaned before any background ^{14}C work is conducted.

SHIP EQUIP -KEEP CLEAR

COMPRESSED AIR

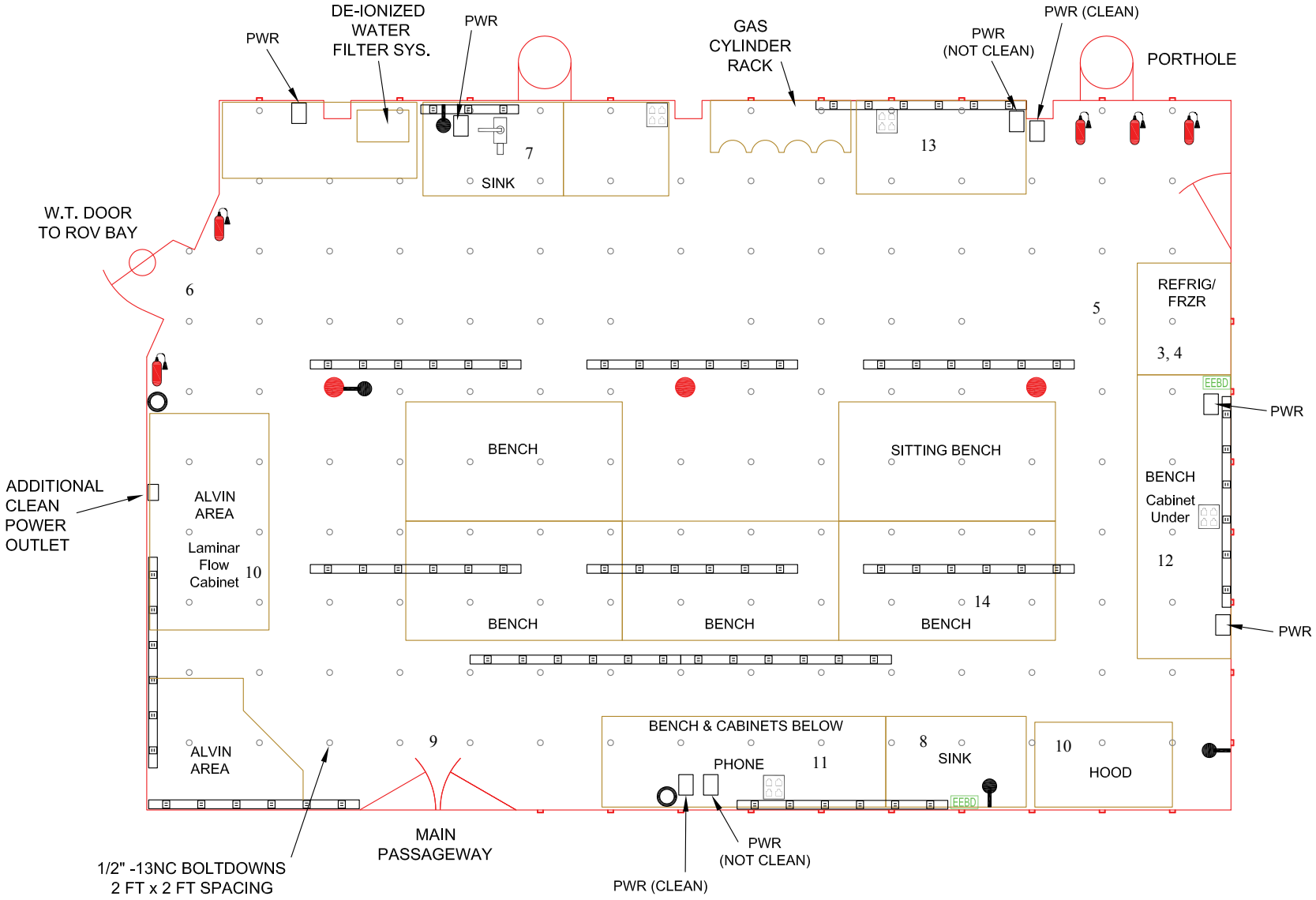
EEBD EMERGENCY ESCAPE BREATHING DEVICE

72" POWER STRIP, 6 PLUGS

FULL LENGTH OF LAB

ALL POWER CLEAN UNLESS NOTED

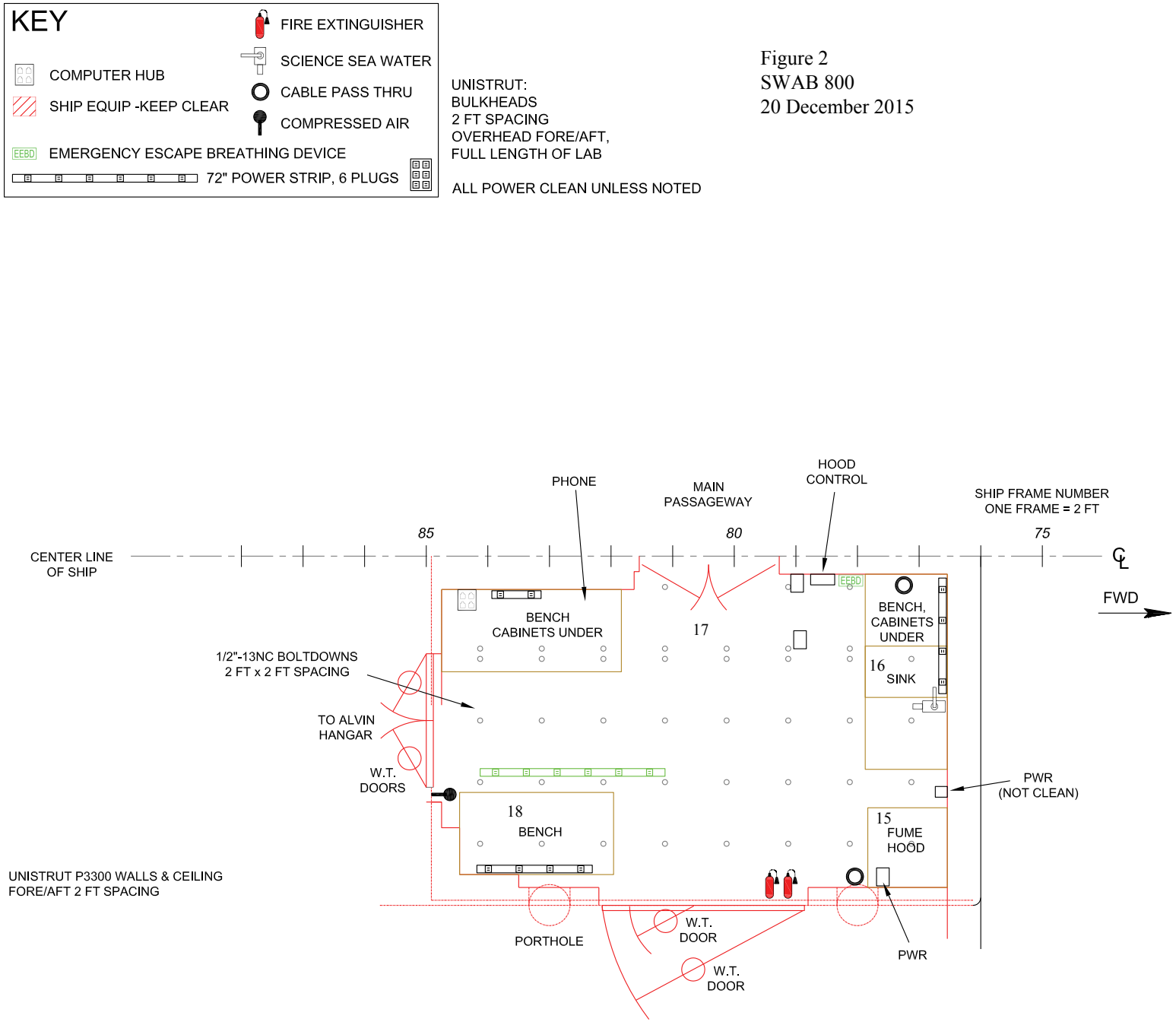
Figure 1
SWAB 800
20 December 2015



HYDROGRAPHIC LABORATORY

Atlantis Main Deck, Room 1-64-2

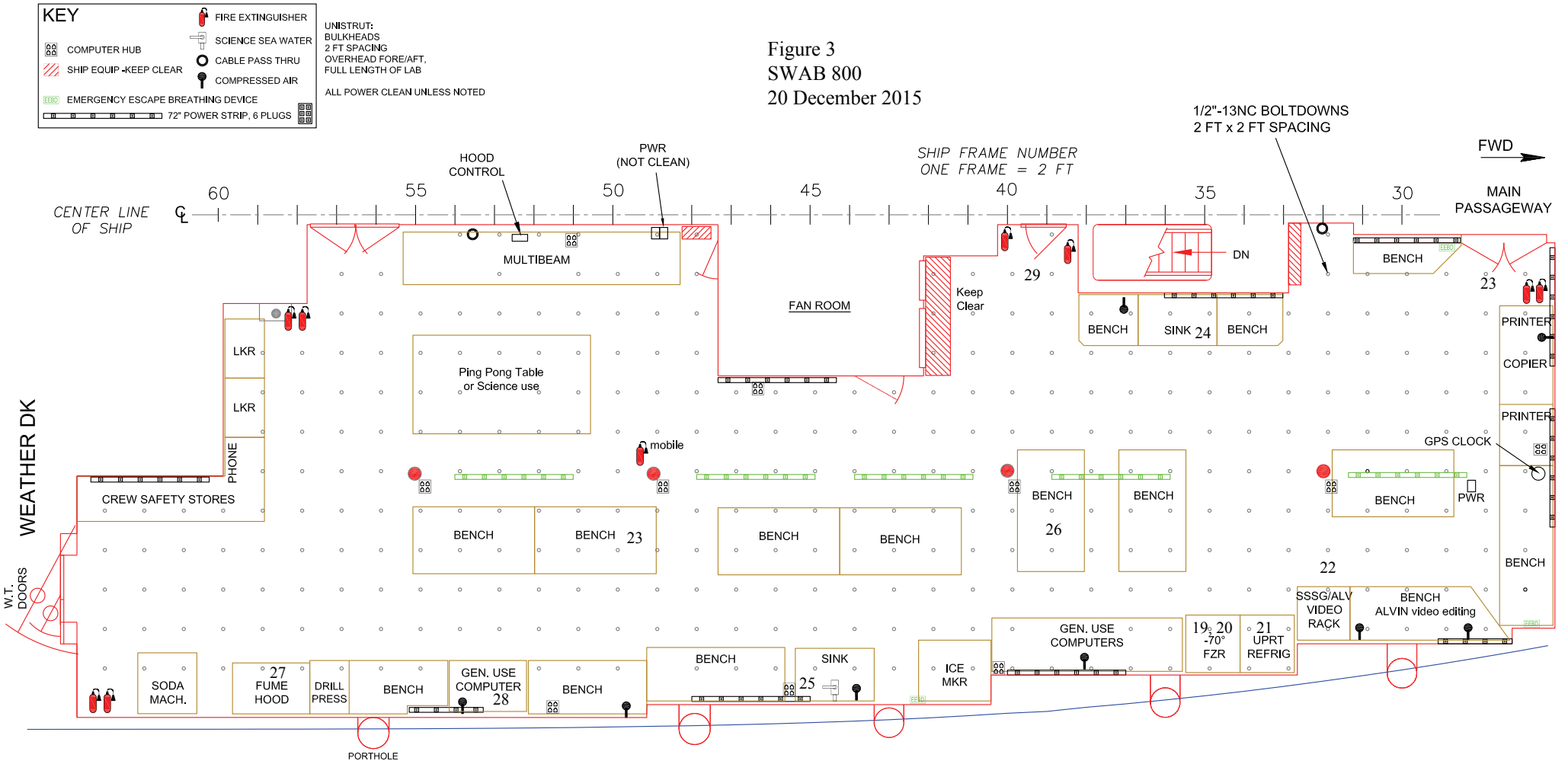
12/30/2013



WET LABORATORY

Atlantis Main Deck, Rm 1-76-1

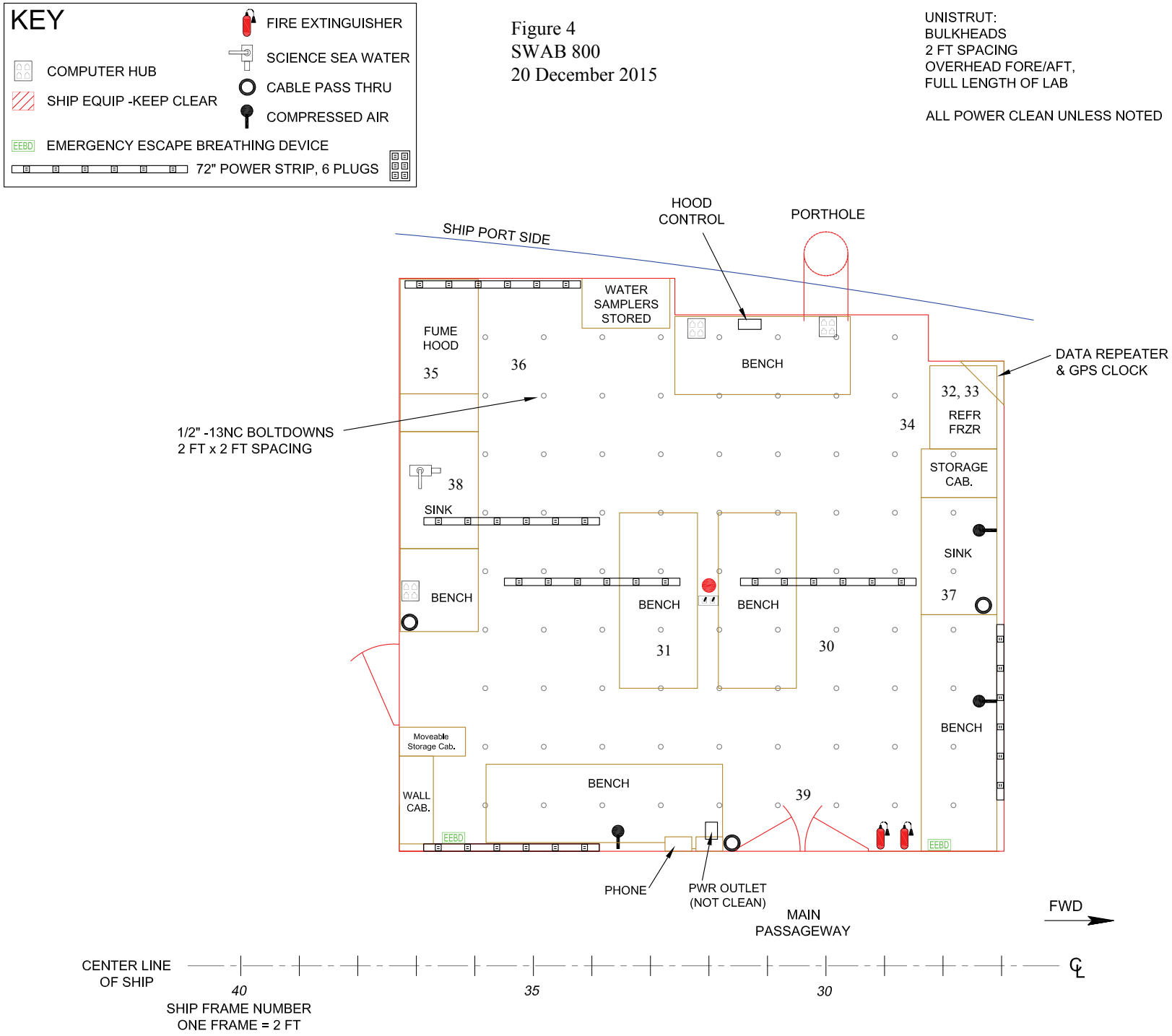
12/30/2013



MAIN LABORATORY

Atlantis Main Deck, Room 1-26-1

12/30/2013



BIOLOGICAL/ANALYTICAL CLEAN LABORATORY

Atlantis Main Deck, Room 1-27-2

12/30/2013