

UNIVERSITY OF MIAMI

ROSENSTIEL  
SCHOOL of MARINE &  
ATMOSPHERIC SCIENCE



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SWAB REPORT #758

SWAB DATE: 26 January 2015

*R/V Knorr*

James  
Happell

Digitally signed by James  
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email=jhappell@rsmas.miami.ed  
u, c=US  
Date: 2015.02.02 17:46:50 -05'00'

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James D. Happell  
Associate Research Professor

Distribution:  
SWAB Committee  
David Fisichella

## COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for  $^3\text{H}$  and  $^{14}\text{C}$  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  $\text{dpm/m}^2$ . Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in  $\text{dpm/m}^2$ . An error larger than the activity indicates that the activity is not significantly different from zero.

### Criteria for SWAB Results

Category	$^3\text{H}$ ( $\text{dpm/m}^2$ )	$^{14}\text{C}$ ( $\text{dpm m}^2$ )	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 $1000 \text{ dpm/m}^2$ 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:  $^{14}\text{C}$  and  $^{35}\text{S}$  have peak energies of 156 and 167 KeV, respectively; thus  $^{35}\text{S}$  will be registered as  $^{14}\text{C}$  by our counting techniques. Categories A, B and C are not a health hazard.

### Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

$^3\text{H}$ : 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.

$^{14}\text{C}$ : 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  $^3\text{H}$ .

### 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 # 758

LOCATION: Woods Hole, MA

DATE: 26 January 2015

VESSEL: *R/V Knorr*

TECHNICIAN: Charlene Grall

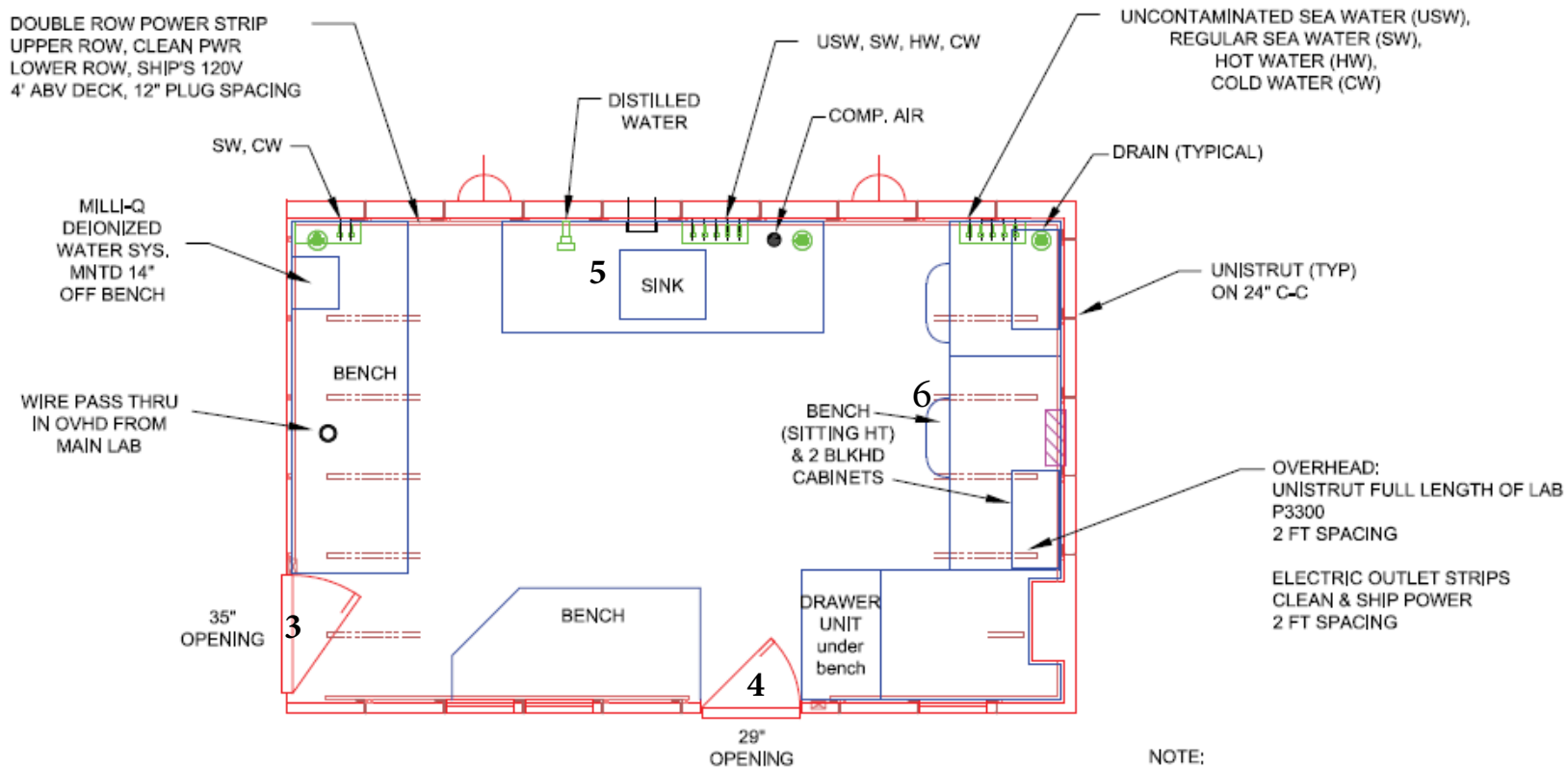
Sample #	Sample Identification	$^3\text{H}$ dpm/m <sup>2</sup>		$^{14}\text{C}$ dpm/m <sup>2</sup>	
		activity	error	activity	error
	<u>Analytical Lab (See Figure 1)</u>				
2	Initial bucket blank	15 ±	40	5 ±	29
3	Deck inside aft entrance	0 ±	0	9 ±	39
4	Deck inside stbd entrance	0 ±	0	18 ±	36
5	Port sink area	34 ±	37	25 ±	33
6	Deck below fwd benchtop	0 ±	0	15 ±	39
	<u>Main Lab (See Figure 2)</u>				
7	Deck inside aft entrance	0 ±	0	19 ±	35
8	Deck at aft stair going down	0 ±	0	7 ±	37
9	Stbd benchtop	0 ±	0	16 ±	36
10	Deck at stbd double door entrance	3 ±	25	6 ±	33
11	Deck at fwd stair going down	0 ±	0	2 ±	41
12	Benchtop fwd of aft port sink	0 ±	0	15 ±	37
13	Deck in front of aft port sink	0 ±	0	3 ±	39
14	Benchtop aft of fwd port sink	3 ±	0	0 ±	0
15	Benchtop fwd of fwd port sink	0 ±	0	0 ±	0
16	Deck in front of fwd port sink	5 ±	59	0 ±	0
17	Inside small Kenmore refrigerator	0 ±	0	0 ±	0
18	Fwd port benchtop	10 ±	31	13 ±	33
19	Deck at companionway	0 ±	0	0 ±	0
	<u>Miscellaneous areas (See Figure 3)</u>				
20	Companionway at aft entrance to Mess	0 ±	0	5 ±	35
21	Companionway next to water stbd fountain	20 ±	54	0 ±	0
22	Companionway outside stbd fwd entrance to Mess	0 ±	0	6 ±	38
23	Companionway outside fwd Crew Lounge	0 ±	0	5 ±	49
	<u>Wet Lab/Darkroom (See Figure 4)</u>				
24	Deck inside forward entrance	0 ±	0	4 ±	37
25	Sink area	8 ±	35	6 ±	32
26	Deck in front of sink	23 ±	62	0 ±	0
	<u>Upper Lab (See Figure 5)</u>				
27	Sink area	0 ±	0	29 ±	37
28	Inside fume hood	12 ±	59	0 ±	0
29	Deck between stair and companionway	0 ±	0	0 ±	0

Sample #	Sample Identification	<sup>3</sup> H dpm/m <sup>2</sup>		<sup>14</sup> C dpm/m <sup>2</sup>	
		activity	error	activity	error
30	Workbench adjacent to fume hood	0	± 0	3	± 35
31	Deck in front of workbench	0	± 0	2	± 43
	<u>Lower Lab (See Figure 6)</u>				
32	Revco stbd fwd freezer	0	± 0	0	± 0
33	Revco stbd middle freezer	6	± 49	0	± 0
34	Cospolich stbd middle freezer	0	± 0	0	± 0
35	Cospolich stbd aft freezer	0	± 0	0	± 0
36	Deck in middle of lab	1	± 3	21	± 35
37	Final bucket blank	0	± 0	22	± 38

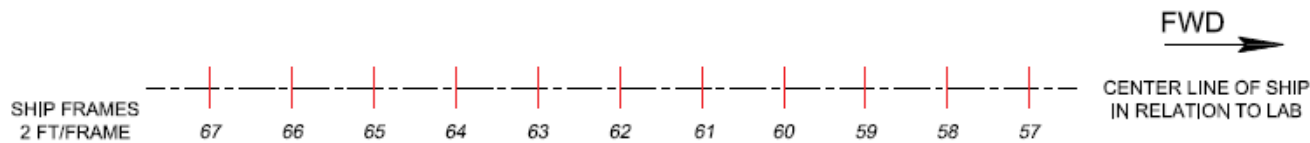
**Comments**

Please note that the error reported for each isotope is the two-standard deviation counting error.  
All areas tested were free from <sup>3</sup>H or <sup>14</sup>C contamination that requires cleaning

Figure 1  
 SWAB # 758  
 26 January 2015



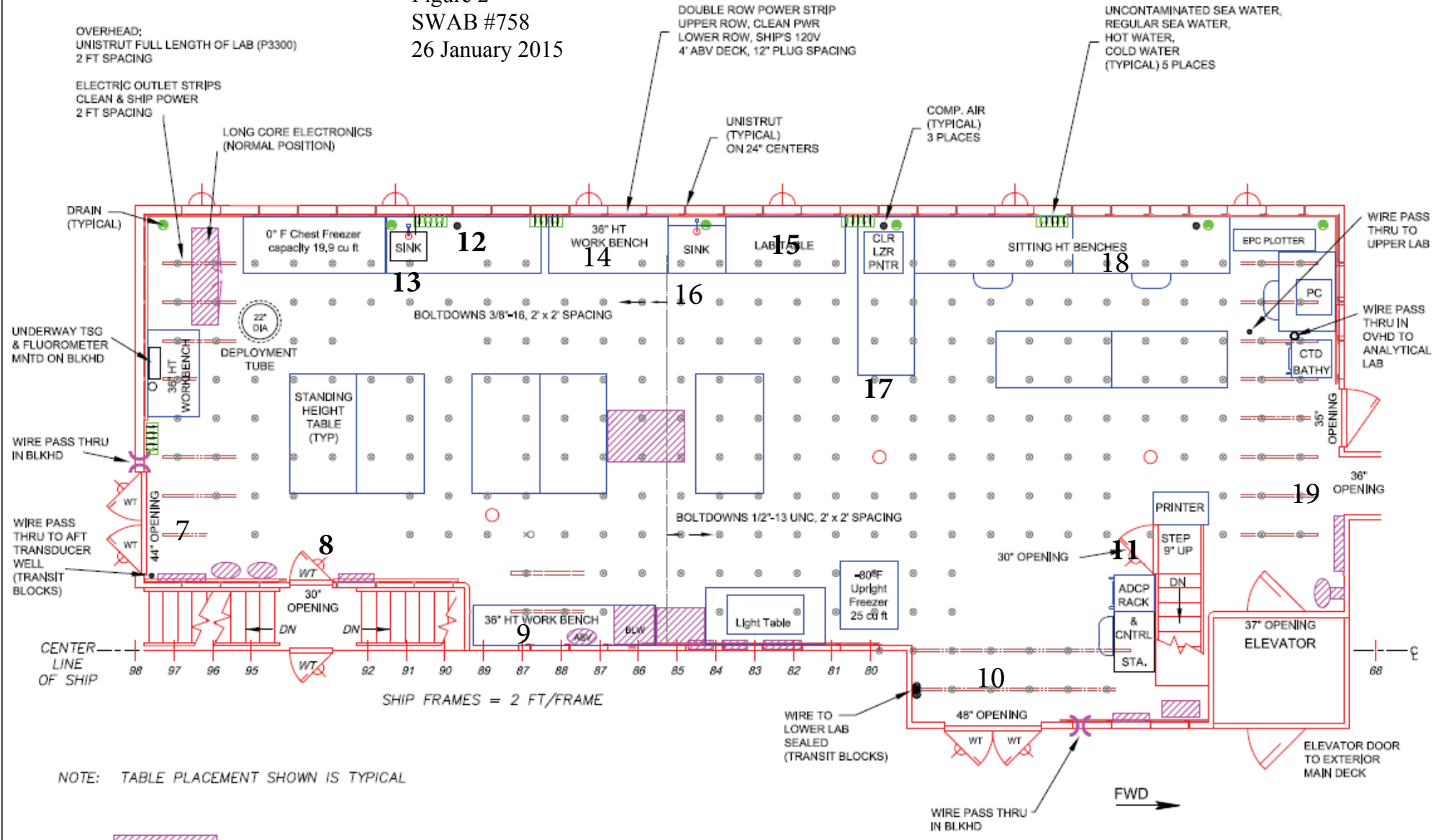
NOTE:  
 ICE MACHINE LOCATED IN LOUNGE FWD OF GALLEY →



  
 SHIP MECHANICAL &  
 ELECTRICAL INSTALLATIONS,  
 MUST KEEP CLEAR

**ANALYTICAL LAB**  
*R/V Knorr, Main Deck, Port, Fwd of Main Lab*

Figure 2  
SWAB #758  
26 January 2015



NOTE: TABLE PLACEMENT SHOWN IS TYPICAL

SHIP MECHANICAL & ELECTRICAL INSTALLATIONS, MUST KEEP CLEAR

**MAIN LAB**  
R/V Knorr, Main Deck, Port







Figure 5  
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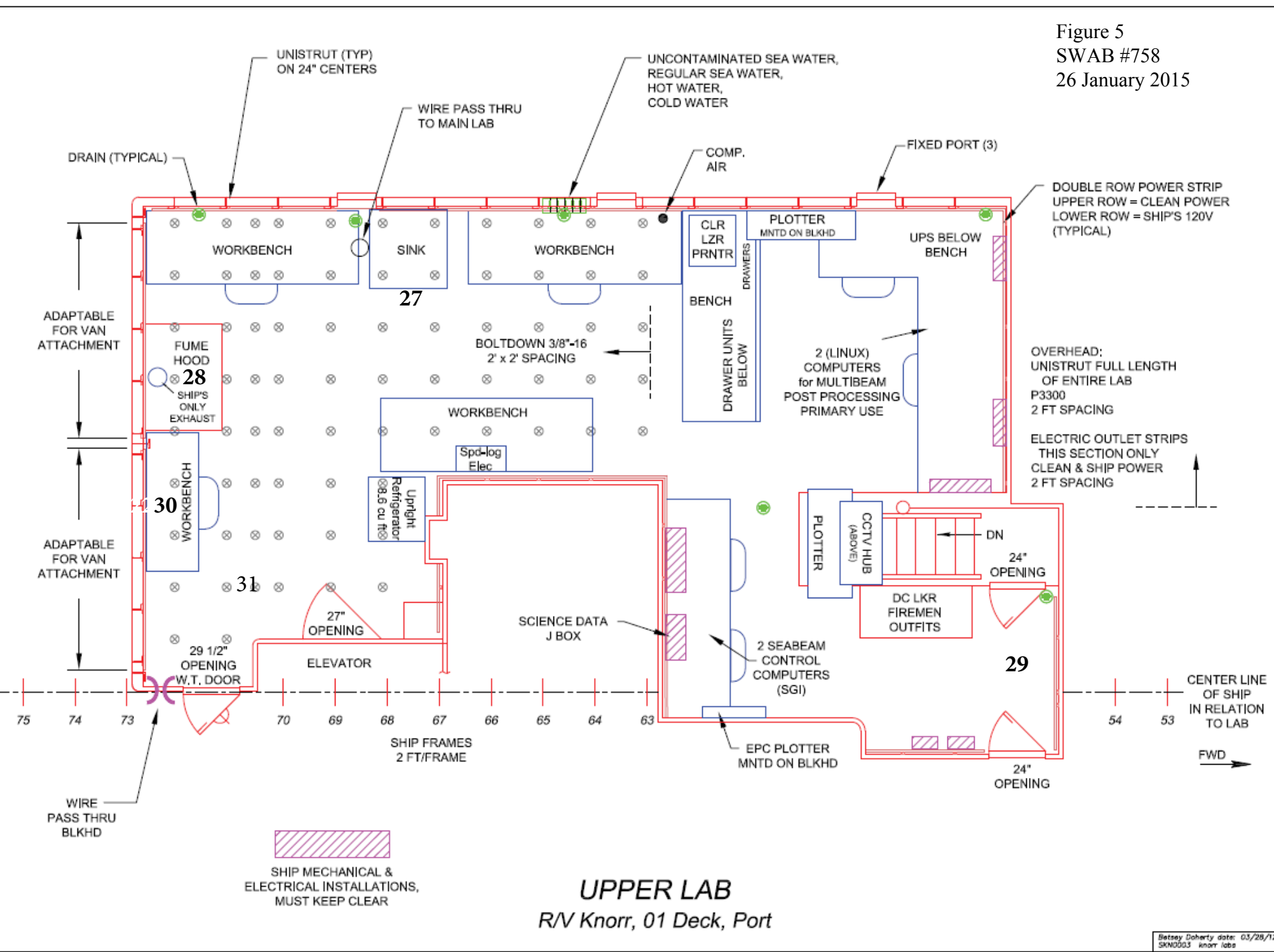
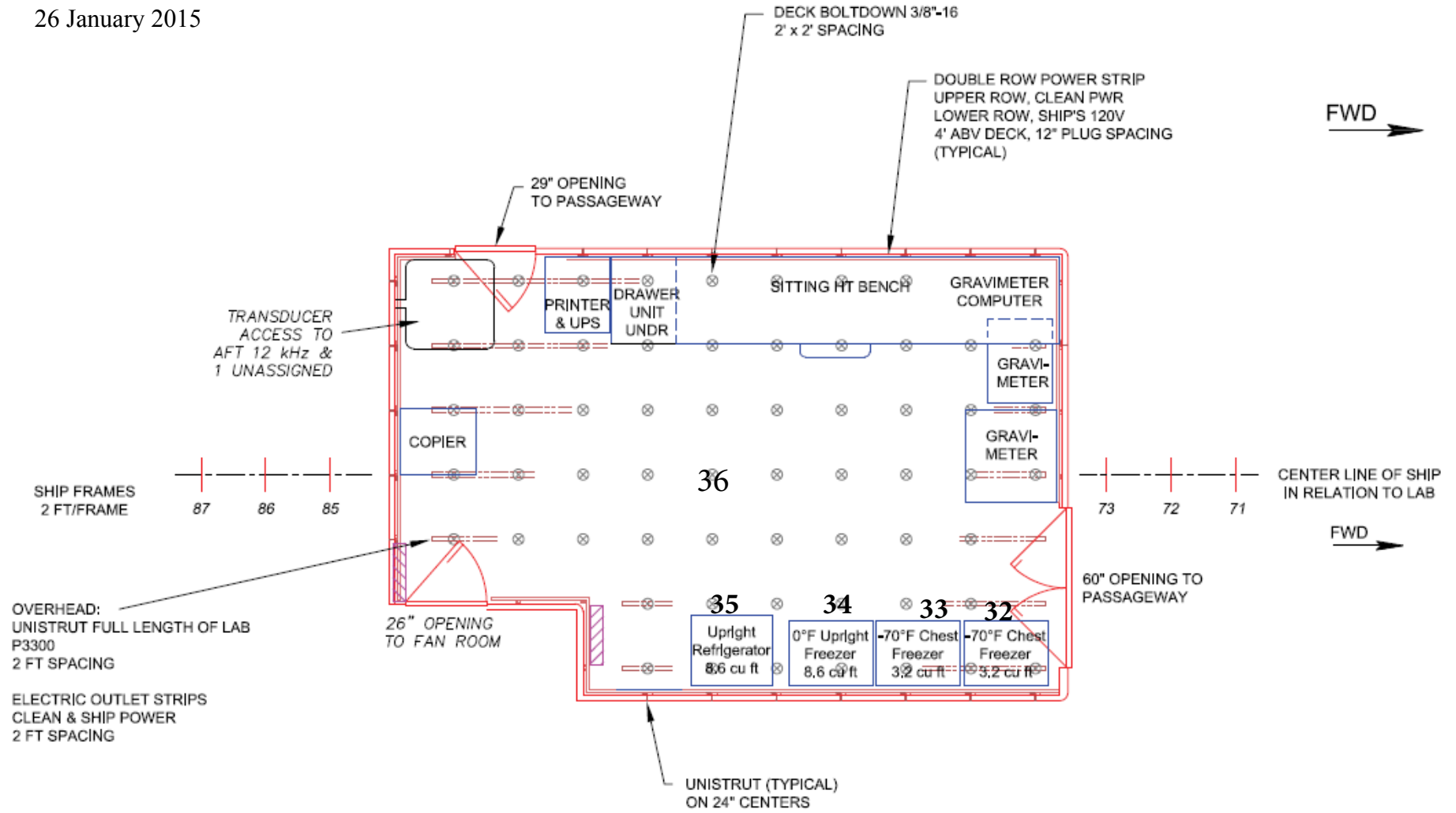


Figure 6  
 SWAB #758  
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**LOWER LAB,  
 (DRY LAB)  
 R/V Knorr, 1st Platform**