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27 August 2013

SWAB REPORT # 695

SWAB DATE: 21 August 2013

R/V Knorr

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
David Fisichella

COMMENTS TO SWAB REPORTS 23 November 2010

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/m2 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 dispose in radiation waste system.

Note: If category C or D is encountered, we try to notify the insitution promptly by phone or email.

REPORT FOR SWAB # 695

LOCATION: Woods Hole, MA
VESSEL/LAB: *R/V Knorr*

DATE: 21 August 2013
TECHNICIAN: Cecilia Roig

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank	21	±	29	32	±	34
	Main Lab (Figure 1)						
3	Inside So-Low freezer	0	±	0	24	±	38
4	Aft benchtop	26	±	39	14	±	32
5	Inside Kenmore small refrigerator	0	±	0	21	±	38
6	Deck at top of stairwell	26	±	30	37	±	35
7	Benchtop aft of sink	0	±	0	44	±	38
8	Stbd. benchtop	21	±	50	2	±	21
9	Benchtop fwd. of sink	0	±	0	0	±	0
10	Sink area	0	±	0	11	±	46
11	Middle benchtop	0	±	0	9	±	45
12	Deck at top of stairwell	0	±	0	38	±	37
	Lower Lab (Figure 2)						
13	Revco stbd. fwd. freezer	0	±	0	30	±	36
14	Revco stbd. middle freezer	0	±	0	22	±	36
15	Cospolich stbd. middle freezer	0	±	0	37	±	37
16	Cospolich stbd. aft freezer	21	±	46	3	±	25
	Analytical Lab (Figure 3)						
17	Sink area	0	±	0	26	±	35
18	Deck inside door to Main Lab	10	±	56	0	±	0
19	Deck inside door to passageway	0	±	0	11	±	36
	Main Deck (Figure 4)						
20	Deck in passage by aft Mess door	0	±	0	7	±	43
21	Deck in passage next to fountain	0	±	0	13	±	39
	Wet Lab (Figure 5)						
22	Sink area	0	±	0	14	±	39
23	Deck inside port entrance	53	±	57	0	±	0
	Upper Lab (Figure 6)						
24	Inside hood	9	±	10	*88	±	38
25	Inside Cospolich	4	±	49	0	±	0

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
26	Deck in front of Cospolich	51	±	32	*74	±	36
27	Deck in front of sink	25	±	30	38	±	35
28	Benchtop aft of sink	0	±	0	12	±	43
29	Deck between stairway & passage	4	±	9	33	±	36
30	Final bucket blank	0	±	0	0	±	0

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.

Most areas tested on the ship were free from radioisotope contamination. Minor ^{14}C contamination was detected in two samples taken in the Wet Lab. These areas require immediate cleaning.

Figure 1
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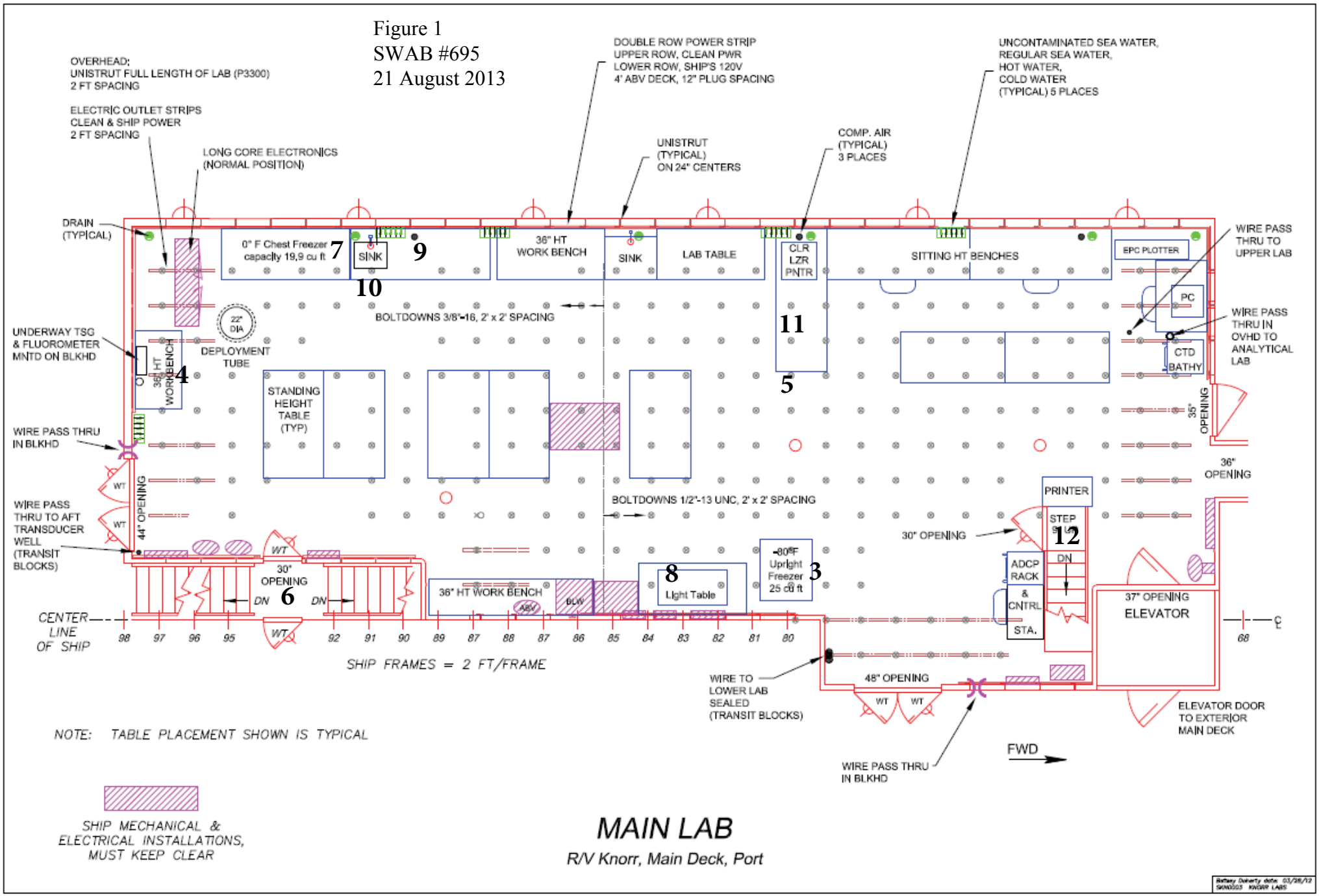
21 August 2013



MAIN LAB

R/V Knorr, Main Deck, Port

Figure 2
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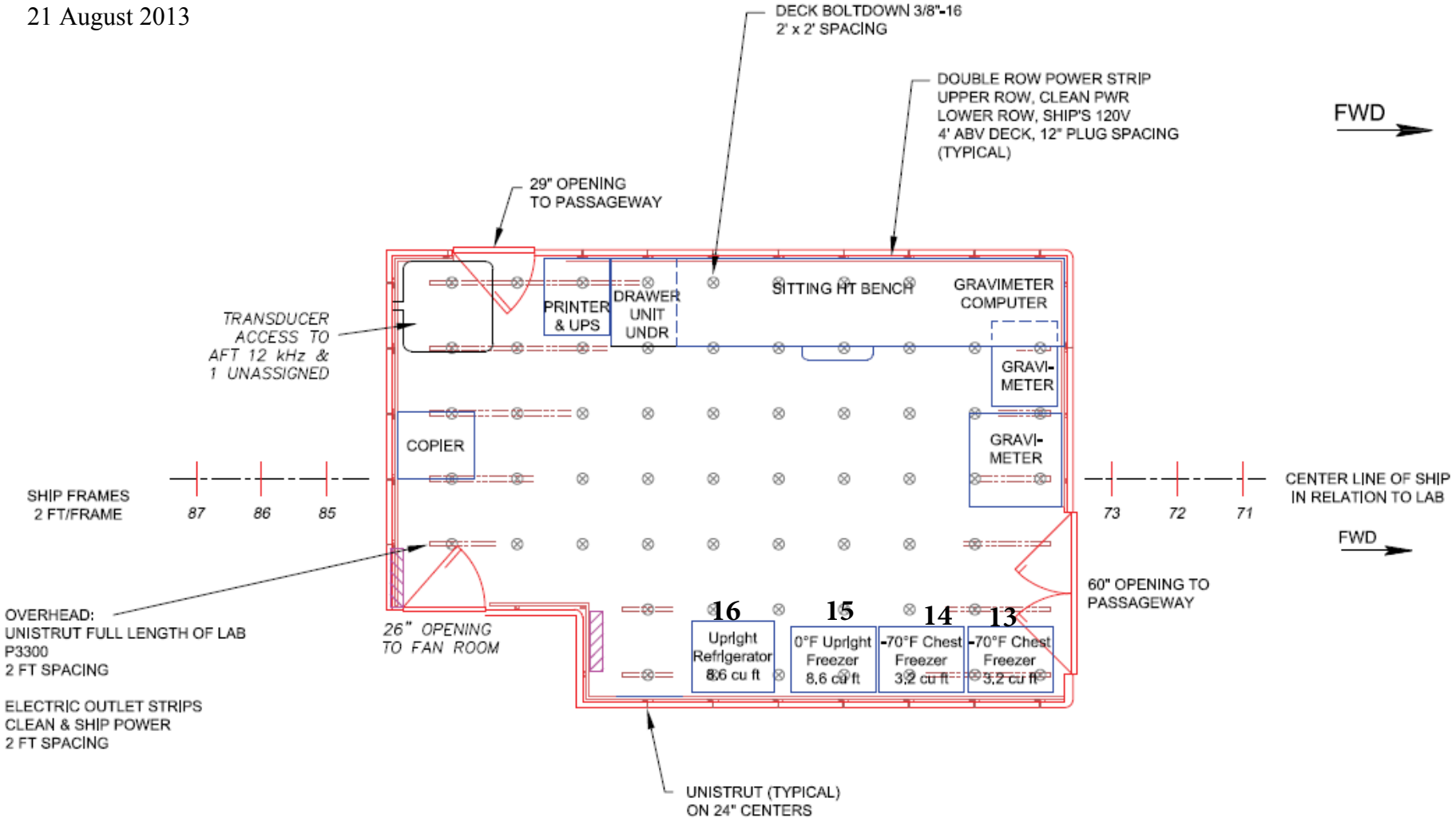

LOWER LAB,
(DRY LAB)
R/V Knorr, 1st Platform

SHIP MECHANICAL &
ELECTRICAL INSTALLATIONS,
MUST KEEP CLEAR

Betsey Doherty date: 03/28/12
SKN0003 knorr labs

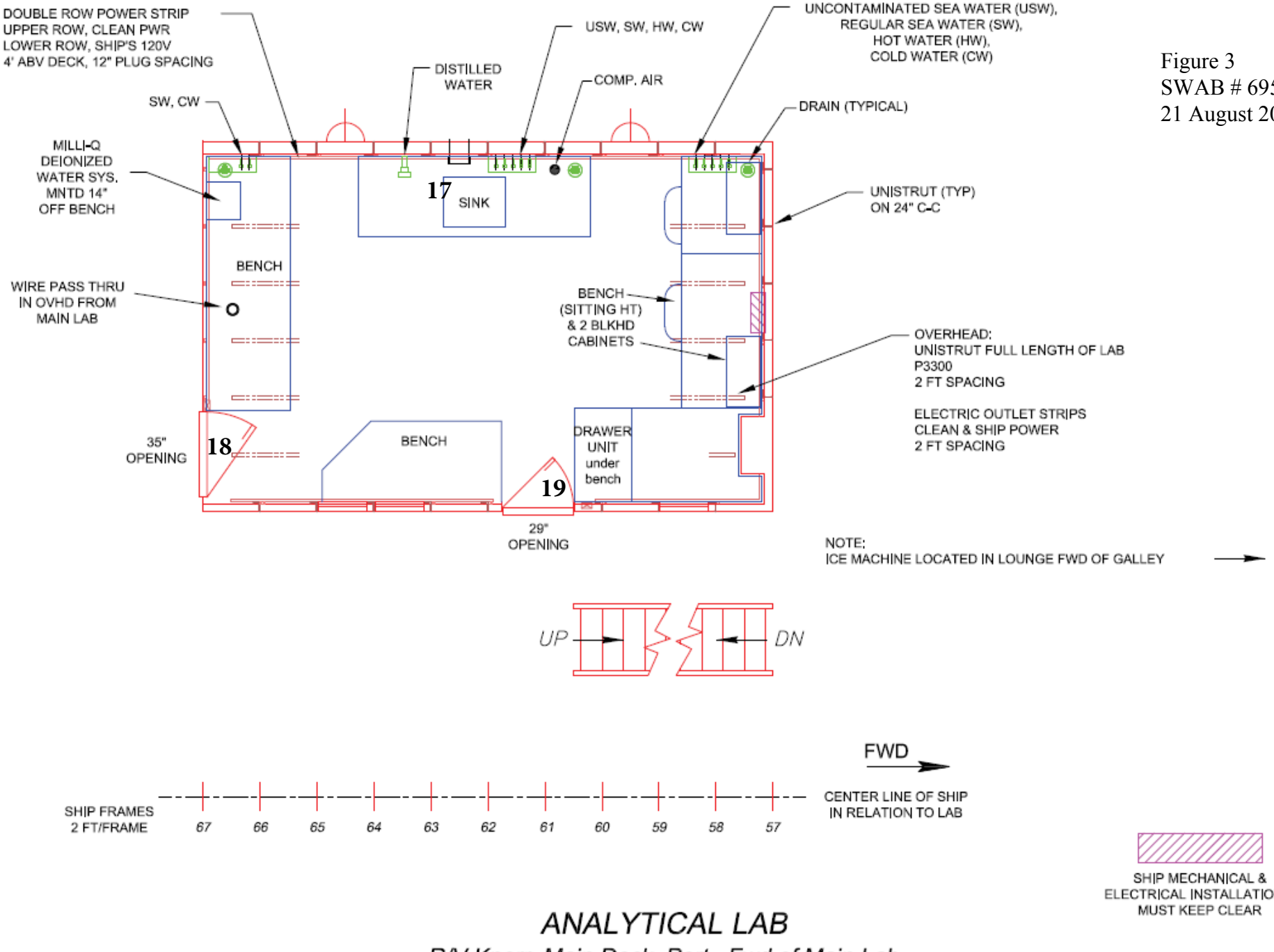

Figure 3
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ANALYTICAL LAB

R/V Knorr, Main Deck, Port, Fwd of Main Lab

Betsey Doherty date: 03/28/12
SKN0003 knorr labs

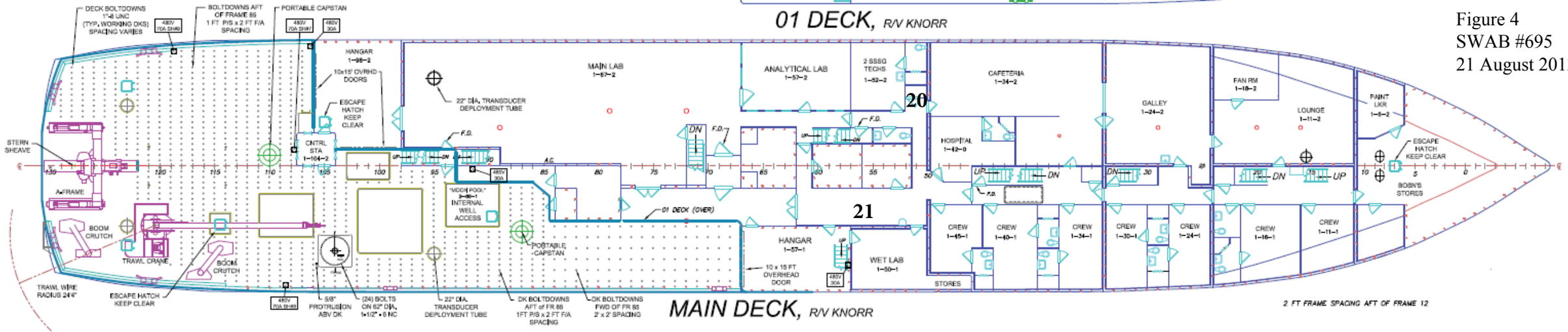

Figure 4
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Figure 5
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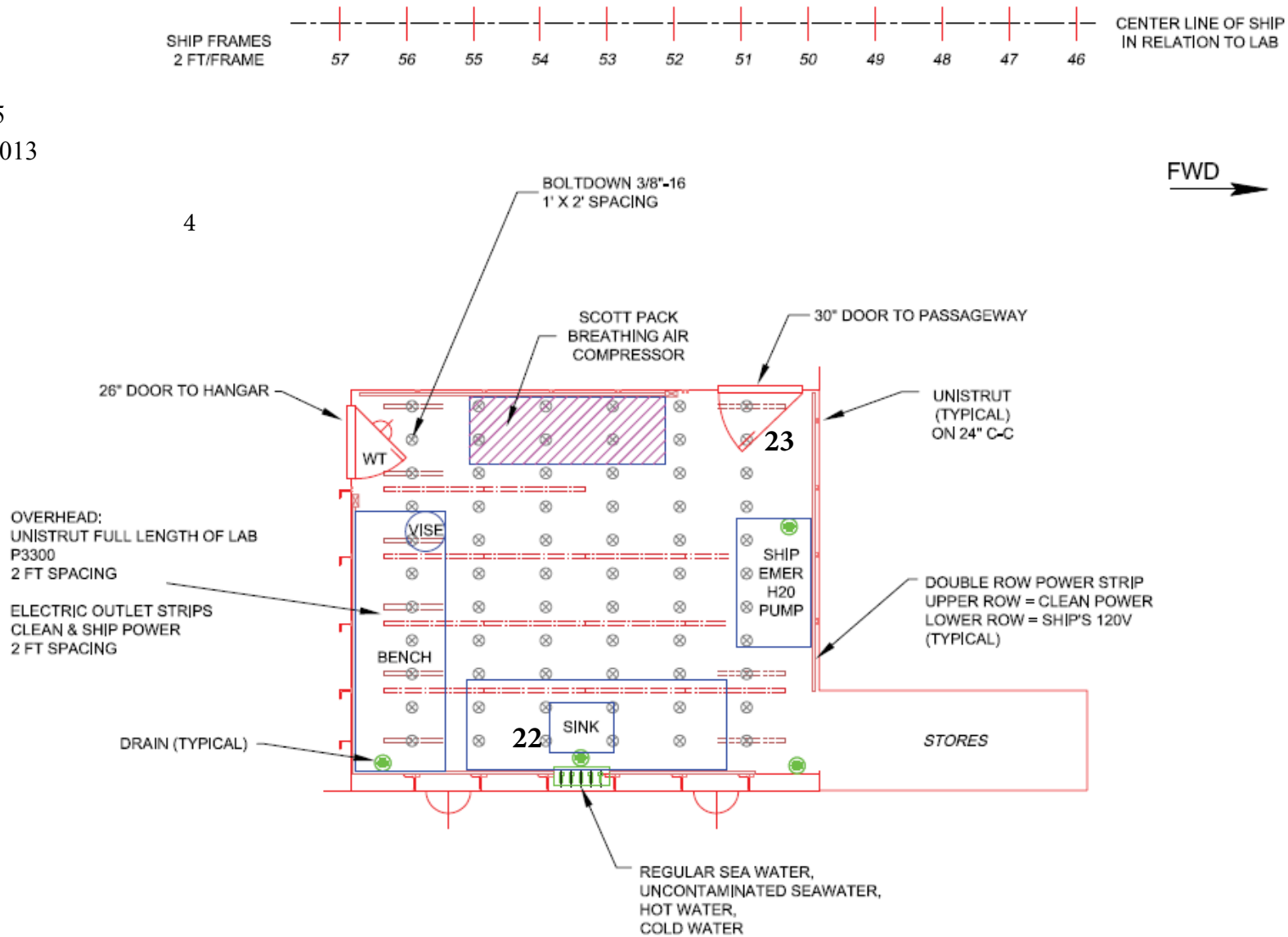

Figure 6
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