UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE

Tritium Laboratory
4600 Rickenbacker Causeway
Miami, Florida 33149-1031

Ph: 305-421-4100
Fax:305-421-4112
E-mail: Tritium@rsmas.miami.edu

Tritium Laboratory
6 May 2018

SWAB REPORT # 901

SWAB DATE: 22 April 2018

R/V Neil Armstrong

James Happell
Digitally signed by James Happell
Date: 2018.05.29 12:05:16 -04'00'

Dr. 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}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 # 901

LOCATION: Woods Hole, MA
VESSEL: *R/V Neil Armstrong*

DATE: 1 May 2018
TECHNICIAN: Charlene Grall

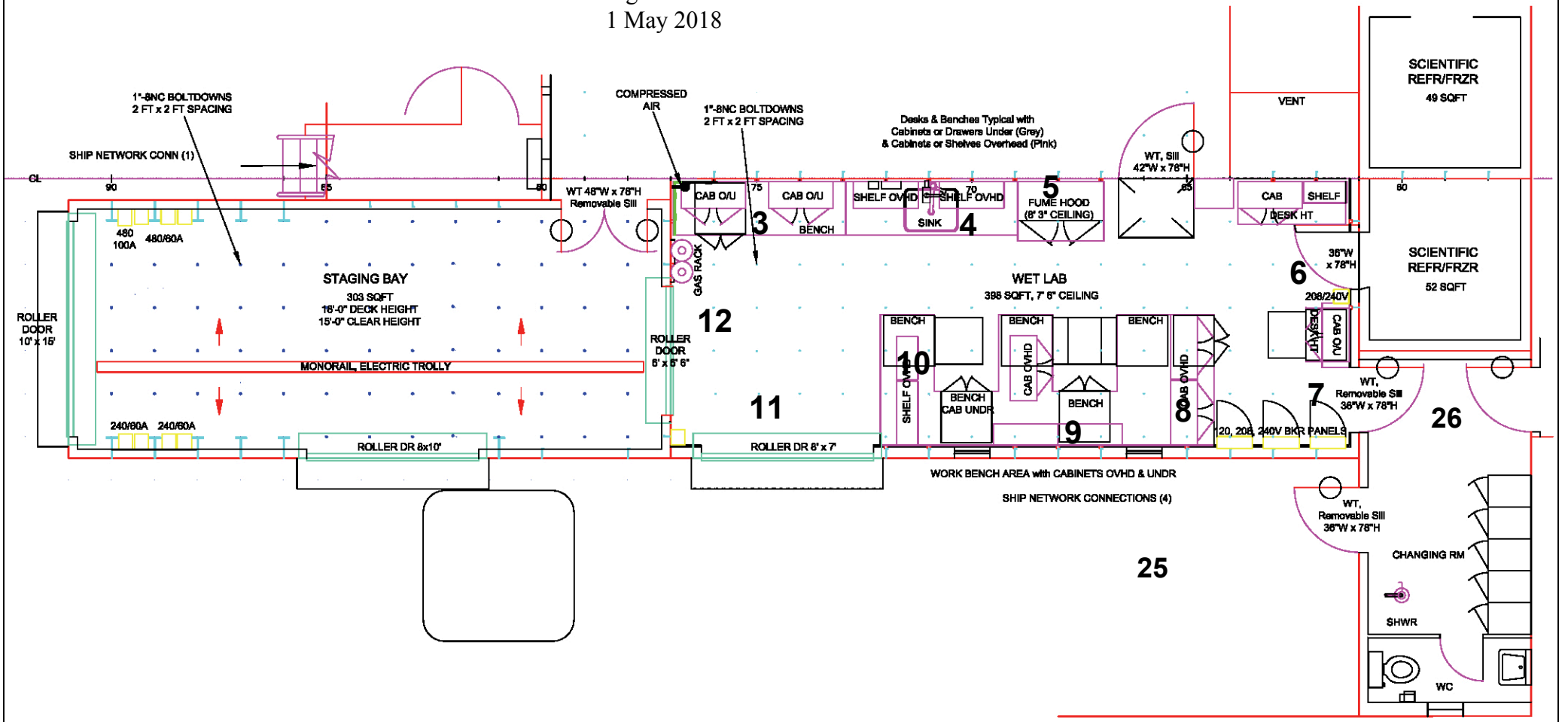
Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank	-25	±	39	-2	±	18
	Wet Lab (Figure 1)						
3	Port aft benchtop	5	±	109	-6	±	38
4	Port sink area	-22	±	29	13	±	41
5	Port fume hood	-20	±	37	-3	±	33
6	Deck in front of Scientific Freezer	-30	±	42	1	±	32
7	Deck inside forward entrance	-13	±	47	-8	±	31
8	Forward starboard benchtop	8	±	54	-22	±	58
9	Starboard benchtop below port hole	-26	±	50	-12	±	23
10	Aft end of starboard benchtop	-16	±	53	-11	±	28
11	Aft starboardbenchtop	-28	±	28	-8	±	64
12	Deck inside aft roller door entrance	-64	±	29	1	±	34
	Main Lab (Figure 2)						
13	Inside forward port freezer	-33	±	28	-3	±	37
14	Inside starboard fume hood	-18	±	44	-9	±	35
15	Aft starboard sink area	-52	±	61	-8	±	57
16	Inside port fume hood	7	±	52	-19	±	30
17	Aft section of port benchtop	-73	±	53	-1	±	67
18	Forward section of port benchtop	-44	±	26	-8	±	34
19	Midsection of forwd center benchtop	3	±	71	-2	±	31
20	Top of -80 freezer	-12	±	36	12	±	40
21	Deck in front of Scientific Freezer	-16	±	59	-9	±	46
22	Deck inside forward entrance	6	±	56	-35	±	24
23	Deck inside between aft entrances	-6	±	28	-26	±	48
24	Deck in front of starboard sink	-44	±	101	-26	±	89
	Miscellaneous areas (Figure 3)						
25	Deck at end of CTD track in CTD Staging Bay	-60	±	114	20	±	45
26	Deck of Mud Room near companionway entrance	-52	±	84	0	±	0

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		^{3}H dpm/m^{2} error	^{14}C dpm/m^{2} activity		^{14}C dpm/m^{2} error
27	Companionway at stairs to Focsle Deck near ET Shop	-28	±	32	-4	±	66
28	Companionway at Head and Laundry	-52	±	97	14	±	47
29	01 Deck at entrance to Rad Van	7	±	61	3	±	33
30	01 Deck where incubator stood	-40	±	40	11	±	46
31	Intermediate bucket blank	-3	±	44	-8	±	39
	Radioisotiope Van 625.1.01-2 (Figure 4)						
32	Rad Van Sink area	-18	±	149	50	±	40
33	Benchtop adjacent to LSC	247	±	59	85*	±	35
34	Inside Fume hood	5	±	5	104*	±	41
35	Benchtop across from fume hood	-2	±	7	34	±	38
36	Benchtop across from LSC	20	±	19	77*	±	39
37	Inside incubator below LSC	-26	±	3	2006*	±	84
38	Inside refrigerator below benchtop across from LSC	2	±	6	41	±	38
39	Deck in front of fume hood	27	±	41	18	±	35
40	Deck between sink and entrance	15	±	23	44	±	38
45	Final bucket blank	-8	±	11	0	±	0

Comments

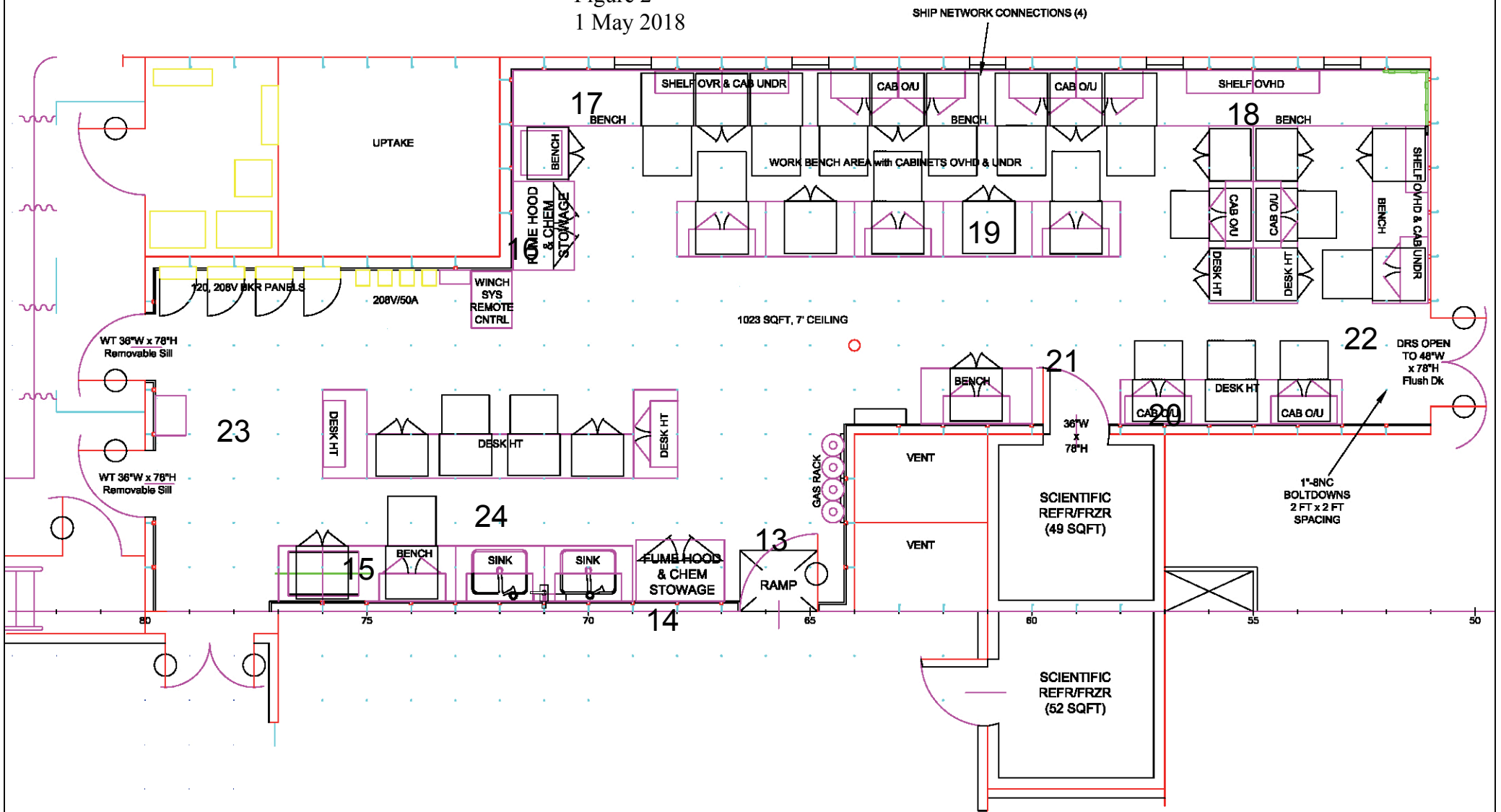
Please note that the error reported for each isotope is the two-standard deviation counting error.
The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. The ship is free from radioisotope contamination. Minor ^{14}C contamination was found in the Radioisotope Van incubator. No action is necessary.

SWAB #901
Figure 1
1 May 2018



WET LABORATORY & STAGING BAY ARRANGEMENT

SWAB #901
Figure 2
1 May 2018



MAIN LABORATORY ARRANGEMENT

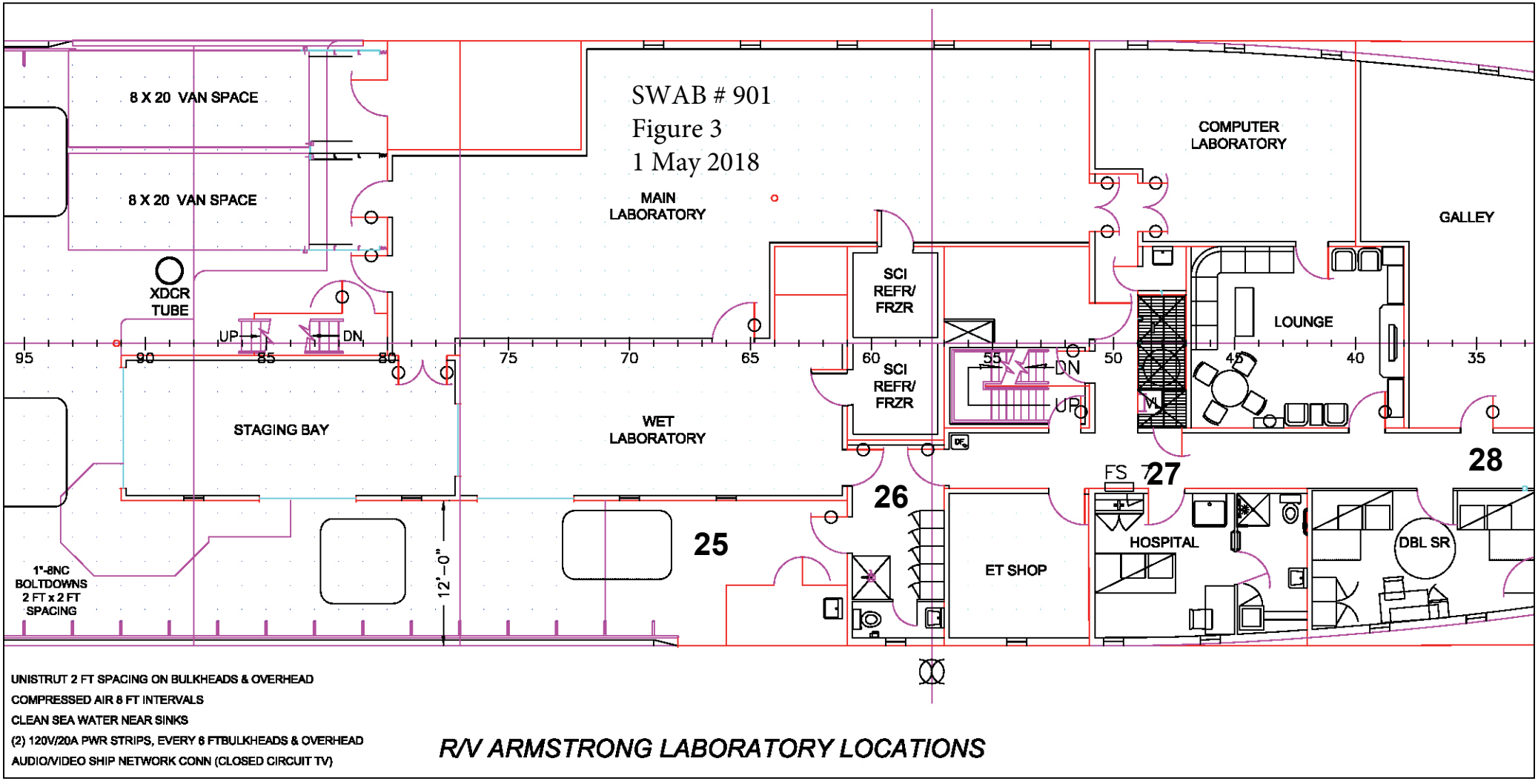

SWAB # 901
Figure 3
1 May 2018
8 X 20 VAN SPACE
8 X 20 VAN SPACE
XDCR TUBE
UP
DN
MAIN LABORATORY
SCI REFR/ FRZR
SCI REFR/ FRZR
COMPUTER LABORATORY
GALLEY
LOUNGE
95
90
85
80
75
70
65
60
55
50
45
40
35
DN
UP
STAGING BAY
WET LABORATORY
26
25
27
28
FS 7
HOSPITAL
DBL SR
ET SHOP
12'-0"
1"-8NC BOLTDOWNS 2 FT x 2 FT SPACING
UNISTRUT 2 FT SPACING ON BULKHEADS & OVERHEAD
COMPRESSED AIR 8 FT INTERVALS
CLEAN SEA WATER NEAR SINKS
(2) 120V/20A PWR STRIPS, EVERY 8 FTBULKHEADS & OVERHEAD
AUDIO/VIDEO SHIP NETWORK CONN (CLOSED CIRCUIT TV)
R/V ARMSTRONG LABORATORY LOCATIONS

Figure 4
SWAB # 901
1 May 2018

VAN SN-625.101-2