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
26 February 2025

SWAB REPORT # 1113

SWAB DATE: 21 February 2025

R/V Neil Armstrong

James Happell Digitally signed by James Happell
Date: 2025.02.26 11:21:09 -05'00'

Dr. James D. Happell
Associate Research Professor

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 ^{3}H & ^{14}C. This replaces an LSC with background cpm of 1.6 & 5.5 for ^{3}H & ^{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	^{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 # 1113

LOCATION: Port Everglades, FL
VESSEL: *R/V Neil Armstrong*

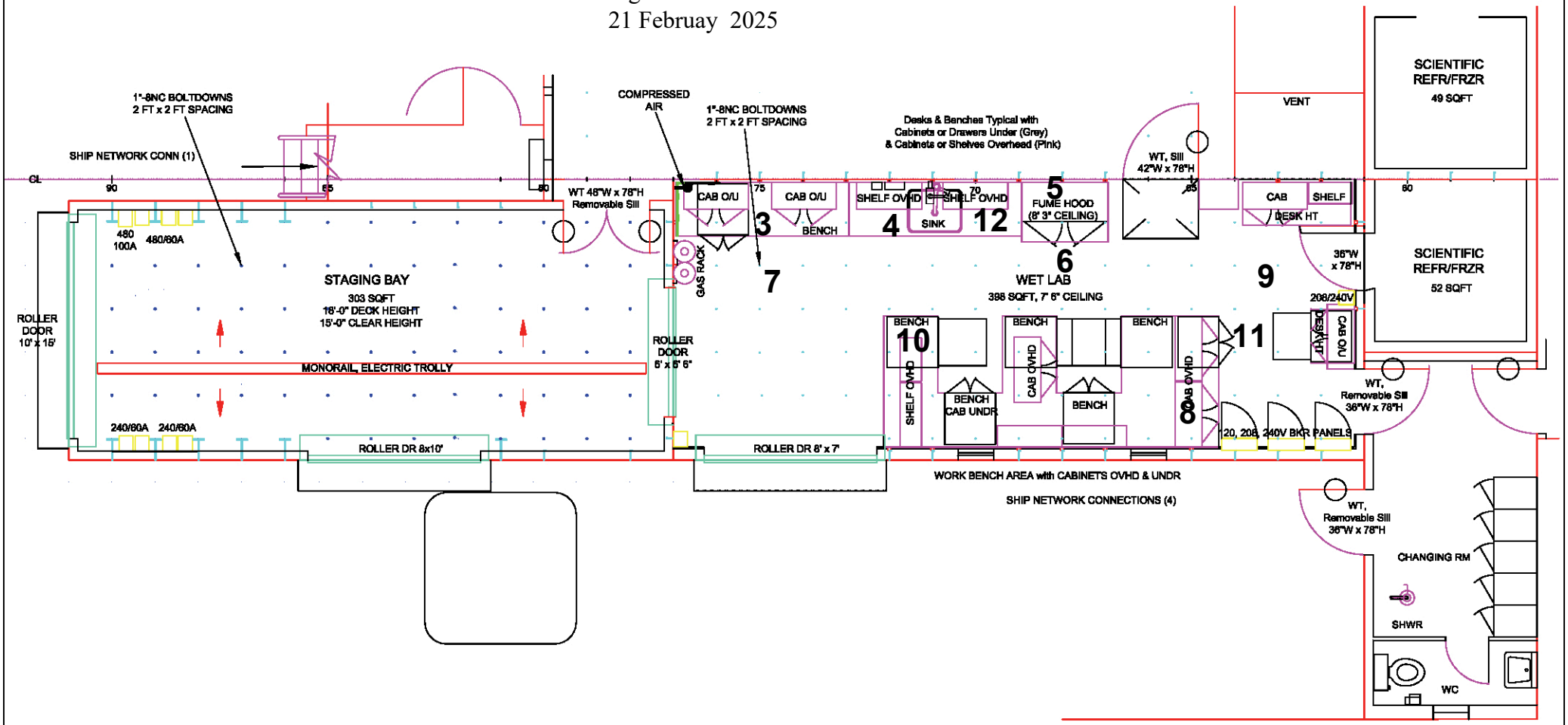
DATE: 21 February 2025
TECHNICIAN: Yudy Mendoza

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	12	±	6	-1	±	5
	Wet Lab (Figure 1)						
3	Port aft benchtop	2	±	1	11	±	11
4	Aft ort sink area	-21	±	23	**14**	**±**	**13**
5	Port fume hood	**10**	**±**	**5**	4	±	9
6	Deck in front fume hood	1	±	1	**16**	**±**	**12**
7	Deck in front of port aft benchtop	-6	±	3	11	±	12
8	Forward starboard benchtop	**17**	**±**	**7**	10	±	11
9	Deck in front of scientific frreezer	**22**	**±**	**8**	**14**	**±**	**11**
10	Benchtop across from port sink	**14**	**±**	**6**	**17**	**±**	**12**
11	Deck in front of pHcbi freezer	-21	±	21	**16**	**±**	**13**
12	Forward port sink area	-3	±	2	**17**	**±**	**12**
	Main Lab (Figure 2)						
13	Deck in front of Scientific Freezer	**15**	**±**	**7**	11	±	11
14	Inside starboard fume hood	-20	±	31	5	±	12
15	Aft starboard sink area	-4	±	2	5	±	11
16	Inside port fume hood	**37**	**±**	**13**	4	±	7
17	Aft section of center benchtop	-43	±	44	9	±	14
18	Forward section of center benchtop	-5	±	3	12	±	12
19	Deck in front of port fume hood	-11	±	7	**13**	**±**	**12**
20	Top of Kenmore refrigerator	**22**	**±**	**9**	4	±	8
21	Deck inside starboard entrance to Wet Lab	**10**	**±**	**4**	**17**	**±**	**12**
22	Deck inside forward entrance	**3**	**±**	**1**	11	±	11
23	Deck inside port aft entrance	**5**	**±**	**2**	**14**	**±**	**12**
24	Deck in front of starboard sink	**14**	**±**	**6**	6	±	10
	Miscellaneous areas (Figure 3)						
25	Deck of mud room near companionway entrance	-12	±	8	**17**	**±**	**13**
26	Companionway at stairs to focsle deck near ET shop	**11**	**±**	**5**	**15**	**±**	**12**
27	Companionway to head and laundry	-18	±	18	12	±	12
28	Final bucket blank	**7**	**±**	**4**	0	±	3

Comments

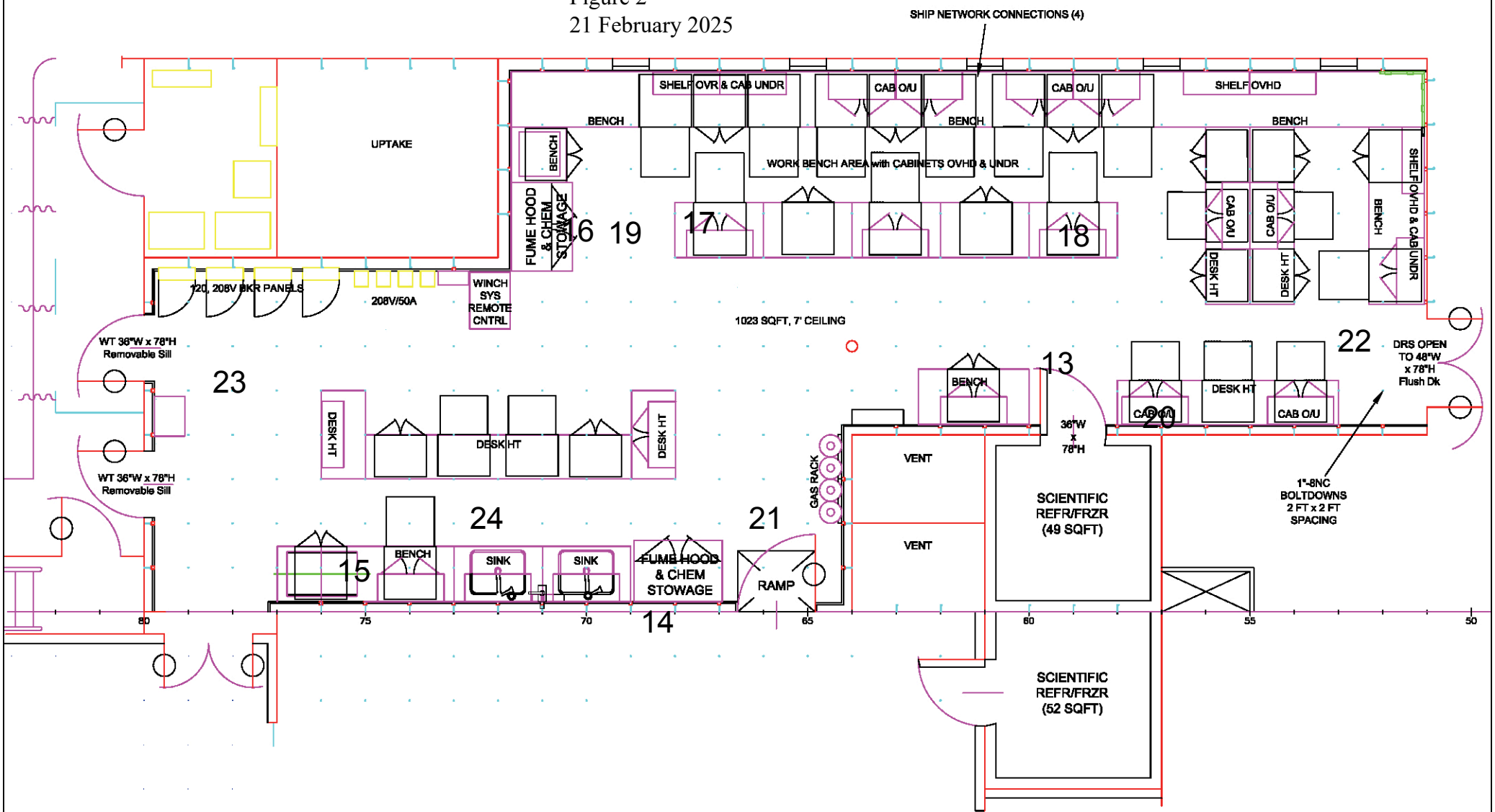
Please note that the error reported for each isotope is the two-standard deviation counting error. Reports may now contain values less than zero. Decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the 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 were free from isotope contamination that requies cleaning.

SWAB # 1113
Figure 1
21 Februay 2025

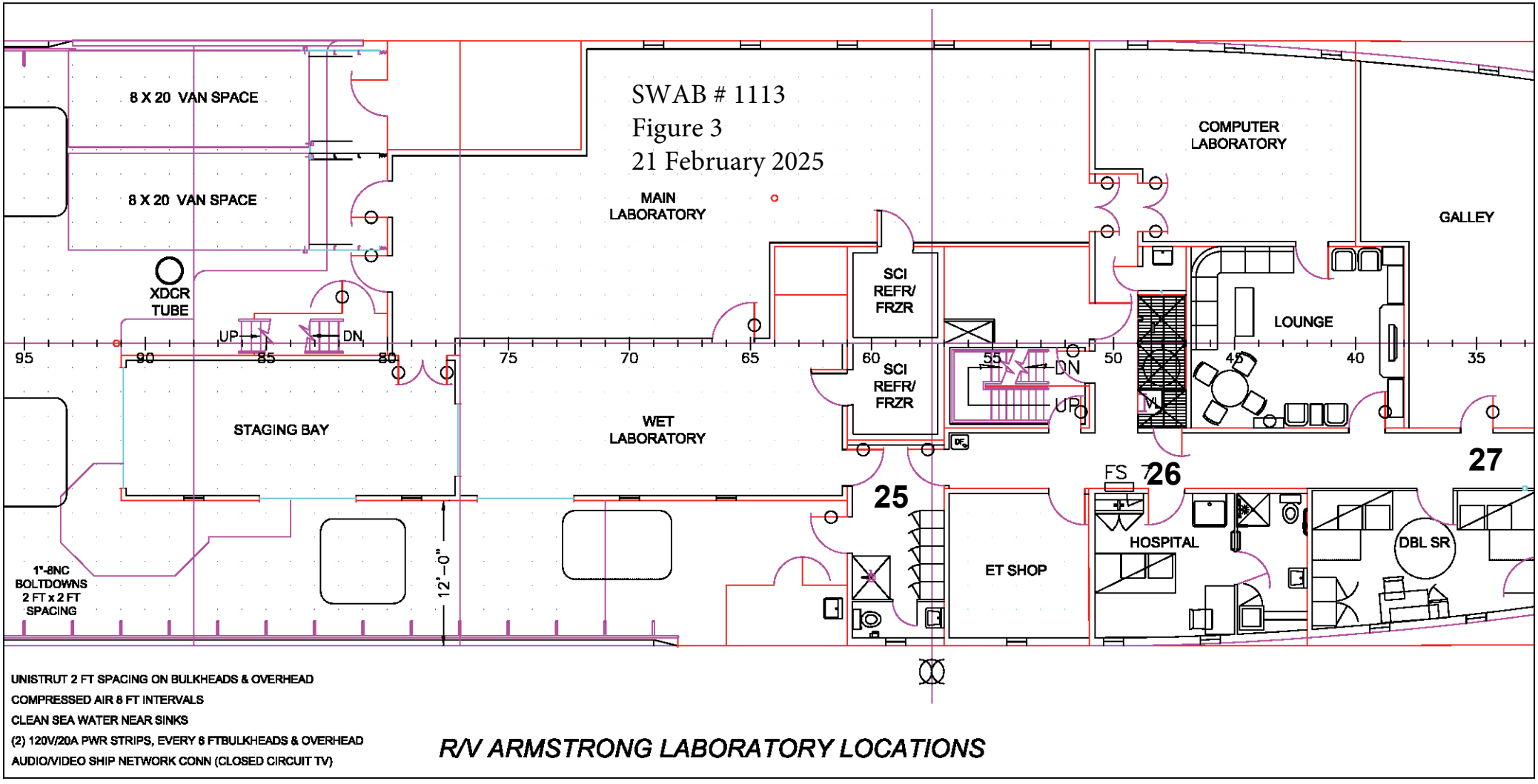


WET LABORATORY & STAGING BAY ARRANGEMENT

SWAB #1113
Figure 2
21 February 2025



MAIN LABORATORY ARRANGEMENT


SWAB # 1113
Figure 3
21 February 2025
8 X 20 VAN SPACE
8 X 20 VAN SPACE
XDCR TUBE
UP
DN
MAIN LABORATORY
SCI REFR/ FRZR
SCI REFR/ FRZR
DN
UP
COMPUTER LABORATORY
GALLEY
LOUNGE
95
90
85
80
75
70
65
60
55
50
45
40
35
STAGING BAY
WET LABORATORY
25
FS 26
27
HOSPITAL
DBL SR
ET SHOP
1"-8NC BOLTDOWNS 2 FT x 2 FT SPACING
12'-0"
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