

UNIVERSITY OF MIAMI

ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Tritium Laboratory

23 August 2016

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SWAB REPORT # 827

SWAB DATE: 16 August 2016

R/V Endeavor

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
William Fanning

COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for ^3H 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	^3H (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 Procedure

Wearing ordinary household rubber gloves:

^3H : 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 $^{14}\text{CO}_2$). Follow up with wash as if for ^3H .

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 # 827

LOCATION: Gulfport, MS

VESSEL: *R/V Endeavor*

DATE: 16 August 2016

TECHNICIAN: Yudy Mendoza

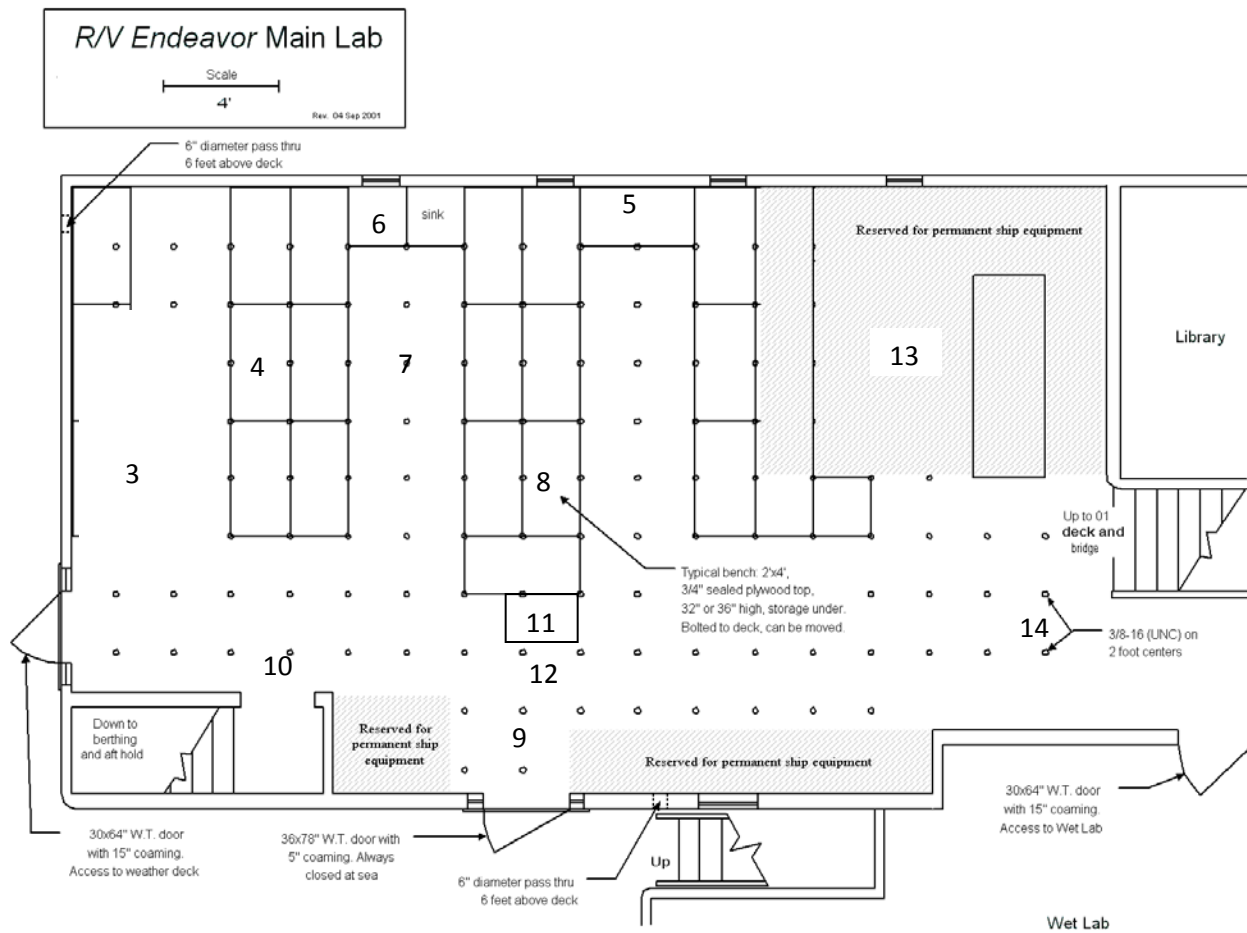
Sample # Sample Identification	³ H dpm/m ²			¹⁴ C dpm/m ²		
	activity	error		activity	error	
1 1st Vial Bkgnd	0	±	0	0	±	0
2 Initial bucket blank C.O # 1	1	±	3	40	±	42
<u>Main Lab (see Figure 1)</u>						
3 Deck in front of aft sink area	19	±	34	24	±	40
4 Aft benchtop on port side	-4	±	12	42	±	42
5 Port benchtop	3	±	30	6	±	40
6 Port sink area	18	±	48	3	±	31
7 Deck in front of port sink	-4	±	22	25	±	42
8 Center benchtop on starboard side	1	±	1	45	±	42
9 Deck inside starboard door	-6	±	40	27	±	42
10 Deck at top of stairs to living quarters	-35	±	61	34	±	45
11 Inside Kenmore fridge	3	±	21	10	±	40
12 Deck in front of Kenmore fridge	8	±	18	33	±	41
13 Deck in front of forward port benchtop	21	±	34	26	±	40
14 Deck at forward entrance to lab	-13	±	686	23	±	44
<u>Wet Lab (Figure2)</u>						
15 Deck inside aft entrance	3	±	7	41	±	42
16 Starboard benchtop	26	±	48	10	±	36
17 Benchtop aft of sink	3	±	17	15	±	41
18 Deck in front of Sink area	-9	±	62	34	±	42
19 Deck inside port entrance	29	±	50	-18	±	18
<u>Special Purpose Lab (Figure 2)</u>						
20 Inside fume hood	11	±	34	15	±	40
21 Inside Revco fridge	4	±	21	12	±	40
22 Benchtop forward of sink	21	±	39	14	±	38
23 Benchtop in front of black chest freezer	4	±	13	27	±	41
24 Deck in front of sink	31	±	38	34	±	40
25 Benchtop aft of sink	29	±	47	5	±	31
26 Deck in front of fume hood	20	±	42	13	±	38
27 Deck outside lab entrance	39	±	49	4	±	28
28 Deck in front of fridge	-16	±	309	33	±	44

Sample #	Sample Identification	³ H dpm/m ²			¹⁴ C dpm/m ²		
		activity		error	activity		error
<u>Upper Lab and 01 Deck (Figure 3)</u>							
29	Deck at top of stairs	9	±	18	33	±	41
30	Deck in front of forward benchtop	28	±	43	14	±	37
31	Stbd after benchtop	35	±	45	18	±	37
32	Deck at aft exit to 01 Deck	-7	±	25	45	±	42
33	Companionway outside Electronic Repair R	26	±	34	29	±	40
34	Intermediate bucket blank	44	±	49	5	±	27
<u>UNOLS Radioisotope Van 6255020 (Figure 4)</u>							
35	Benchtop adjacent to sink	409	±	43	*1037	±	67
36	Sink area	146	±	40	*186	±	45
37	Inside refrigerator	11	±	4	*395	±	52
38	Inside freezer	49	±	42	32	±	39
39	Benchtop across from LSC	*2786	±	138	*626	±	50
40	Fume hood area	102	±	51	22	±	33
41	Benchtop across from sink	293	±	52	*248	±	46
42	Benchtop across from refrigerator	128	±	26	*454	±	53
43	Top of LSC	*700	±	76	*284	±	45
44	Deck in front of fume hood	*1336	±	104	*234	±	38
45	Deck in center of van	*608	±	72	*299	±	46
46	Deck at entrance near sink	*517	±	49	*1154	±	69
47	01 Deck outside van entrance	177	±	35	*391	±	52
48	Final bucket blank	18	±	33	22	±	40

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. All areas tested on the ship were free from any isotope contamination that requires cleaning. Minor ^3H and ^{14}C contamination found in the rad van. No action is required.

Figure 1
SWAB # 827
16 August 2016



R/V Endeavor Main Deck and Labs

Scale

0 8' 16'

Deck bolt pattern is on 2 foot centers

Rev. 04 Sep 2001

Figure 2

SWAB # 827

16 August 2016

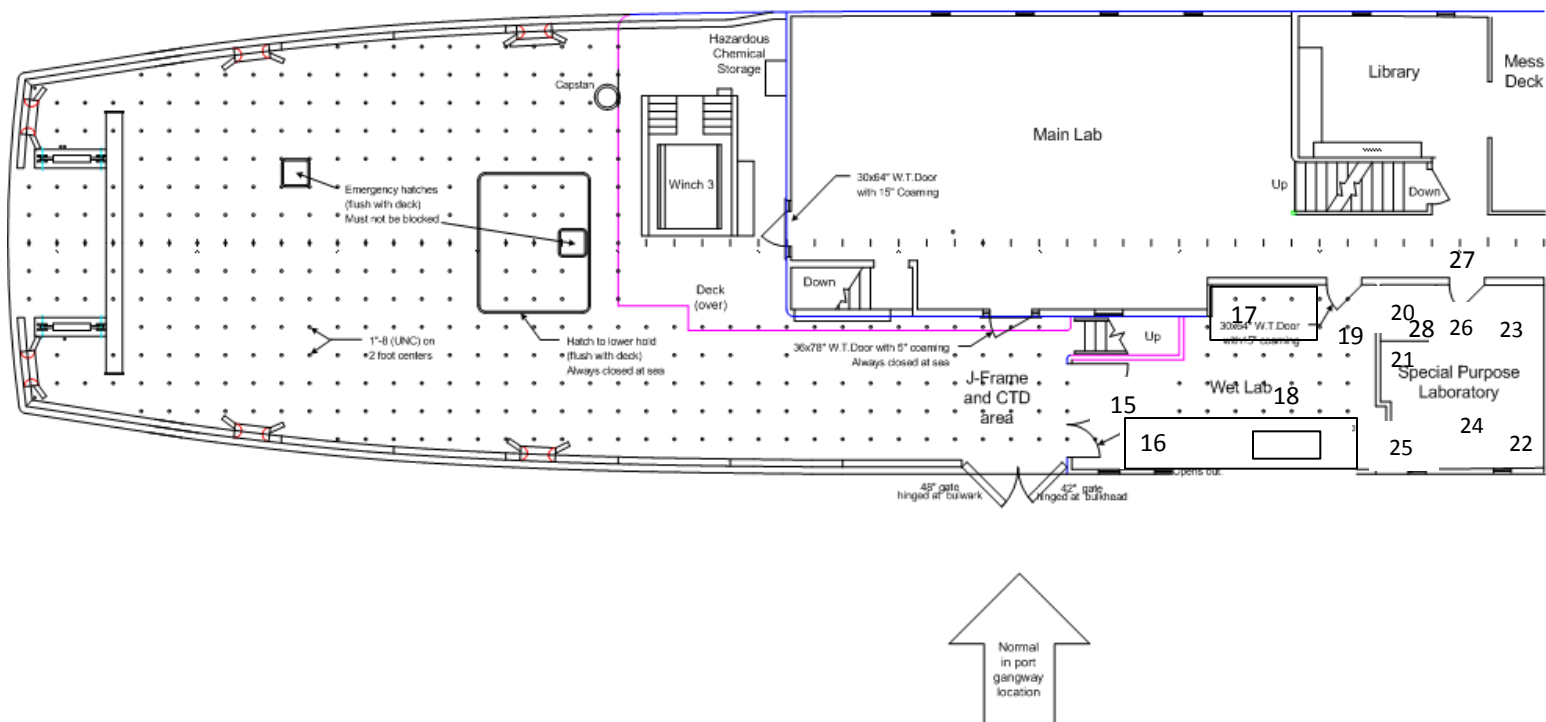
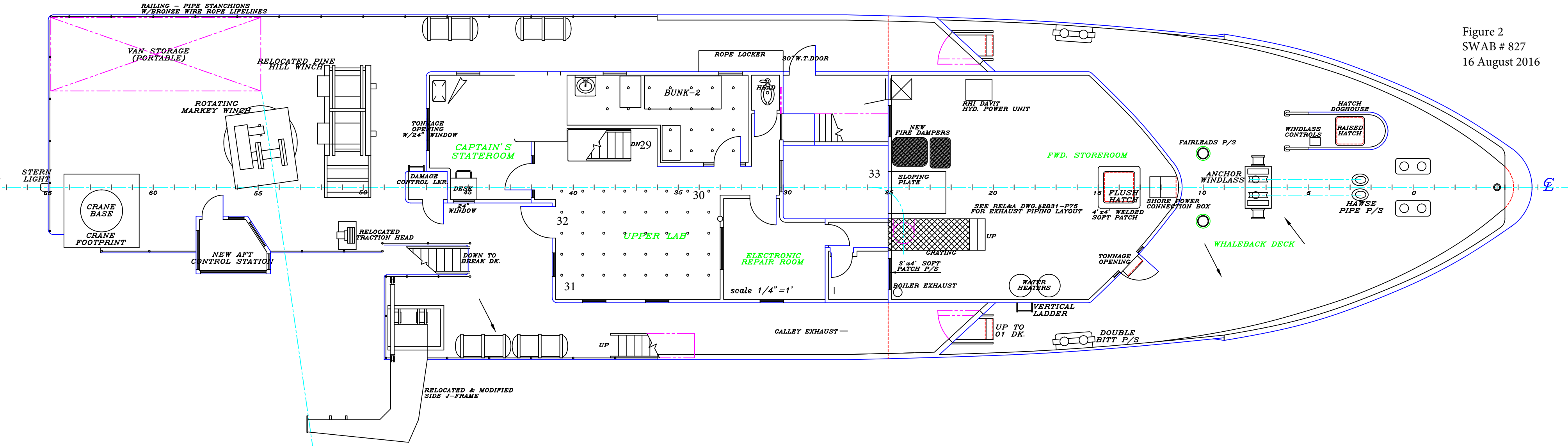


Figure 2
SWAB # 827
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PLAN @ 01 DECK

East Coast Van Pool Van #625.5.02

Figure 4
SWAB #827
16 August 2016

