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Tritium Laboratory
24 September 2012

SWAB REPORT # 647

SWAB DATE: 17 September 2012

R/V Endeavor

James D. Happell

Distribution:
SWAB Committee
William L. Fanning

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 $1000 \text{ dpm}/\text{m}^2$ 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 dispose in radiation waste system.

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

REPORT FOR SWAB # 647

LOCATION: Gulfport, MS
VESSEL: R/V Endeavor

DATE: 17 September 2012
TECHNICIAN: Cecilia Roig

Sample #	Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	0	± 0	5	± 32
	<u>Main Lab (Figure 1)</u>				
3	Deck at entrance to stairs	18	± 24	35	± 0
4	Deck in front of aft sink	0	± 0	*50	± 34
5	Port sink area	0	± 0	*55	± 34
6	Deck in front of port sink	0	± 0	33	± 33
7	Benchtop port of aft sink	21	± 21	*62	± 34
8	Deck inside stbd. door	6	± 11	48	± 33
9	Deck at bottom of stairs	0	± 0	40	± 34
10	Inside small Fisher Scientific	0	± 0	23	± 33
11	Inside Fridge 2 Kenmore	18	± 13	*120	± 36
12	Inside Fridge 1 Isotemp	0	± 0	*58	± 34
13	Aft center benchtop	0	± 0	45	± 34
14	Deck between benchtops	0	± 0	36	± 34
	<u>Wet Lab (Figure 2)</u>				
15	Deck inside aft door	0	± 0	*57	± 35
16	Benchtop aft of sink	0	± 0	29	± 35
17	Deck in front of sinks	0	± 0	43	± 34
18	Port benchtop	8	± 18	26	± 32
19	Deck inside port door	0	± 0	47	± 34
	<u>Special Purpose Labs (Figure 2)</u>				
20	Inside hood	4	± 9	33	± 33
21	Inside black chest freezer	7	± 15	31	± 32
22	Inside Revco	0	± 0	*58	± 34
23	Fwd. benchtop	13	± 26	22	± 31
24	Deck at entrance	27	± 43	2	± 17
25	Sink area	0	± 0	26	± 33
26	Deck in front of sink	24	± 33	20	± 30
27	Deck in front of lounge	0	± 0	14	± 34

<u>01 Deck (No Figure)</u>				
28 Stbd. benchtop	0 ±	0	41 ±	34
29 Deck in front of food freezer	0 ±	0	54 ±	34
30 Deck center of lab	0 ±	0	44 ±	34
31 Deck outside Electronics Repair Shop	0 ±	0	28 ±	34
32 Intermediate bucket blank	5 ±	21	11 ±	31
<u>UNOLS Shared-Use Van 625.1.05 (Figure 3)</u>				
33 Benchtop across sink	144 ±	47	46 ±	29
34 Benchtop across fridge	249 ±	55	41 ±	25
35 Benchtop across LSC	76 ±	42	28 ±	29
36 Inside hood	10 ±	18	35 ±	32
37 Top of LSC	204 ±	50	*50 ±	28
38 Benchtop above fridge	64 ±	32	*78 ±	33
39 Sink area	*1,319 ±	101	*149 ±	27
40 Inside fridge	90 ±	39	*66 ±	32
41 Inside freezer	16 ±	23	34 ±	32
42 Deck in front of hood	173 ±	50	29 ±	25
43 Deck center of van	*687 ±	72	*159 ±	32
44 Deck at entrance next to sink	217 ±	50	*66 ±	29
45 Final bucket blank	24 ±	34	16 ±	29

Comments

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

Minor ¹⁴C contamination was detected in a few samples taken inside the ship, these areas need to be cleaned before any natural tracer work. Minor ³H and ¹⁴C contamination was also found in the van, cleaning only required before van is to be used for natural tracer work.

Figure 1
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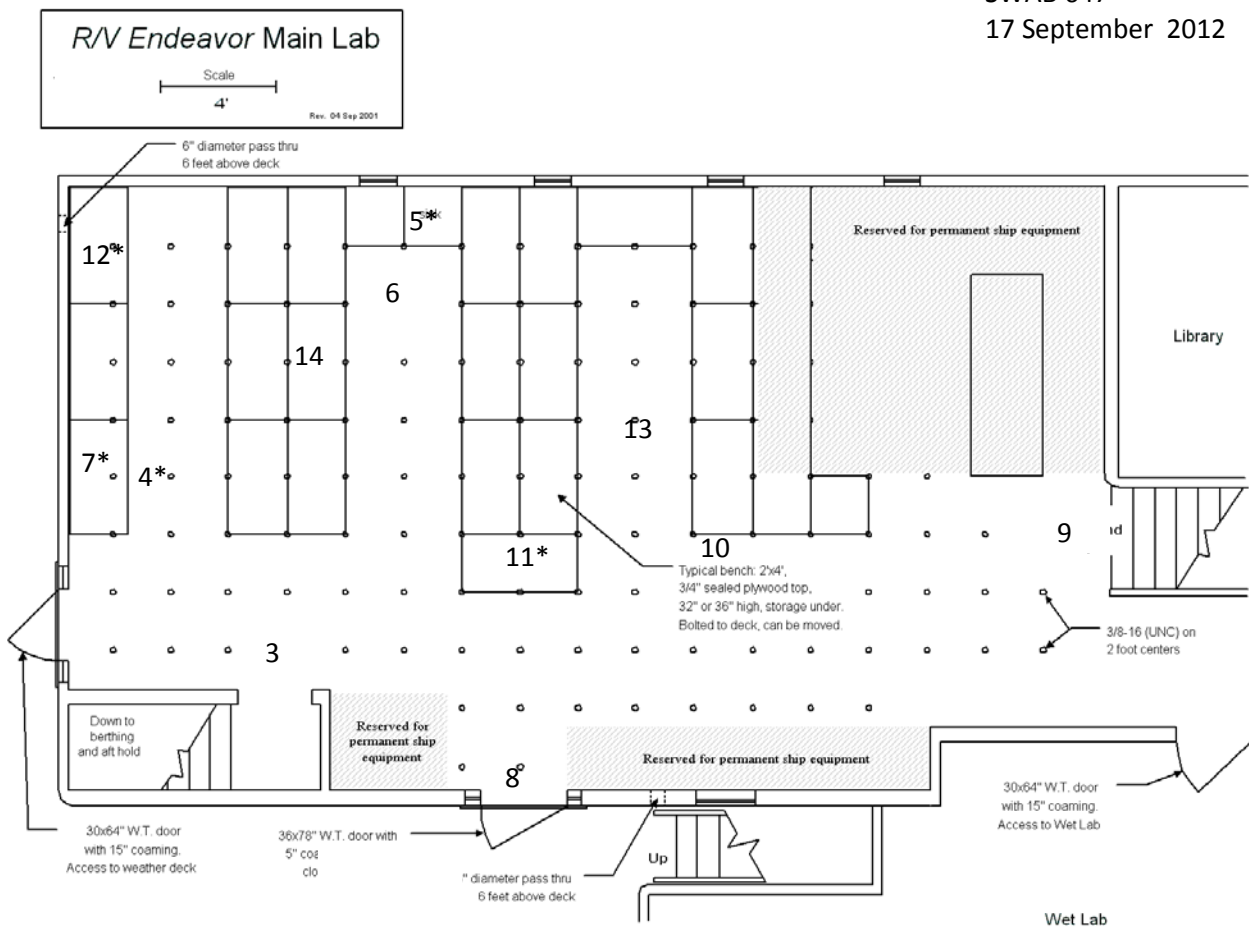


Figure 2
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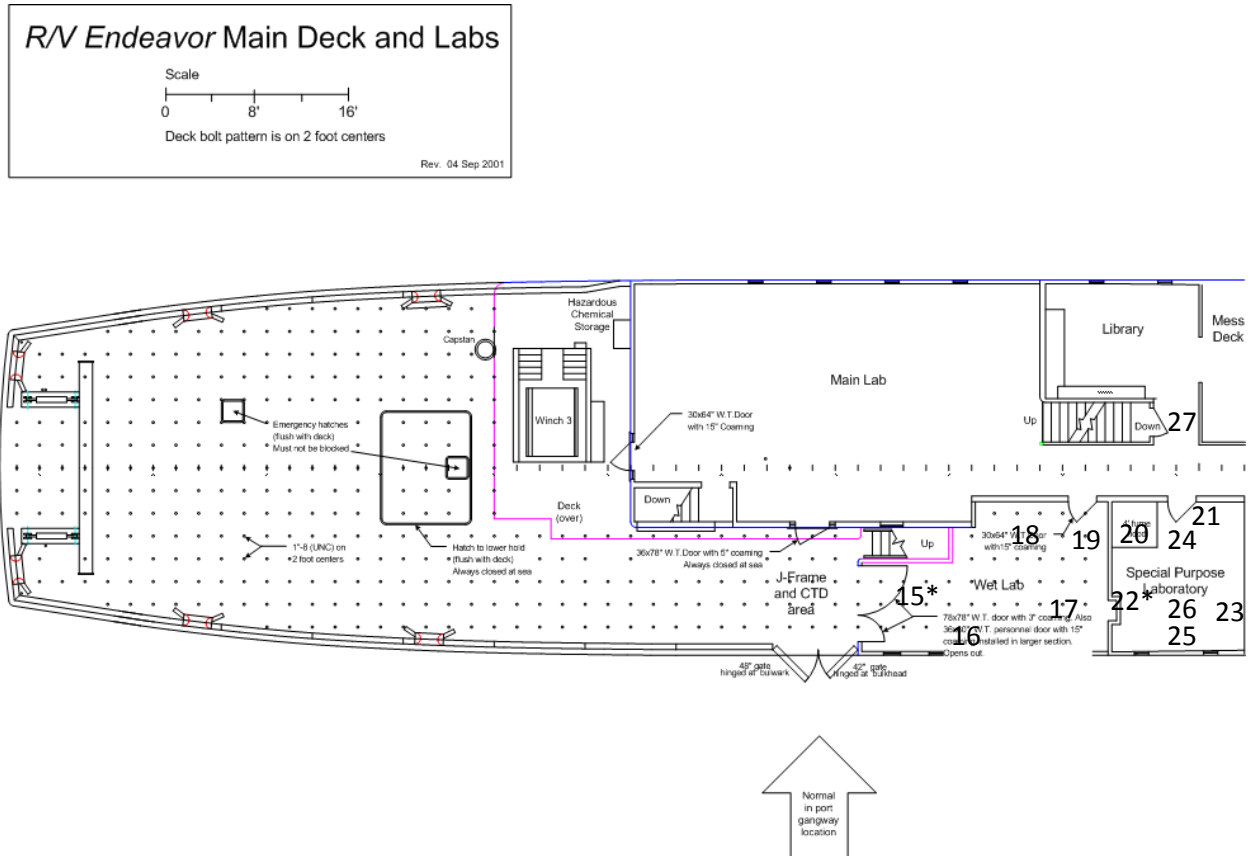


Figure 3
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UNOLS Radioisotope
Van #625.1.05

