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Tritium Laboratory
17 April 2019

SWAB REPORT # 941

SWAB DATE: 13 April 2019

R/V Savannah & Van #625.3.08

James D. Happell

Distribution:
SWAB Committee
John Bichy

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 $1000 \text{ dpm}/\text{m}^2$ 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 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 # 941

LOCATION: Savannah, GA
VESSEL: R/V Savannah

DATE: 13 April 2019
TECHNICIAN: Jim Happell

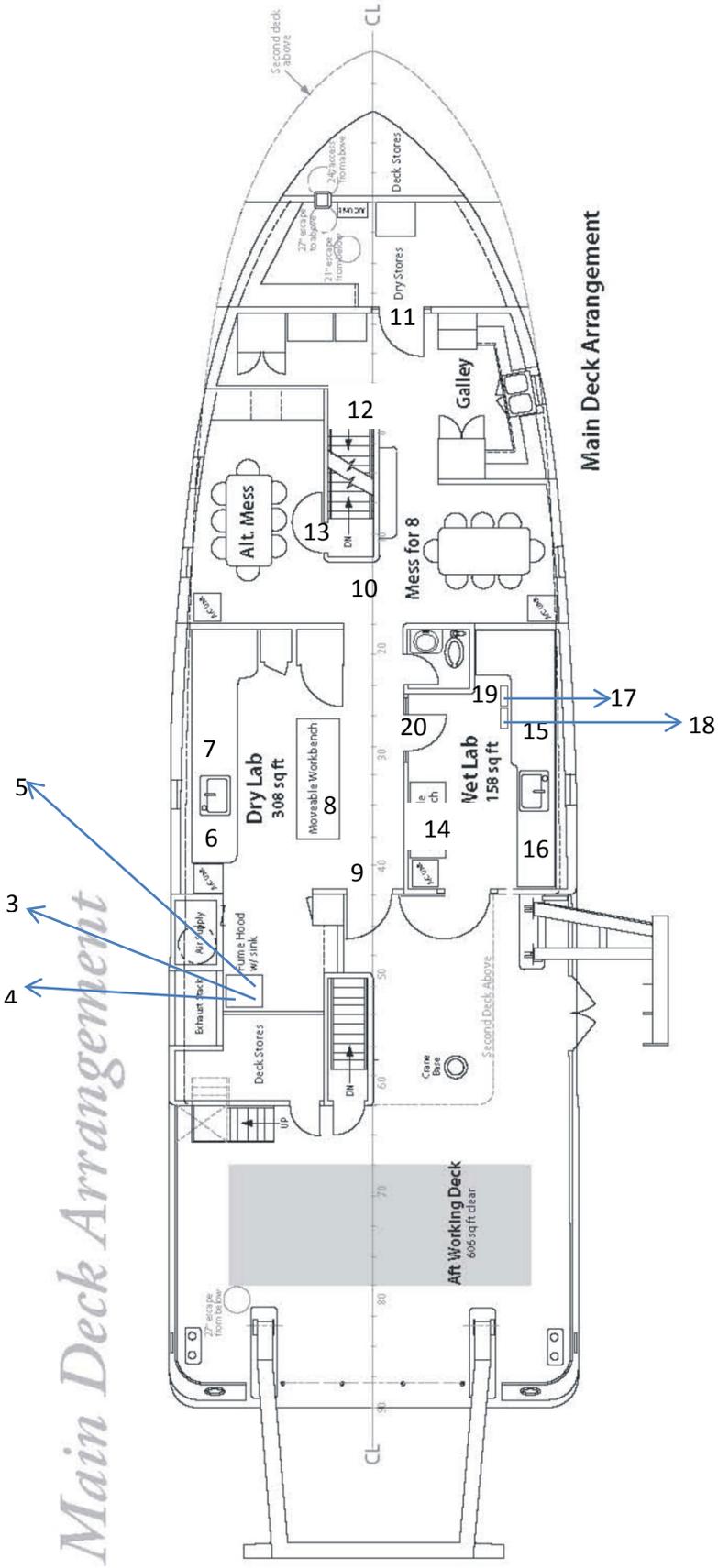
Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0 ±	0	0 ±	0
2	Initial bucket blank	-51 ±	61	33 ±	40
	<u>Dry Lab (Figure 1)</u>				
3	Inside fume hood	-34 ±	41	46 ±	39
4	Benchtop next to fume hood	-3 ±	40	16 ±	37
5	Deck in front of fume hood	-23 ±	28	40 ±	38
6	Benchtop aft of sink	-2 ±	23	15 ±	36
7	Benchtop forward of sink	-19 ±	23	23 ±	38
8	Center benchtop	-39 ±	46	43 ±	39
9	Deck at aft entrance	-39 ±	46	34 ±	39
	<u>Miscellaneous Areas (Figure 1)</u>				
10	Deck under water fountain	-26 ±	31	23 ±	39
11	Deck inside forward door	-1 ±	2	36 ±	37
12	Deck at bottom of stairs	-15 ±	18	14 ±	38
13	Deck at top of stairs	-18 ±	21	5 ±	44
	<u>Wet Lab (Figure 1)</u>				
14	Port benchtop	-47 ±	56	23 ±	41
15	Benchtop forward of sink	-28 ±	34	6 ±	47
16	Benchtop aft of sink	-50 ±	60	7 ±	58
17	Inside Thermo refrigetator	-54 ±	65	6 ±	66
18	Inside isotemp freezer	-46 ±	55	38 ±	39
19	Deck at aft entrance	-38 ±	46	38 ±	39
20	Deck inside port entrance	73 ±	53	11 ±	26

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
	<u>Van # 625.3.08 (Figure 2)</u>				
21	Stainless steel benchtop	-20 ±	24	37 ±	38
22	Top of LSC	47 ±	37	55 ±	36
23	Inside fume hood	-48 ±	57	19 ±	42
24	Sink area	*795 ±	94	*66 ±	24
25	Refrigerator next to door	-35 ±	41	18 ±	40
26	Freezer next to LSC	-43 ±	52	36 ±	39
27	Deck between hood and LSC	30 ±	36	44 ±	36
28	Deck inside entrance	-28 ±	34	23 ±	39
29	Deck outside van door	-30 ±	36	34 ±	39
30	Final bucket blank	-6 ±	32	32 ±	37

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 isotope contamination that requires cleaning. Minor ³H and ¹⁴C contamination was found in the rad van around the sink. No action is required.

Figure 1
 SWAB #941
 12 April 2019



Main Deck Arrangement

Main Deck Arrangement

Figure 2
SWAB # 941
13 April 2019

UNOLS Van 625.3.08

