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Tritium Laboratory
30 August 2021

SWAB REPORT # 1010

SWAB DATE: 22 August 2021

R/V Savannah and Van #625.3.08

James Happell Digitally signed by James Happell Date: 2021.08.31 10:34:02 -04'00'

James D. Happell

Distribution:
SWAB Committee
John Bichy

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 # 1010

LOCATION: Savannah, GA
VESSEL: *R/V Savannah*

DATE: 22 August 2021
TECHNICIAN: Jim Happell

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	17 ±	66	-14 ±	39
	Dry Lab (Figure 1)				
3	Inside fume hood	38 ±	49	0 ±	5
4	Benchtop next to fume hood	25 ±	41	8 ±	32
5	Deck in front of fume hood	374 ±	66	7 ±	10
6	Benchtop aft of sink	7 ±	78	-23 ±	65
7	Benchtop forward of sink	27 ±	55	-10 ±	30
8	Center benchtop	5 ±	42	1 ±	28
9	Deck at aft entrance	12 ±	80	-11 ±	31
10	Forward deck	-25 ±	41	-26 ±	74
	Miscellaneous Areas (Figure 1)				
11	Deck under water fountain	5 ±	57	-18 ±	50
12	Deck at bottom of stairs	33 ±	74	-28 ±	79
13	Deck inside forward door	4 ±	74	-7 ±	27
14	Deck at top of stairs	39 ±	56	-10 ±	37
	Wet Lab (Figure 1)				
15	Port benchtop	17 ±	68	-11 ±	32
16	Benchtop forward of sink	21 ±	98	-26 ±	73
17	Benchtop aft of sink	-12 ±	81	-6 ±	21
18	Inside Thermo refrigerator	7 ±	77	-6 ±	25
19	Inside Isotemp freezer	7 ±	144	-11 ±	30
20	Deck at aft entrance	7 ±	72	-32 ±	89
21	Deck inside port entrance	25 ±	76	-23 ±	65
	Aft Deck (Figure 1)				
22	Deck near incubator	24 ±	55	-9 ±	34
23	Deck near CTD	34 ±	75	-30 ±	85

Sample #	Sample Identification	^{3}H dpm/m^{2} activity	error	^{14}C dpm/m^{2} activity	error
	Van #625.3.08 (Figure 2)				
24	Stainless steen benchtop	314 ±	64	-12 ±	92
25	Top of LSC	83 ±	50	4 ±	18
26	Inside fume hood	40 ±	63	-22 ±	63
27	Sink area	204 ±	59	-5 ±	25
28	Inside refrigerator	5 ±	95	-6 ±	21
29	Inside freezer	64 ±	47	9 ±	27
30	Deck between hood and LSC	75 ±	49	9 ±	26
31	Deck inside entrance	77 ±	60	-24 ±	69
32	Deck outside van door	-4 ±	47	-28 ±	80
33	Final bucket blank	9 ±	0	-8 ±	8

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. However the deck in front of the fume hood in the dry lab (sample #5) has ^{3}H above background. It is suggested that this area be cleaned to help prevent tracking ^{3}H to other areas inside the ship. All areas tested inside the van were free from contamination that requires cleaning.

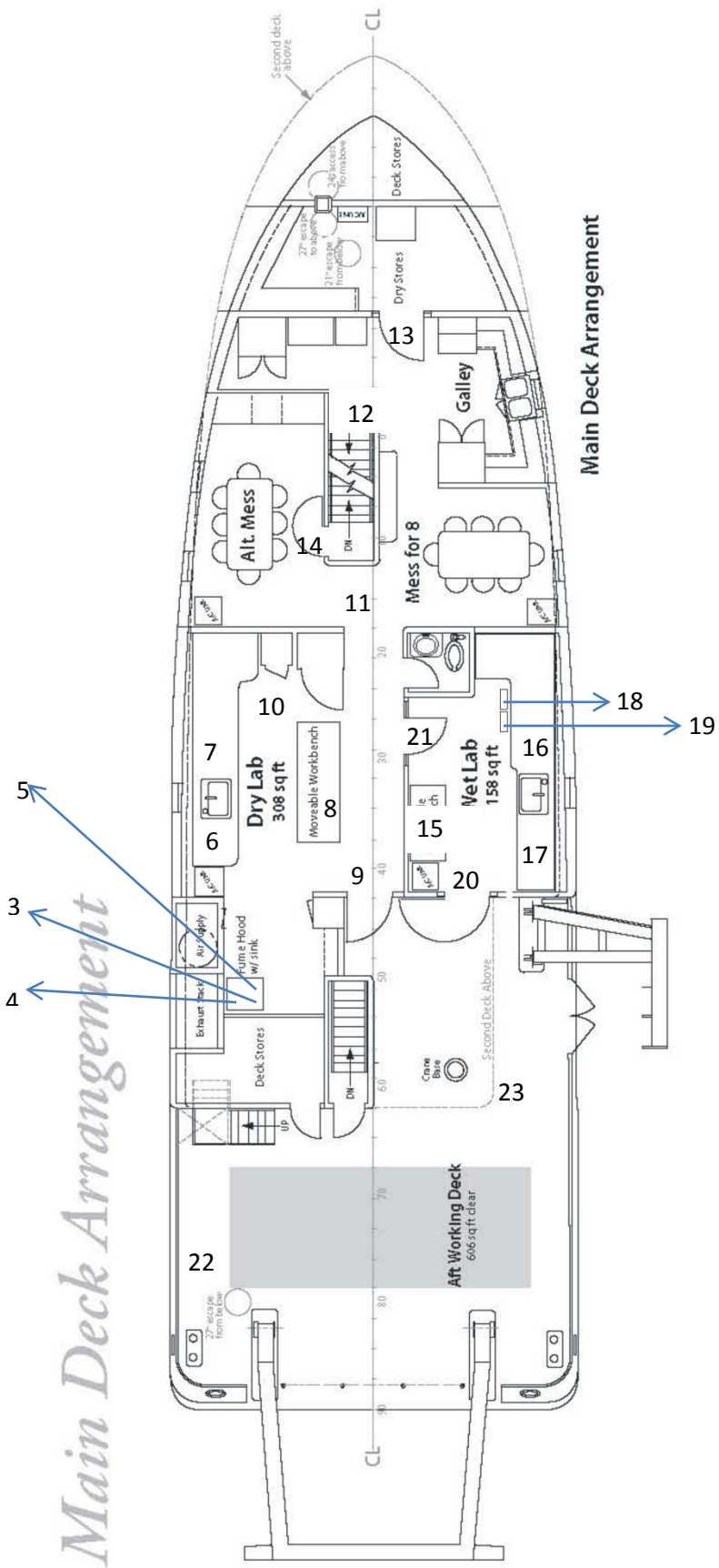

Figure 1
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Figure 2
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UNOLS Rad Van 625.3.08