

UNIVERSITY OF MIAMI
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SCHOOL of MARINE &
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Tritium Laboratory

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SWAB REPORT # 889

SWAB DATE: 8 March 2018

R/V Nathaniel B. Palmer and Polar Programs Rad Van #3

Dr. James D. Happell
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Distribution:
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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 # 889

LOCATION: Hobart, AU

DATE: 8 March 2018

VESSEL: *R/V Nathaniel B. Palmer*

TECHNICIAN: Jamee Johnson, Linnah Neide

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	68	± 37	28	± 31
	Helo Deck and Hold Deck (no figure)				
3	Helo Deck where 14C waste drums are	41	± 37	16	± 31
4	Helo deck outside rad van door	41	± 29	47	± 34
5	Hold deck in front of rad van door	37	± 35	15	± 31
6	Hold deck center	29	± 25	46	± 35
	<u>Rad Van #3 (Figure 1)</u>				
7	Fume hood	133	± 45	24	± 27
8	Sink area	153	± 45	*50	± 31
9	Benchtop above freezer/refrigerator	292	± 57	33	± 24
10	Deck in front of waste	*774	± 72	*482	± 47
11	Deck in front of fume hood	143	± 43	*57	± 32
12	Benchtop across from hood	195	± 50	33	± 27
13	Deck in center of van	151	± 40	*107	± 36
14	Deck in front of door	315	± 56	*101	± 33
	<u>Bio Lab (Figure 2)</u>				
15	Aft benchtop by door	20	± 25	29	± 34
16	Aft benchtop right of sink	-7	± 34	34	± 36
17	Aft benchtop at end of bench	50	± 37	17	± 30
18	Port benchtop left of sink	19	± 31	13	± 32
19	Port benchtop right of sink	13	± 22	25	± 34
20	Tray inside fume hood	19	± 29	18	± 33
21	Forward tabletop	8	± 13	39	± 35
22	Aft table top	58	± 43	2	± 13
23	Bucket blank	-4	± 19	32	± 36
24	Port benchtop right of hood	33	± 37	10	± 29

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 Rad Van #3. No action is necessary.

USAP Van # 3
Figure 1
SWAB #890
8 March 2018

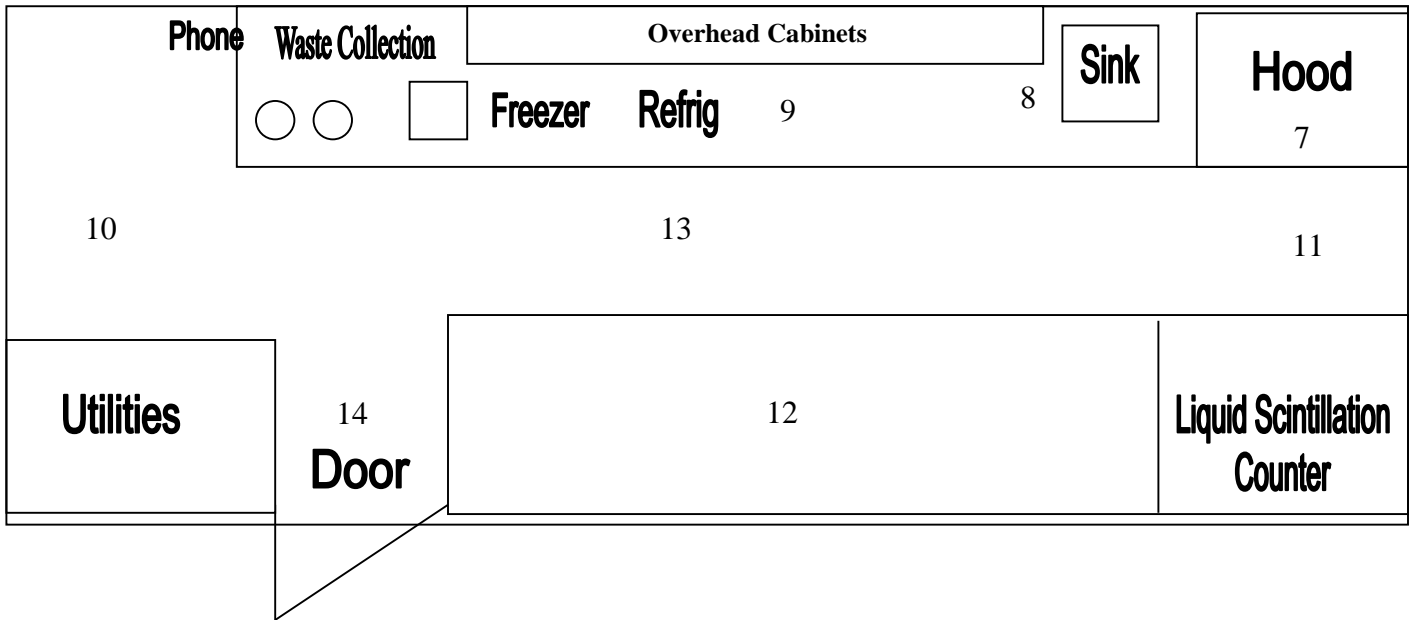


Figure 2
SWAB #889
8 March 2018

Bio Lab

460 sq. ft.

