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Tritium Laboratory

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SWAB REPORT # 837

SWAB DATE: 28 October 2016

R/V Oceanus

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Distribution:
SWAB Committee
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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 institution promptly by phone or email.

REPORT FOR SWAB # 837

LOCATION: Newport, OR

DATE: 28 October 2016

VESSEL: *R/V Oceanus*

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
67	Initial bucket blank CO #2	37	± 50	-7	± 24
	<u>Main Lab (Fig. 1)</u>				
78	Bench top adjacent to sink	49	± 50	-7	± 21
79	Inside forward port refrigerator	36	± 76	-32	± 53
80	Deck near forward stairs	11	± 31	11	± 35
81	Deck by aft entrance	-1	± 0	-20	± 33
82	Forward sink area	7	± 19	-14	± 23
83	Bench top next to forward port refrigerator	-37	± 0	18	± 42
84	Starboard aft bench top	-11	± 0	-15	± 26
85	Deck at winch control station	-7	± 20	4	± 40
86	Top of Whirlpool chest freezer	5	± 113	-7	± 22
87	Top of So-Lo -80°C freezer	-3	± 8	-4	± 12
88	Bench top adjacent to -80°C freezer	-10	± 333	23	± 38
89	Bench top adjacent to Whirlpool freezer	-93	± 128	10	± 71
90	Starboard workbench	-27	± 55	-17	± 28
	<u>Wet Lab (Fig. 1)</u>				
91	Sink area	39	± 61	-27	± 46
92	Deck in center of lab	23	± 57	-10	± 16
93	Deck by aft door	12	± 79	-11	± 19
94	Port Bench top	22	± 44	3	± 26
95	Starboard forward bench top	9	± 25	-19	± 32
96	Passage between Labrary and Wet Lab	47	± 77	-40	± 67
97	Mess deck in front of hot food station	-12	± 34	0	± 1
98	Deck in passage at forward entrance to M	6	± 105	-8	± 13
99	Inside fume hood	-15	± 43	22	± 39
100	Port forward bench top	-5	± 15	-29	± 48
	<u>01 Deck (Fig. 1)</u>				
101	Deck at top od stairs to Upper Lab	27	± 80	-24	± 40
102	Upper lab deck near starboard outer door	30	± 64	-16	± 27
103	Deck between head and infirmary	39	± 58	-16	± 27
104	Final bucket blank CO #2	18	± 51	-5	± 9

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.

