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Tritium Laboratory
6 December 2012

SWAB REPORT # 660

SWAB DATE: 30 November 2012

R/V Hugh Sharp

James Happell

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Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Tim Deering

COMMENTS TO SWAB REPORTS 23 November 2010

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/m2 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 dispose in radiation waste system.

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

REPORT FOR SWAB # 660

LOCATION: Lewes, DE
VESSEL: *R/V Hugh Sharp*

DATE: 30 November 2012
TECHNICIAN: Cecilia Roig

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		^{3}H dpm/m^{2} error	^{14}C dpm/m^{2} activity		^{14}C dpm/m^{2} error
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank	13	±	100	0	±	0
	Main Lab						
3	Inside Whirlpool freezer top	0	±	0	13	±	36
4	Inside Whrilpool fridge bottom	0	±	0	*537	±	52
5	Inside Holiday freezer	0	±	0	0	±	0
6	Top of Thermo freezer	24	±	64	0	±	0
7	Port benchtop across freezers	0	±	0	0	±	0
8	Port benchtop across Whirlpool	6	±	76	0	±	0
9	Fwd. stbd. bench top	0	±	0	0	±	0
10	Aft stbd. bench top	141	±	57	0	±	-45
11	Center stbd. bench top	0	±	0	6	±	43
12	Sink area	43	±	33	*51	±	35
13	Deck in front of Whirlpool	23	±	82	0	±	0
	Wet Lab						
14	Inside freezer top	55	±	52	0	±	0
15	Inside fridge bottom	0	±	0	0	±	0
16	Inside Holiday freezer	19	±	0	0	±	0
17	Aft sink area	26	±	53	0	±	0
18	Stbd. sink area	73	±	45	26	±	31
19	Stbd. aft bench top	18	±	52	0	±	0
20	Stbd. bench top next to CTD door	0	±	0	22	±	37
21	Stbd. fwd. bench top	0	±	0	0	±	0
22	Bucket blank	0	±	0	0	±	0

Comments

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

Two areas in the Main Lab showed minor ^{14}C contamination. These areas need to be cleaned before any natural tracer work.

RV Hugh Sharp Lab Spaces

SWAB # 660
30 November 2012