UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE

Tritium Laboratory
4600 Rickenbacker Causeway
Miami, Florida 33149-1031

Ph: 305-421-4100
Fax:305-421-4112
E-mail: Tritium@rsmas.miami.edu

14 August 2013

SWAB REPORT # 691

SWAB DATE: 8 August 2013

R/V Hugh Sharp

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/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 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 # 691

LOCATION: Lewes, Delaware
VESSEL/LAB: *R/V Hugh Sharp*

DATE: 8 August 2013
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	30	±	53	0	±	0
	Main Lab (Figure 1)						
3	Inside Whirlpool freezer top	87	±	51	3	±	13
4	Inside Whirlpool fridge bottom	24	±	43	1	±	16
5	Inside Holiday freezer	28	±	66	0	±	0
6	Inside Thermo freezer	24	±	49	0	±	0
7	Port benchtop across freezers	30	±	50	0	±	0
8	Port benchtop across Whirlpool	54	±	43	12	±	27
9	Foreward starboard benchtop	75	±	51	0	±	0
10	Port benchtop next to eye wash	13	±	51	0	±	0
11	Deck at aft exit	*673	±	84	*67	±	25
12	Deck in front of Whirlpool	183	±	56	26	±	25
	Wet Lab (Figure 1)						
13	Inside freezer top	32	±	38	17	±	31
14	Inside fridge bottom	123	±	37	11	±	20
15	Inside Holiday freezer	4	±	9	34	±	35
16	Aft sink area	0	±	0	10	±	37
17	Starboard sink area	91	±	46	38	±	31
18	Starboard aft benchtop	241	±	52	*105	±	34
19	Starboard benchtop next to CTD door	193	±	57	6	±	13
20	Deck at aft entrance	1	±	4	24	±	36
21	Intermediate bucket blank	35	±	45	2	±	15

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.
Minor ^{3}H contamination was found on the main lab deck at the aft entrance. Minor ^{14}C contamination was found on the main lab deck at the aft entrance, and on the starboard aft benchtop in the wet lab. These areas these areas need to be cleaned before any additional use. Although the ^{3}H values in samples #12, #14, #17, #18, and #19 are below the cleanup threshold, these values are significantly above background. This suggests that ^{3}H has been tracked from a rad van onto the ship. Rad Van #625.5.02, which was on board the Sharp, had major ^{3}H contamination (see SWAB #693) and is the probabable source of the ^{3}H found inside the Sharp.

RV Hugh Sharp Lab Spaces

SWAB # 691
8 August 2013