

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

13 February 2012

SWAB REPORT # 615

SWAB DATE: 8 February 2012

University of Delaware Radioisotope Van

James D. Happell

Distribution:
SWAB Committee
Tim Deering

COMMENTS TO SWAB REPORTS

23 November 2010

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 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 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 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 # 615

LOCATION: Lewes, Delaware
VESSEL/LAB: UDE Radioisotope Van

DATE: 8 February 2012
TECHNICIAN: Cecilia Roig

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	3	± 2	1	± 0
3	Sink area	*1542	± 108	*56	± 15
4	Benchtop above freezer	461	± 67	*72	± 27
5	Benchtop across refrigerator	161	± 49	25	± 24
6	Benchtop across LSC	24	± 30	27	± 31
7	Deck inside entrance close to sink	*4732	± 183	*137	± 16
8	Inside freezer	163	± 50	30	± 26
9	Inside refrigerator	252	± 54	*56	± 28
10	Deck center of van	*9528	± 262	*240	± 18
11	Inside fume hood	42	± 33	37	± 31
12	Benchtop above fridge	*621	± 78	23	± 14
13	Deck inside entrance next to hood	*1277	± 105	*100	± 23
14	Final bucket blank	0	± 0	50	± 34

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. Although the van was cleaned after SWAB #612 deck areas still show contamination. It is recommended van deck is cleaned again to prevent tracking contamination into the ship.

University of Delaware Radioisotope Van

SWAB # 615
8 February 2012

