



Tritium Laboratory
9 December 2024

SWAB REPORT # 1108

SWAB DATE: 24 November 2024

*University of Washington
School of Oceanography*

James D. Happell

Distribution:
SWAB Committee
Maureen Walczak

COMMENTS TO SWAB REPORTS

15 December 2021

The LSC is now a Quantulus GCT 6220, with the SWAB counting assay having background cpm of 0.3 & 1.2 for ^3H & ^{14}C . This replaces an LSC with background cpm of 1.6 & 5.5 for ^3H & ^{14}C .

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. All activities significantly above background will be in **bold**.

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.

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LOCATION: University of Washington
VESSEL/LAB: School of Oceanography

DATE: 24 November 2024
TECHNICIAN: Maureen Walczak

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	17 ±	19	3 ±	10
	<u>547 OSB</u>				
3	Sink on north wall	28 ±	28	-13 ±	16
4	Floor in front of sink	7 ±	23	-4 ±	15
5	South fume hood	-14 ±	24	11 ±	14
6	North fume hood	-5 ±	16	10 ±	14
7	Doorway wall	-11 ±	18	7 ±	14
	<u>Dive Locker</u>				
8	Base of ramp	42 ±	30	-3 ±	10
9	Floor in front of sink	6 ±	12	11 ±	13
10	Floor in front of side door	10 ±	20	9 ±	13
11	Floor in front of tank racks	11 ±	19	2 ±	10
12	Floor in front of office door	38 ±	26	0 ±	2
	<u>OTC</u>				
13	Floor in south hall entrance	1 ±	2	-16 ±	20
14	Floor in front of west side door	12 ±	43	-9 ±	11
15	Base of stairs	-20 ±	22	-7 ±	9
16	Floor in front of back benches	-1 ±	2	-13 ±	16
17	Floor in area 9 & 10	-22 ±	24	5 ±	19
18	Floor in middle aisle	18 ±	30	-3 ±	10
19	Floor in front of lab supply closet	15 ±	48	-15 ±	18
20	Floor in front of lecture area	-23 ±	39	-3 ±	11
21	Final bucket blank	-17 ±	28	-7 ±	26

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. Reports may now contain values less than zero. 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. Please note that we are now using a Quantulus 6220 LSC which counts very near natural background. While the cleanup standards have not changed all values above background will now be in

bold. All areas tested were free from isotope contamination that requires cleaning.