



Tritium Laboratory
14 October 2025

SWAB REPORT # 1131

SWAB DATE: 6 October 2025

R/V Atlantic Explorer
UNOLS Radioisotope Van #2408-04

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Distribution:
SWAB Committee
Capt. Rick Verlini
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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 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 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 # 1131

LOCATION: St. Georges, Bermuda

DATE: 6 October 2025

VESSEL: *R/V Atlantic Explorer*

TECHNICIAN: Yudy Mendoza

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	65	± 34	0	± 1
<u>Forward Lab (Figure 1)</u>					
3	Forward benchtop	14	± 23	18	± 17
4	Port benchtop forward of sink	16	± 26	34	± 15
5	Deck inside stbd entrance	31	± 41	5	± 595
6	Port sink area	53	± 27	10	± 17
7	Forward section of center benchtop	27	± 30	18	± 16
8	Port benchtop aft of sink	28	± 26	23	± 15
9	Deck outside Enviro Room	56	± 29	6	± 25
10	After section of center benchtop	48	± 26	17	± 15
11	Deck in front of sink	32	± 25	22	± 15
<u>Main Lab (Figure 1)</u>					
12	Deck inside forward entrance	1	± 1	22	± 16
13	Port sink area	58	± 28	7	± 20
14	Deck inside aft entrances	24	± 38	22	± 16
15	Deck in front of water sample rack	16	± 12	19	± 16
16	Inside thermoscientific live freezer	38	± 25	18	± 15
17	Inside thermoscientific live fridge	47	± 30	2	± 10
18	Deck in front of thermoscientific live freezer	5	± 8	25	± 16
19	Port benchtop forward of sink	36	± 25	21	± 15
20	Center benchtop	21	± 24	30	± 15
<u>Aft Lab (Figure 1)</u>					
21	Deck inside forward entrance	20	± 23	16	± 17
22	Port benchtop forward of sink	60	± 28	7	± 20
23	Inside -80 freezer # 1	26	± 27	23	± 15
24	Inside fume hood	39	± 24	22	± 15
25	Port sink area	23	± 30	22	± 15
26	Deck in front of thermoscientific freezer # 2	30	± 23	28	± 15
27	Center benchtop	47	± 28	11	± 17
28	Inside Dead Cospolich freezer	19	± 21	-3	± 12
29	Inside Live Cospolich refrigerator	29	± 27	21	± 15
30	Inside Live Cospolich freezer	44	± 27	14	± 16

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
31	Deck in front of fume hood	53	± 28	9	± 18
32	Deck in front of port sink	36	± 23	26	± 15
33	Intermediate bucket blank	24	± 22	29	± 15
<u>Radioisotope Van #2408-04 (Figure 2)</u>					
34	Benchtop adjacent to sink	30	± 22	29	± 15
35	Benchtop adjacent to fume hood	45	± 28	11	± 18
36	Inside fume hood	87	± 26	49	± 14
37	Top of LSC	97	± 28	44	± 14
38	Inside freezer	55	± 25	26	± 14
39	Inside refrigerator	153	± 36	28	± 12
40	Benchtop adjacent to LSC	65	± 24	43	± 14
41	Deck in front of fume hood	66	± 26	24	± 14
42	Sink area	26	± 37	14	± 17
43	Benchtop across from sink	9	± 15	25	± 15
44	Deck in center of van	108	± 30	40	± 14
45	Deck inside entrance	62	± 25	32	± 14
46	Final bucket blank	30	± 26	22	± 15

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 sampled inside the ship and in the Rad Van were free from isotope contamination requiring cleaning.

UNOLS Rad Van 2408-04

Figure 2
SWAB #1131
6 October 2025

