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Tritium Laboratory 28 July 2025

SWAB REPORT # 1122

SWAB DATE: 21 October 2025

UNOLS Radiation Van #2408-02

Dr. James D. Happell Associate Research Professor

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

All samples are counted for 60 minutes, the instrument background is subtracted, and activities are reported in dpm/m². Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in dpm/m². 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	3 H (dpm/m 2)	14 C (dpm m 2)	Recommendations		
A B*	<500	<50	No action		
Β.	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: ¹⁴C and ³⁵S have peak energies of 156 and 167 KeV, respectively; thus ³⁵S will be registered as ¹⁴C by our counting techniques. Categories A, B and C are not a health hazard.

<u>Recommended Cleaning Proceedure</u> Wearing ordinary household rubber gloves:

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 insitution promptly by phone or email.

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.

¹⁴C: Wash with 1% sulfuric or 2% hydrochloric (muriatic) acid with good ventilation (will dissolve carbonates, releasing ¹⁴CO₂). Follow up with wash as if for ³H.

REPORT FOR SWAB # 1122

LOCATION: Lewes, DE DATE: 21 July 2025

VESSEL: Rad Van 2408-02 TECHNICIAN: Josef Lachmann

Sample # Sample Identification	³ H dpr	³ H dpm/m ²			¹⁴ C dpm/m ²		
	activity	(error	activity	error		
1 1st Vial Bkgnd	0	土	0	0	±	0	
2 Initial bucket blank	7	\pm	525	-16	\pm	16	
3 Stainless benchtop & sink	-42	\pm	10	*412	±	31	
4 Stainless benctop next to fume hood	-28	\pm	5	*634	±	36	
5 Stainless benchtop next to sink	8	\pm	2	*208	±	24	
6 Inside fume hood	-3	\pm	3	36	±	17	
7 Wood benchtop next to LSC	17	\pm	20	-6	\pm	7	
8 Wood benchtop near door	18	±	14	15	\pm	15	
9 Deck near fume hood	46	±	11	*232	±	25	
10 Deck in center of van	69	±	14	*283	±	26	
11 Deck near entrance	80	±	14	*361	±	29	
12 Inside refrigerator	-21	\pm	3	*776	±	39	
13 Inside freezer	-1	\pm	0	0	\pm	17	
14 Final bucket blank (Sample was empty)		±			±		

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. Minor ¹⁴ C contamination was found in the Rad Van. No action is necessary.

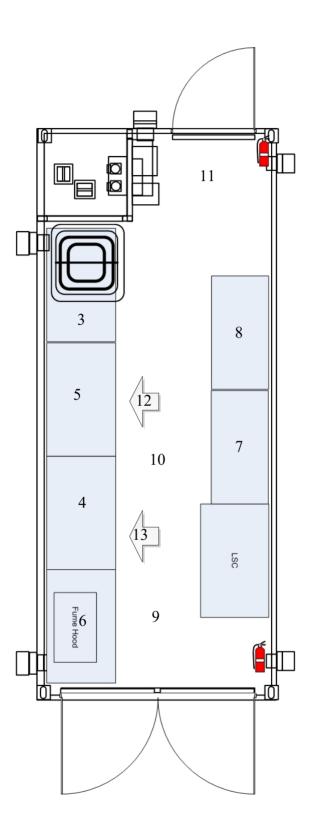


Figure 1 SWAB #1122 21 July 2025