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Tritium Laboratory
6 March 2024

SWAB REPORT # 1083

SWAB DATE: 9 March 2025

R/V F.G. Walton Smith Recheck

James Happell Digitally signed by James Happell
Date: 2024.03.12 09:48:17 +07'00'

James D. Happell

Distribution:
SWAB Committee
Don Cucchiara
Clay Dundas

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 ^{3}H & ^{14}C. This replaces an LSC with background cpm of 1.6 & 5.5 for ^{3}H & ^{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	^{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 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.

REPORT FOR SWAB # 1083

LOCATION: Miami, FL
VESSEL: *R/V F.G. Walton Smith*

DATE: 9 March 2024
TECHNICIAN: Charlene Grall

Sample #	Sample Identification	^{3}H dpm/m^{2} activity	±	error	^{14}C dpm/m^{2} activity	±	error
1	1st Vial Bkgnd	0	±	0	0	±	0
	Mess (Figure 1)						
2	Deck on portside outside stateroom	-382	±	25	**4530***	±	**89**
3	Deck on starboardside outside head	-280	±	18	**4679***	±	**90**
	Main Lab (Figure 1)						
4	Starboard benchtop after cleaning	-11	±	5	**162***	±	**22**
5	Port benchtop after cleaning	-14	±	0	**18**	±	**15**
6	Deck in front of stateroom 8 after cleaning	-1394	±	43	**19639****	±	**185**
7	Deck in front of stateroom 9 after cleaning	-993	±	38	**13176****	±	**152**
	Wet Lab (Figure 1)						
8	Deck inside aft entrance after cleaning	-2265	±	53	**32989****	±	**238**
9	Benchtop port of forward sink after cleaning	-7	±	2	**190***	±	**23**
	01 Deck (No Figure)						
10	Deck forward of wheelhouse on starboard side	-37	±	26	**153***	±	**21**
11	Deck at top of aft stairs to Main Deck	-85	±	15	**762***	±	**39**
12	Final bucket blank	-2	±	5	20	±	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. The contaminated areas on the Walton Smith that were observed in SWAB 1082 were cleaned with with a 2.5% solution of Count-Off. Several deck areas in the mess and on the 01 deck were SWAB tested for the first time. While the cleaning has helped , there is still minor to moderate ^{14}C or ^{35}S contamination. The new areas tested also had minor ^{14}C or ^{35}S contamination. Further cleaning of all deck areas in the ship is recommended. Cleaning with a dilute solution of HCl (muriatic acid) will help if the contamiantion is ^{14}C because the ^{14}C bicarbonate will be converted to $^{14}CO_2$ and released into the air.

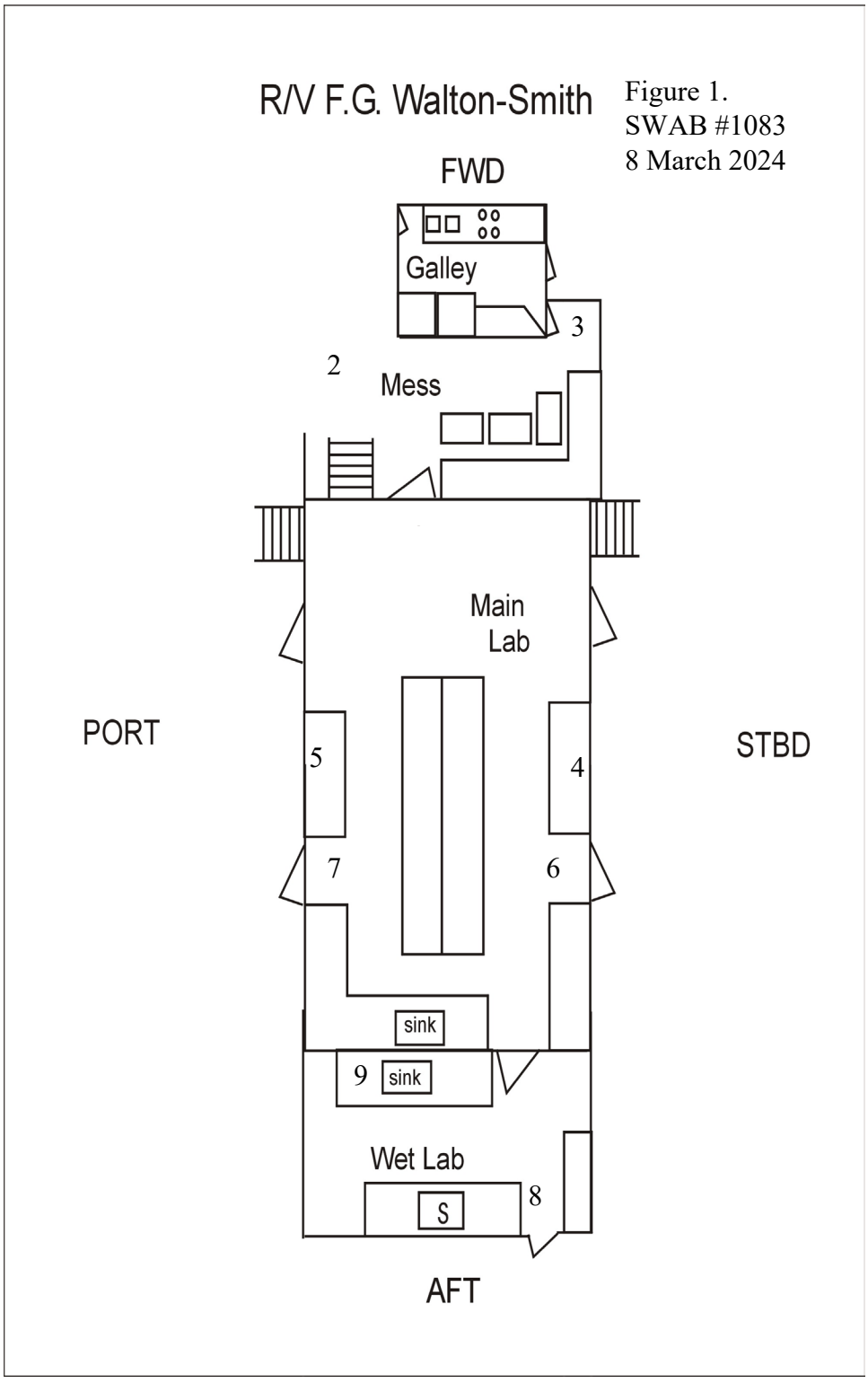

Figure 1.
SWAB #1083
8 March 2024