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

Tritium Laboratory
25 November 2013

SWAB REPORT # 720

SWAB DATE: 15 April 2014

R/V Atlantic Explorer and UNOLS Van # 2409.01

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
James Caison

COMMENTS TO SWAB REPORTS 23 November 2010

Typical LSC instrument background values for ^{3}H 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	^{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 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 # 704

LOCATION: St. George, Bermuda
VESSEL: *R/V Atlantic Explorer*

DATE: 15 April 2014
TECHNICIAN: Jim Happell

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
2	Initial bucket blank	0	±	0	7	±	50
	Aft Wet Lab (Figure 1)						
3	Inside fume hood	0	±	0	39	±	39
4	Deck at entrance to hood room	0	±	0	17	±	38
5	Benchtop forward of sink	0	±	0	28	±	39
6	Inside Roper freezer top	0	±	0	16	±	38
7	Inside Roper fridge bottom	0	±	0	17	±	43
8	Inside GE freezer	0	±	0	4	±	128
9	Inside small black GE	0	±	0	0	±	0
10	Center benchtop	0	±	0	0	±	0
11	Deck at forward entrance	0	±	0	16	±	38
12	Forward benchtop	0	±	0	7	±	68
	Forward Lab (Figure 1)						
13	Benchtop forward of sink	0	±	0	0	±	0
14	Forward benchtop	0	±	0	11	±	47
15	Deck at starboard entrance	4	±	86	0	±	0
16	Deck at infirmary entrance	0	±	0	0	±	0
17	Deck at top of stairs	0	±	0	0	±	0
18	On top of VWR freezer	0	±	0	7	±	66
19	Center benchtop	0	±	0	11	±	40
20	Benchtop aft of sink	0	±	0	12	±	50
21	Benchtop inside Enviro Room	0	±	0	0	±	0
22	Deck in Enviro Room	0	±	0	0	±	0
	Main Lab (Figure 1)						
23	Starboard forward freezer	0	±	0	0	±	0
24	Port forward freezer	0	±	0	0	±	0
25	Starboard benchtop	0	±	0	0	±	0
26	Deck in front of port benchtop	0	±	0	0	±	0
27	Deck in front of freezers	0	±	0	13	±	45
28	Deck in front of stbd. benchtop	0	±	0	0	±	0
29	Deck inside aft entrance	0	±	0	0	±	0

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
30	Center benchtop	0	±	0	25	±	37
31	Benchtop aft of sink	0	±	0	10	±	47
32	Sink area	0	±	0	0	±	0
33	Inside clean air bench	0	±	0	21	±	41
34	Intermediate bucket blank	0	±	0	0	±	0
	UNOLS Share Use Van 2409.01 (Figure 2)						
35	Sink area	51	±	58	0	±	0
36	Benchtop next to LSC	0	±	0	0	±	0
37	Inside fume hood	291	±	68	10	±	14
38	Top of LSC	*1805	±	129	*52	±	14
39	Deck between LSC and hood	*873	±	97	6	±	4
40	Deck at entrance	251	±	66	13	±	17
41	Inside Danby under sink	*3354	±	156	*1102	±	60
42	Forward benchtop	148	±	63	0	±	0
43	Final bucket blank	0	±	0	0	±	0

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.

All areas tested in the ship were free from isotope contamination that requires cleaning.

Minor ^{14}C and ^{3}H contamination was detected in the radioisotope van. No action is required

However, cleaning of van deck is recommended to help prevent tracking radioisotopes into the ship.

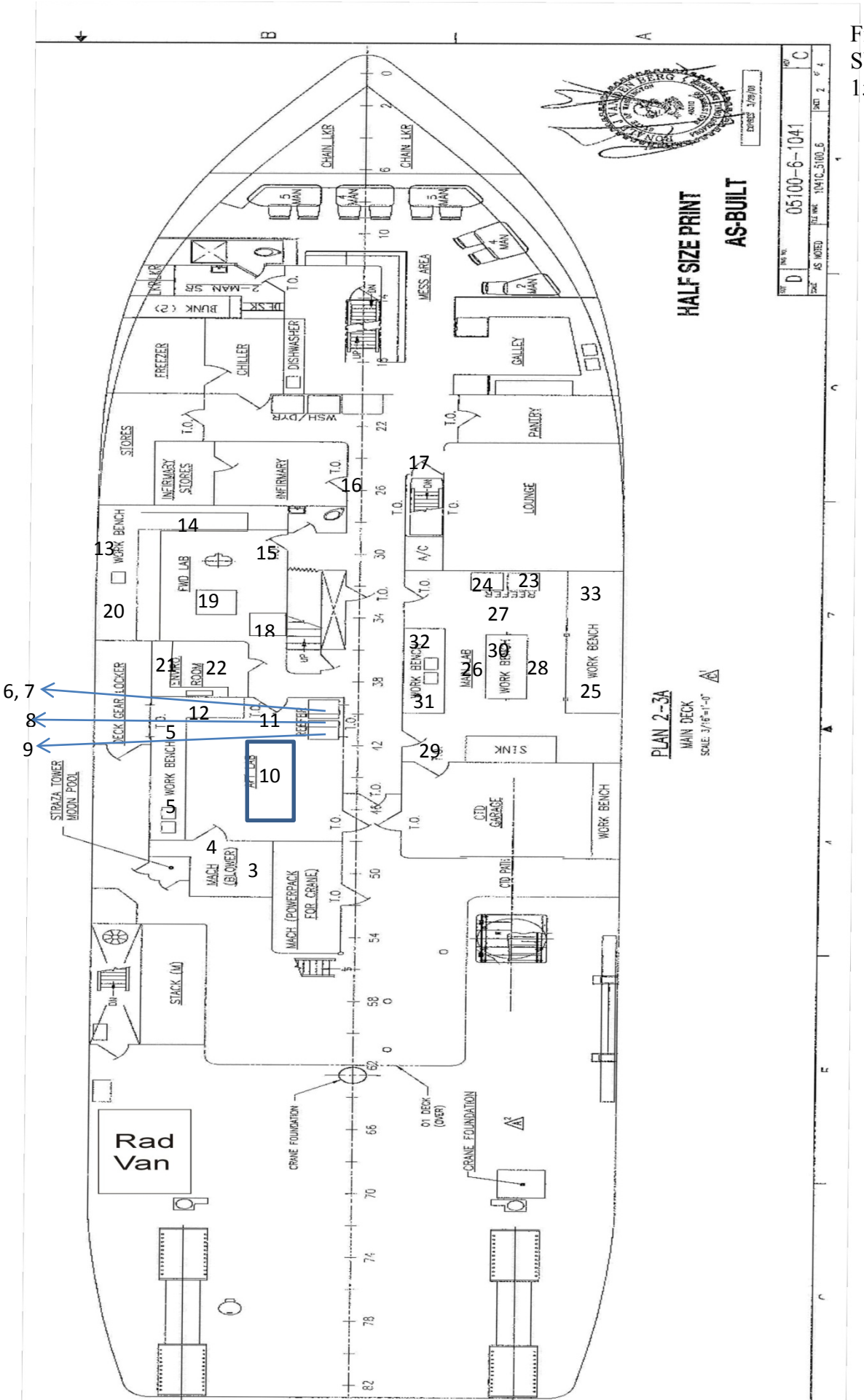

Figure 1
SWAB #720
15 April 2014

SWAB #720
Figure 2
15 April 2014

UNOLS Shared Use Van 2409.01