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16 April 2012

SWAB REPORT # 622

SWAB DATE: 10 April 2012

R/V Atlantic Explorer

James Happell

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James D. Happell

Distribution:
SWAB Committee
James Casion

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/m2 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 # 622

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

DATE: 10 April 2012
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
2	Initial bucket blank	0	±	0	0	±	0
Aft Wet Lab (see Figure 1)							
3	Inside fume hood	0	±	0	0	±	0
4	Deck at entrance to hood room	0	±	0	0	±	0
5	Bench top fwd. of sink	16	±	11	*143	±	41
6	Inside Roper freezer top	9	±	136	0	±	0
7	Inside Roper refridgerator bottom	30	±	28	46	±	36
8	Inside GE freezer	0	±	0	0	±	0
9	Inside small black GE refrigerator	0	±	0	0	±	0
10	Center bench top	31	±	132	0	±	0
11	Deck at fwd. entrance	0	±	0	*123	±	41
12	Fwd. bench top	39	±	36	42	±	36
Dry Lab (see Figure 1)							
13	Bench top fwd. of sink	19	±	207	0	±	0
14	Fwd. bench top	0	±	0	0	±	0
15	Deck at stbd. entrance	11	±	0	0	±	0
16	Bench top aft of sink	0	±	0	0	±	0
17	Top of -80 freezer	31	±	80	0	±	0
18	Benc top next to sink in Enviro Room	0	±	0	0	±	0
19	Deck in Enviro Room	0	±	0	15	±	40
20	Deck between Galley and Lounge	0	±	0	0	±	0
Main Lab (see Figure 1)							
21	Main Lab Inside clean air bench	0	±	0	0	±	0
22	Port forward freezer, may be dilute	18	±	648	0	±	0
23	Stbd forward freezer, may be dilute	12	±	291	0	±	0
24	Stbd benchtop	4	±	0	0	±	0
25	Deck in front of stbd benchtop	9	±	0	0	±	0
26	Deck in front of aft benchtop	0	±	0	0	±	0
27	Center benchtop	26	±	82	0	±	0
28	Cenchtop aft of sink	0	±	0	0	±	0
29	Deck below sink	21	±	147	0	±	0

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
Main Lab continued							
30	Deck inside aft entrance	24	±	142	0	±	0
31	Stbd benchtop in CTD Room	0	±	0	5	±	45
UNOLS Rad Van 2409-01 (see Figure 2)							
32	Deck outside Rad Van entrance	23	±	128	0	±	0
33	Rad Van Top of LSC	*528	±	78	*71	±	28
34	Sink area	308	±	71	9	±	13
35	Forward clean benchtop	*545	±	79	8	±	8
36	Final bucket blank	4	±	0	0	±	0

Comments

All areas tested on the ship were free of tritium contamination, however minor ^{14}C activity was found in the Aft Wet Lab. These areas should cleaned before any natural tracer work is done in there. Minor ^{14}C and minor ^{3}H contamination was found in the radiation van.
No action is required.

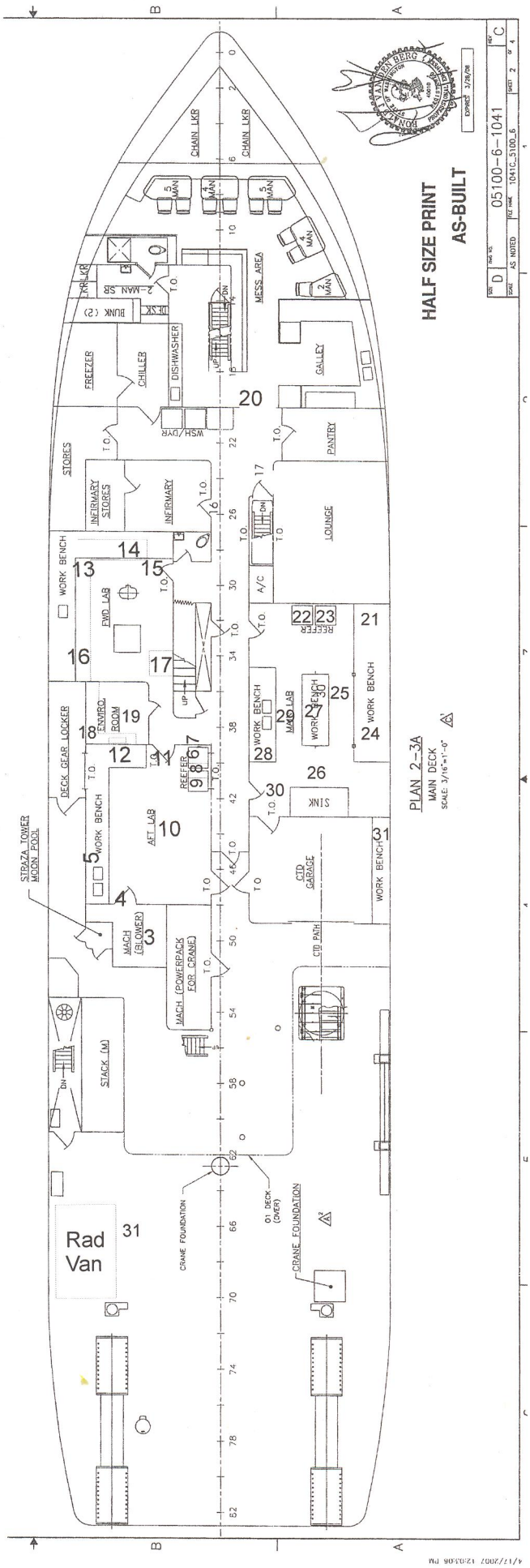

Figure 1
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Figure 2
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