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30 September 2011

SWAB REPORT # 597

SWAB DATE: 21 September 2011

R/V Atlantic Explorer

James Happell

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James D. Happell

Distribution:
SWAB Committee
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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 # 593

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

DATE: 21 September 2011
TECHNICIAN: Cecilia Roig

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	33	±	38
4	Deck at entrance to hood room	0	±	0	3	±	46
5	Bench top forward of sink	0	±	0	6	±	37
6	Inside Roper freezer top	0	±	0	9	±	39
7	Door inside Roper refrigerator bottom	16	±	131	0	±	0
8	Inside GE freezer	0	±	0	13	±	38
9	Inside small black GE refrigerator	0	±	0	9	±	43
10	Center bench top	17	±	74	0	±	0
11	Deck at forward entrance	0	±	0	17	±	43
12	Forward bench top	0	±	0	5	±	54
Dry Lab (see Figure 1)							
13	Bench top forward of sink	106	±	51	43	±	33
14	Forward bench top	0	±	0	0	±	0
15	Deck at starboard entrance	0	±	0	7	±	43
16	Deck at infirmary entrance	0	±	0	5	±	45
17	Deck at top of stairs	10	±	136	0	±	0
18	Deck in front of ice machine	0	±	0	1	±	62
19	Center bench top	0	±	0	0	±	0
20	Bench top aft of sink	0	±	0	0	±	0
21	Deck in Enviro Room	20	±	175	0	±	0
Main Lab (see Figure 1)							
22	Port forward freezer	0	±	0	12	±	43
23	Starboard forward freezer	0	±	0	7	±	67
24	Inside clean air bench top	0	±	0	0	±	0
25	Starboard bench top	0	±	0	0	±	0
26	Aft bench top	0	±	0	12	±	42
27	Deck in front of freezers	0	±	0	0	±	0
28	Deck in front of starboard bench	0	±	0	0	±	0
29	Deck in front of aft bench	0	±	0	1	±	0

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		^{3}H dpm/m^{2} error	^{14}C dpm/m^{2} activity		^{14}C dpm/m^{2} error
Main Lab continued							
30	Center bench top	0	±	0	27	±	41
31	Bench top aft of sink	0	±	0	7	±	65
32	Bench top forward of sink	0	±	0	0	±	0
33	Intermediate bucket blank	0	±	0	6	±	52
UNOLS Rad Van 2409-01 (see Figure 2)							
34	Bench top next to LSC	*617	±	86	0	±	0
35	Bench top around sink	104	±	42	*117	±	39
36	Forward bench top	0	±	0	0	±	0
37	Inside fume hood	45	±	43	32	±	35
38	Top of LSC	0	±	0	8	±	40
39	Deck between LSC and hood	271	±	67	24	±	23
40	Inside Danby next to LSC	12	±	64	0	±	0
41	Inside Danby under sink	*1952	±	129	*112	±	23
42	Deck at entrance	195	±	63	13	±	20
43	Final bucket blank	0	±	0	8	±	46

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.
All areas tested on the ship were free of radioisotope contamination.
Minor ^{14}C and minor ^{3}H contamination was found in the radiation van. No action is required.

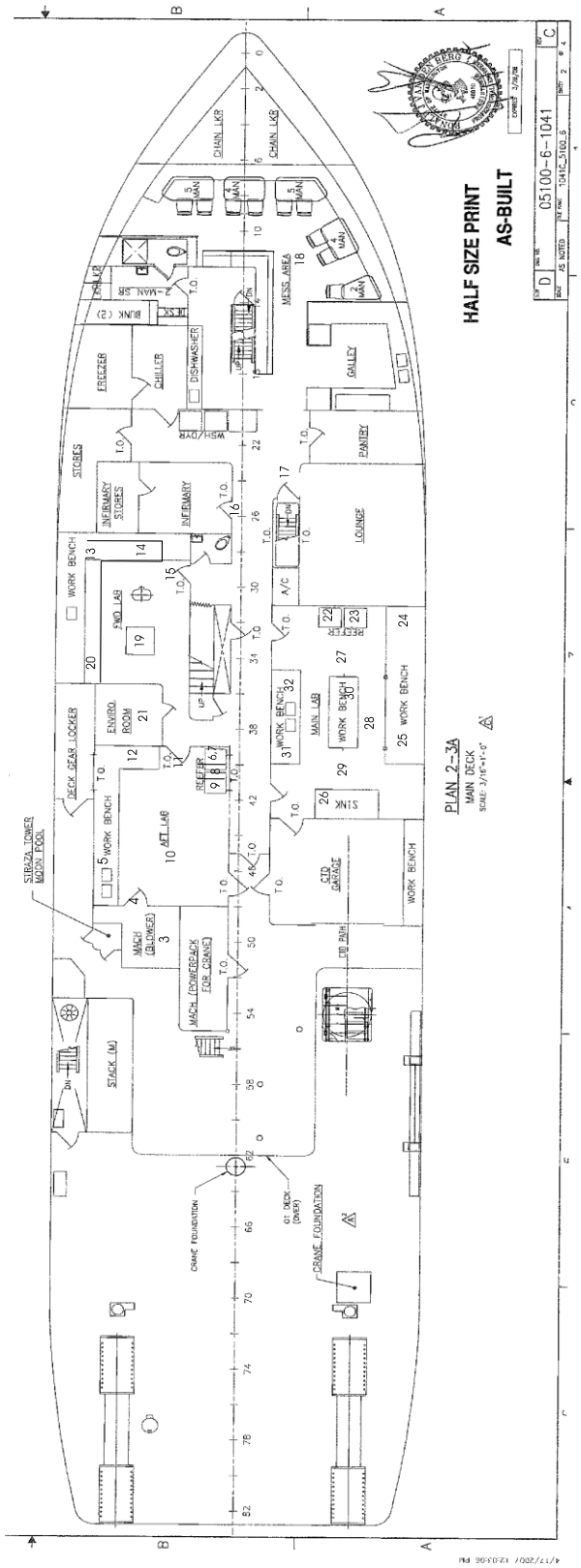

Figure 1
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Figure 2
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