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Tritium Laboratory
27 April 2015

SWAB REPORT # 770

SWAB DATE: 21 April 2015

R/V New Horizon

James Happell

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Distribution:
SWAB Committee
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COMMENTS TO SWAB REPORTS 12 May 2014

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 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 # 770

LOCATION: San Diego, CA
VESSEL: *LM Gould*

DATE: 21 April 2015
TECHNICIAN: Charlene Grall

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
1	1st Vial Bkgnd	0	±	0	0	±	0
2	Initial bucket blank CO #1	52	±	52	-15	±	43
	Main Lab (Figure 1)						
3	Top of GE freezer	23	±	55	-11	±	30
4	Inside Norlake refrigerator	13	±	143	-20	±	56
5	Sink area	12	±	777	-20	±	56
6	Deck below freezer and refrigerator	29	±	57	-14	±	40
7	Wood benchtop opposite GE freezer	4	±	127	-6	±	15
8	Deck inside forward lab entrance	2	±	17	5	±	35
9	Deck between port sink and wood benchtop	-9	±	0	7	±	38
10	Deck at entrance to Wet Lab	2	±	11	13	±	35
11	Wood benchtop aft of port sink	34	±	42	5	±	25
12	Aft wood benchtop center section	17	±	52	-6	±	17
13	Aft wood benchtop aft section	-11	±	0	-3	±	9
14	Starboard benchtop forward of computer station	-5	±	0	-24	±	67
15	Starboard benchtop aft of computer station	31	±	46	0	±	1
16	Deck inside aft entrance of lab	45	±	56	-20	±	54
	Wet Lab (Figure 1)						
17	Port section of forward benchtop	0	±	7	4	±	35
18	Starboard section of forward benchtop	18	±	103	-23	±	65
19	Sink area	35	±	50	-3	±	8
20	Benchtop adjacent to sink	10	±	51	-20	±	56
21	Wood benchtop opposite of sink	10	±	56	-5	±	15
22	Deck outside aft starboard entrance	-2	±	0	-11	±	31
23	Deck between forward entrance and cold room	6	±	0	-25	±	68
24	Benchtop inside Cold Room	-21	±	0	-22	±	60
25	Deck of Cold Room	0	±	0	15	±	36
	Ocean Lab (Figure 1)						
26	Ocean Lab Port sink area	28	±	45	0	±	7
27	Aft sink area	8	±	111	-11	±	29
28	Port aft benchtop	-2	±	0	-2	±	5
29	Benchtop adjacent to aft sink	-20	±	0	14	±	39

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
30	Benchtop opposite of aft sink	-36	±	0	-6	±	18
31	Deck between aft and port sinks	48	±	57	-19	±	53
32	Deck at aft entrance to lab	33	±	74	-29	±	81
33	Deck below starboard benchtop	18	±	63	-13	±	36
34	Benchtop opposite of aft port sink	40	±	77	-37	±	102
35	Final bucket blank CO #1	27	±	84	-29	±	80
	Mess/Laundry area (Figure 1)						
36	Initial bucket blank CO #2	21	±	180	-36	±	100
37	Deck outside Laundry Room	10	±	0	-28	±	77
38	Deck below snack refrigerator	-1	±	0	-3	±	9
	Upper Lab (Figure 1)						
39	Deck in companionway forward	11	±	56	-5	±	13
40	Deck outside forward entrance of lab	-3	±	0	-17	±	46
41	Deck in front of aft desk	-7	±	0	-10	±	27
	CALCOFI Van (Figure 2)						
42	Deck outside entrance	32	±	57	-14	±	38
43	Benchtop adjacent to refrigerator	40	±	61	-22	±	62
44	Sink area	24	±	27	36	±	35
45	Benchtop adjacent to sink	22	±	26	39	±	36
46	Benchtop across from sink	-10	±	0	-9	±	25
47	Deck below sink	30	±	56	-12	±	34
48	Deck inside entrance	19	±	61	-10	±	29
49	Final bucket blank CO #2	33	±	75	-30	±	83

Comments

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

The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negatives values to zero. Values are only significantly above background when they are positive and larger than the error.

All areas tested were free from contamination that requires cleaning

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Figure 1

R/V NEW HORIZON

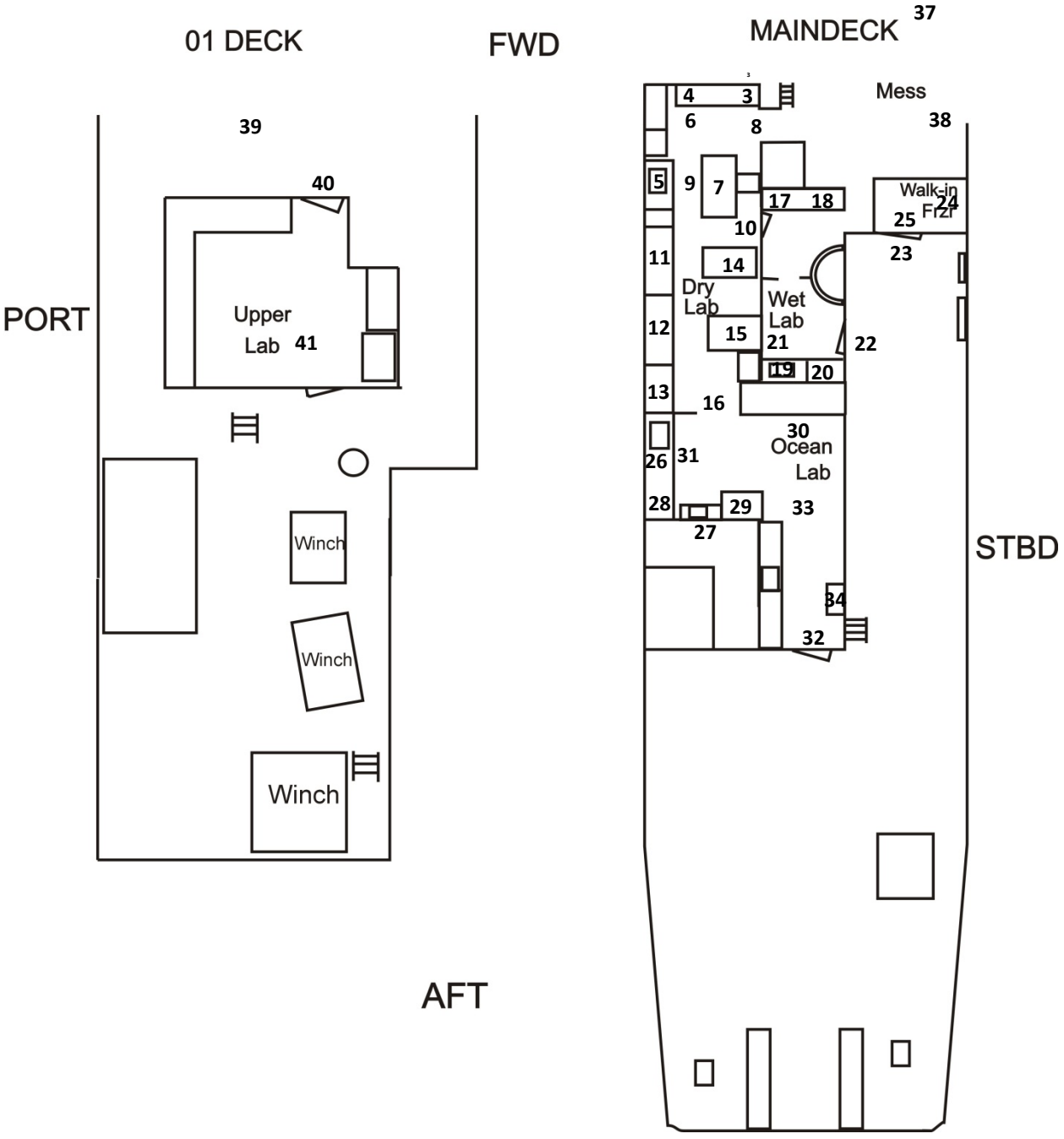

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Figure 2

CalCOFI Van