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10 November 2011

SWAB REPORT # 606

SWAB DATE: 4 November 2011

*R/V New Horizon* and Calcofi Van

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James D. Happell

Distribution:  
SWAB Committee  
Gary Lain

## COMMENTS TO SWAB REPORTS

23 November 2010

Typical LSC instrument background values for  $^3\text{H}$  and  $^{14}\text{C}$  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  $\text{dpm}/\text{m}^2$ . Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in  $\text{dpm}/\text{m}^2$ . An error larger than the activity indicates that the activity is not significantly different from zero.

### Criteria for SWAB Results

Category	$^3\text{H}$ ( $\text{dpm}/\text{m}^2$ )	$^{14}\text{C}$ ( $\text{dpm m}^2$ )	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 $\text{dpm}/\text{m}^2$ 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:  $^{14}\text{C}$  and  $^{35}\text{S}$  have peak energies of 156 and 167 KeV, respectively; thus  $^{35}\text{S}$  will be registered as  $^{14}\text{C}$  by our counting techniques. Categories A, B and C are not a health hazard.

### Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

$^3\text{H}$ : 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.

$^{14}\text{C}$ : Wash with 1% sulfuric or 2% hydrochloric (muriatic) acid with good ventilation (will dissolve carbonates, releasing  $^{14}\text{CO}_2$ ). Follow up with wash as if for  $^3\text{H}$ .

### 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 # 606

LOCATION: Point Loma, CA  
VESSEL/LAB: *R/V New Horizon*

DATE: 4 November 2011  
TECHNICIAN: Charlene Grall

Sample #	Sample Identification	<sup>3</sup> H dpm/m <sup>2</sup>		<sup>14</sup> C dpm/m <sup>2</sup>	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	27	± 0	13	± 0
<u>Main Lab (See Figure 1)</u>					
3	Deck inside forward entrance	118	± 60	0	± 0
4	Inside Kenmore freezer	13	± 73	0	± 0
5	Inside Kenmore refrigerator	40	± 45	6	± 27
6	Port sink area	55	± 44	19	± 32
7	Deck in front of sink	36	± 47	3	± 23
8	Port benchtop aft of sink	0	± 0	6	± 41
9	Forward bench top	36	± 70	0	± 0
10	Port benchtop below aft porthole	25	± 48	0	± 0
11	Deck between benchtops near electronics	31	± 40	14	± 33
12	Deck at entrance to wetlab	49	± 47	6	± 26
13	Port benchtop forward of bulkhead	65	± 50	3	± 16
14	Deck at aft entrance to Ocean Lab	63	± 54	0	± 0
<u>Ocean Lab (See Figure 1)</u>					
15	Aft sink area	58	± 65	0	± 0
16	Deck at entrance to stairwell	21	± 45	2	± 24
17	Port forward sink area	25	± 31	32	± 36
18	Benchtop aft of port forward sink	28	± 63	0	± 0
19	Benchtop starboard of aft sink	14	± 28	22	± 36
20	Benchtop in middle of lab	69	± 52	0	± 4
21	Aft port sink next to fume hood	8	± 61	0	± 0
22	Deck below fume hood and sink	14	± 62	0	± 0
<u>Wet Lab and Walk In Freezer (See Figure 1)</u>					
23	Sink area	58	± 52	0	± 0
24	Forward port benchtop	20	± 43	4	± 29
25	Foward starboard benchtop	32	± 55	0	± 0
26	Deck below sink	207	± 45	18	± 22
27	Deck outside mess hall entrance	71	± 47	25	± 33
28	W/I freezer benchtop	59	± 45	13	± 30
29	W/I freezer deck inside entrance	4	± 33	4	± 35

Sample #	Sample Identification	$^3\text{H}$ dpm/m <sup>2</sup>		$^{14}\text{C}$ dpm/m <sup>2</sup>	
		activity	error	activity	error
<u>Miscellaneous Areas (No Figures)</u>					
30	Mess deck outside Lounge entrance	18	± 45	2	± 25
31	Deck just inside Laundry	32	± 49	0	± -95
32	Final bucket blank #1	3	± 0	0	± 0
33	Initial bucket blank #2	18	± 37	10	± 34
<u>Calcofi Van (See Figure 2)</u>					
34	Deck under sink	65	± 27	*145	± 41
35	Sink area	31	± 66	0	± 0
36	Benchttop across from sink	21	± 43	4	± 28
37	Bench top right of sink	42	± 21	*136	± 41
38	Inside fridge door	48	± 33	*58	± 37
39	Benchttop right of fridge	0	± 0	5	± 39
40	Deck at entrance	8	± 10	*69	± 39
41	Final bucket blank #2	27	± 0	0	± 0

### Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. All areas tested on the R/V New Horizon were free of radioisotope contamination.

Very minor  $^{14}\text{C}$  contamination was found on deck under sink, on benchttop right of sink, on deck at entrance and inside refrigerator.

# R/V NEW HORIZON

Figure 1.  
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4 November 2011

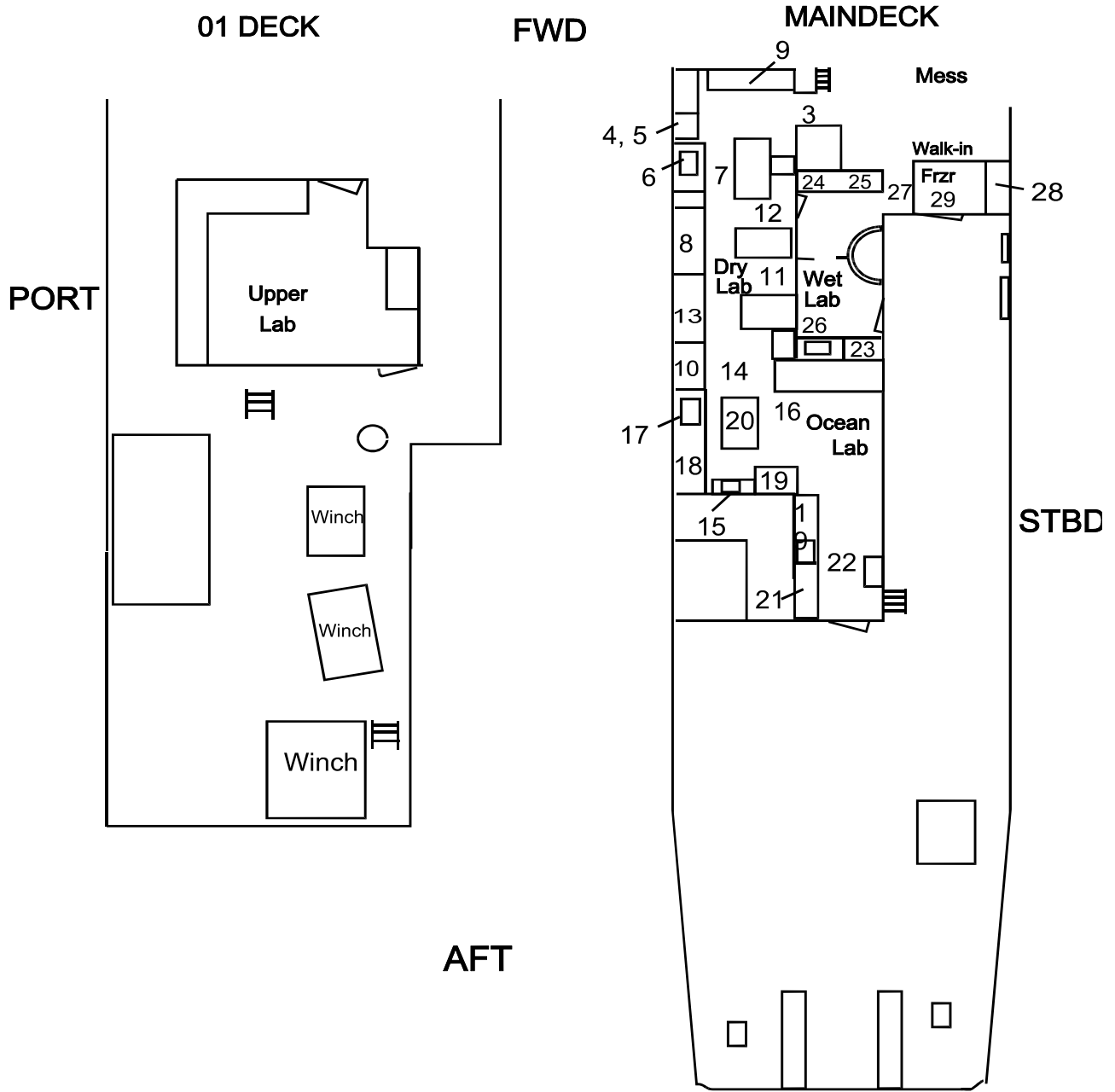


Figure 2.  
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# CalCOFI Van

