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Tritium Laboratory
10 June 2016

SWAB REPORT # 813

SWAB DATE: 1 June 2016

R/V Oceanus

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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 # 813

LOCATION: Honolulu, HI
VESSEL: *R/V Oceanus*

DATE: 1 June 2016
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	36	±	61	-25	±	44
	Main Lab (Figure 1)						
3	Benchtop next to sink area	63	±	68	-49	±	85
4	Inside forward port refrigerator	55	±	63	-37	±	65
5	Deck near forward stairs	49	±	62	-32	±	57
6	Port benchtop aft of refrigerator	9	±	449	-15	±	27
7	Forward sink area	49	±	61	-30	±	53
8	Benchtop next to forward port refrigerat	41	±	65	-19	±	34
9	Deck at winch control station	53	±	64	-39	±	68
10	Deck scross from	35	±	56	-18	±	31
11	Benchtop next to whirlpool freezer	67	±	85	-31	±	55
12	Top of So-Lo -80^{o}C freezer	97	±	61	-55	±	95
13	Benchtop next to So-Lo -80^{o}C freezer	71	±	86	-17	±	29
14	Starboard aft benchtop	38	±	98	-43	±	76
15	Port aft benchtop	-7	±	9	3	±	46
16	Deck by aft entrance	50	±	126	-73	±	127
17	Inside Whirlpool freezer	72	±	52	-21	±	36
18	Deck by starboard entrance	35	±	73	-32	±	56
	Wet Lab (Figure1)						
19	Sink area	54	±	63	-34	±	59
20	Deck between starboard sink and port ent	62	±	68	-50	±	88
21	Deck by aft door	62	±	73	-62	±	109
22	Port benchtop	69	±	66	-45	±	79
23	Forward benchtop	69	±	63	-43	±	76
	Miscellaneous Areas (Figure 1)						
24	Passageway between library and wet lab	49	±	61	-31	±	55
25	Deck in mess/galley	52	±	66	-39	±	68
26	Passageway at forward entrance to main lab	66	±	73	-56	±	98

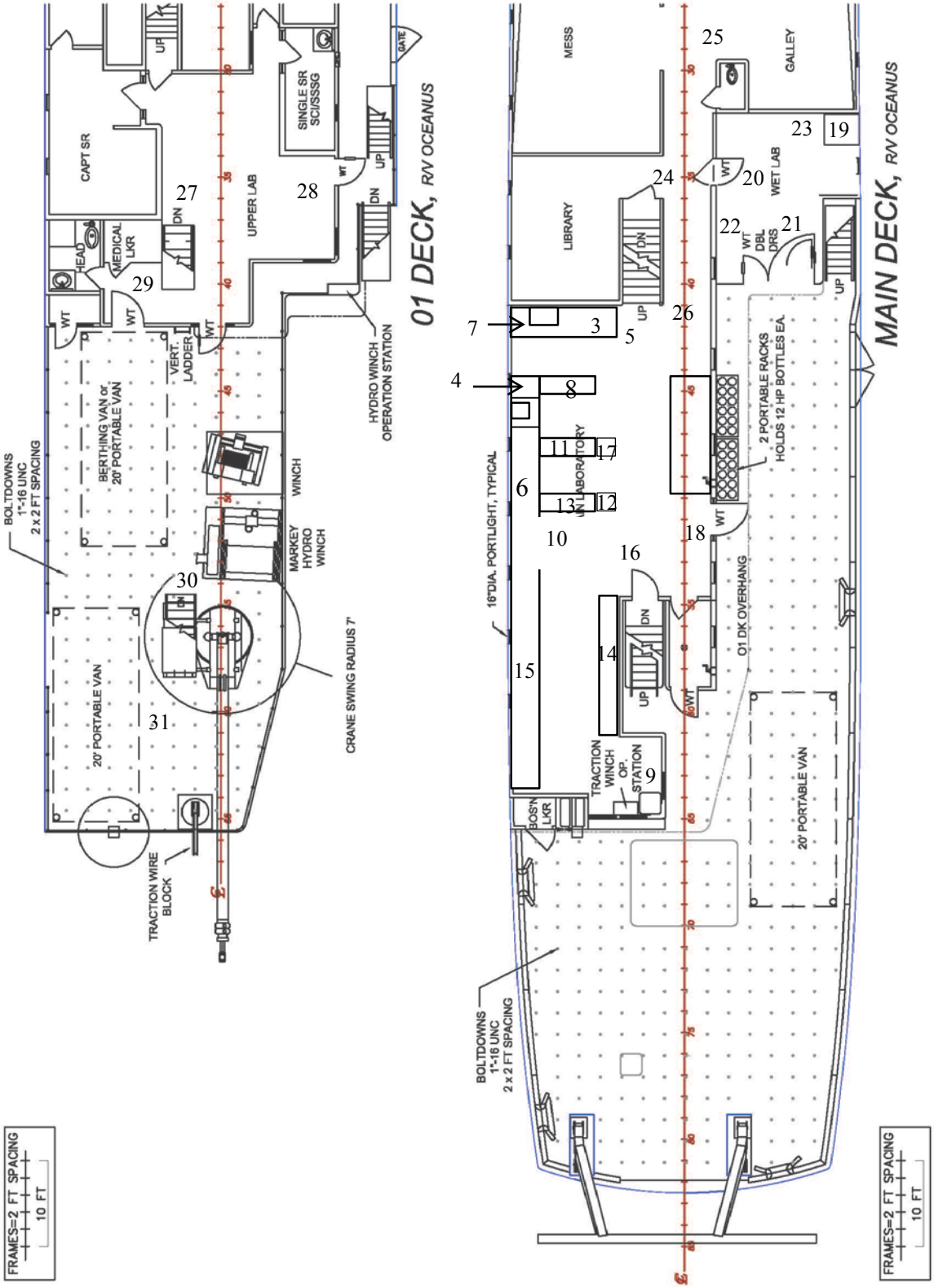
Sample #	Sample Identification	^{3}H dpm/m^{2} activity		^{3}H dpm/m^{2} error	^{14}C dpm/m^{2} activity		^{14}C dpm/m^{2} error
	01 Deck (Figure 1)						
27	Deck at top of stairs to upper lab	56	±	58	-29	±	51
28	Upper la deck near starboard door	55	±	82	-57	±	100
29	Deck between head and infirmary	27	±	72	-23	±	41
30	Ourside deck at top of aft ladder	30	±	62	-21	±	37
31	Deck near Rad Van entrance	-11	±	15	-237	±	414
	Rad Van #23 (Figure 2)						
32	Benchtop across from and left of door	69	±	63	-43	±	75
33	Benchtop across from and right of door	280	±	63	-24	±	42
34	Benchtop right of door	209	±	64	-48	±	83
35	Bnechtop left of door	70	±	64	-42	±	73
36	Inside refrigerator left of door	*3598	±	158	7	±	2
37	Inside refrigerator righ to door	*5155	±	193	*81	±	11
38	Deck to right of door	*548	±	78	-41	±	0
39	Center deck	*987	±	98	-30	±	52
40	Deck to left of door	418	±	70	-5	±	13
41	Sink area	227	±	63	-56	±	98
42	Final bucket blank	45	±	68	-38	±	66

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 negative values to zero. Values are only significantly above background when they are positive and larger than the error. All areas tested on the ship were free from any isotope contamination that requires cleaning. The rad van had some minor ^{3}H contamination in the refrigerators and on the deck. There was also minor ^{14}C contamination in one refrigerator. No action is necessary in the van.

R/V Oceanus

Figure 1
SWAB #813
1 June 2016



Hawaii Van #23