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Tritium Laboratory
31 August 2018

SWAB REPORT # 913

SWAB DATE: 24 August 2018

R/V Oceanus

James Happell

Digitally signed by James Happell
Date: 2018.09.04 18:16:27 -04'00'

Dr. James D. Happell
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Distribution:
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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 # 913

LOCATION: Seattle, WA
VESSEL: *R/V Oceanus*

DATE: 24 August 2018
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
	Main Lab (Fig. 1)						
2	Initial bucket blank	28	±	53	-8	±	22
3	Deck at winch operations station	-7	±	24	43	±	37
4	Midsection of port benchtop	-13	±	0	25	±	38
5	Top of So-Low freezer	13	±	30	18	±	35
6	Aft-most benchtop	-22	±	0	10	±	41
7	Aft benchtop adjacent to so-low freezer	-30	±	0	16	±	40
8	Port benchtop between middle and aft benches	-2	±	18	12	±	36
9	Middle benchtop	-20	±	0	14	±	39
10	Forward benchtop	10	±	101	-11	±	48
11	Sink area	-13	±	99	15	±	38
12	Deck in front of stairs to 01 Deck	-15	±	82	-4	±	16
13	Inside cooler drawers across from forward sink	30	±	49	-5	±	26
	Wet Lab (Fig. 1)						
14	Inside fume hood	4	±	25	8	±	35
15	Benchtop adjacent to fume hood	-28	±	74	24	±	39
16	Fwd benchtop above freezer	0	±	0	-13	±	61
17	Port benchtop	-39	±	101	27	±	40
18	Deck inside port entrance	37	±	38	22	±	33
19	Deck inside aft entrance	-23	±	430	41	±	39
	Maindeck (Fig. 1)						
20	Starboard deck where CTD sits	-4	±	63	14	±	37
21	Deck at base of aft stair to 01 Deck	-19	±	85	-5	±	47
	Upper Lab (Fig. 1)						
22	Deck at top of stairs	-4	±	0	6	±	37
23	Deck of Upper Lab	-9	±	0	8	±	38
24	Deck outside of Infirmary	-6	±	123	15	±	37
25	Final bucket sample	6	±	212	-11	±	23

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 radioisotope contamination that requires cleaning.

Figure 1
SWAB #913
24 August 2018

R/V Oceanus