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Tritium Laboratory
20 July 2018

SWAB REPORT # 908

SWAB DATE: 9 July 2018

R/V Sikuliaq

James Happell
Digitally signed by James Happell
Date: 2018.07.20 15:13:33 -04'00'

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Steven Hartz

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 # 908

LOCATION: Seward, AK
VESSEL: *R/V Sikuliaq*

DATE: 9 July 2018
TECHNICIAN: Jim Happell

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	-36	±	88	20	±	41
	Main Lab (Figure 1)						
3	Forward sink area	-20	±	48	-16	±	33
4	Deck inside forward entrance	-35	±	85	3	±	114
5	Inside forward fume hood	1	±	2	-6	±	58
6	Forward starboard sink area	-18	±	43	5	±	46
7	Aft starboard sink area	-31	±	76	0	±	4
8	Deck inside aft entrance	-56	±	135	-3	±	31
9	Inside aft fume hood	8	±	81	-7	±	62
10	Port sink area	-31	±	75	-8	±	74
11	Deck in front of port sink	-4	±	8	-9	±	79
12	Deck in front of starboard aft sink	-33	±	80	5	±	58
13	Port aft benchtop	-95	±	230	33	±	46
14	Deck in front of stbd fwd sink	-27	±	65	-5	±	50
15	Center benchtop	-8	±	251	16	±	39
	Wet Lab (Figure 2)						
16	Deck inside port entrance	-6	±	16	-43	±	90
17	Inside Cospolich freezer	-37	±	90	6	±	53
18	Inside Cospolich refrigerator	-45	±	108	-4	±	37
19	Deck inside wet gear locker	-13	±	31	-16	±	33
20	Inside fume hood	-24	±	59	-20	±	41
21	Port sink area	-28	±	68	-20	±	42
22	Deck inside aft entrance	-18	±	45	-4	±	39
23	Starboard aft bench	-55	±	133	-14	±	29
24	Starboard forward bench	-33	±	80	-16	±	33
25	Aft sink area	-40	±	97	-22	±	45
26	Deck inside forward entrance	-34	±	83	-26	±	53
27	Deck in front of fume hood/sink	-39	±	94	-13	±	27

	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
	Bio-Analytical Lab (Figure 3)						
28	Forward sink area	-35	±	85	-16	±	33
29	Inside fume hood	-34	±	83	7	±	49
30	Inside So-Low refrigerator	-33	±	80	5	±	59
31	Wooden port bench	-51	±	124	0	±	4
32	Deck between sink and fume hood	-18	±	43	-3	±	30
33	Deck inside starboard entrance	-18	±	44	-6	±	60
	Main Deck Miscellaneous (Figure 4)						
34	Deck outside Science Freezer	-64	±	155	7	±	77
35	Deck outside climate control chamber	-7	±	16	-12	±	25
36	Deck of electronics/comp lab in front of printer	-14	±	35	-5	±	45
37	Deck in center of Science office	-57	±	137	3	±	28
38	Science freezer middle aft benchtop	2	±	5	-5	±	46
39	Middle port benchtop	-41	±	100	7	±	53
40	Climate control aft benchtop	-25	±	61	-8	±	77
	Aft Main Deck (Figure 5)						
41	Deck of Baltic room where rosette sampled	-23		55	-23		48
42	Fantail deck below forward door of rad van	14	±	106	-16	±	33
43	Fantail deck below aft door of rad van	-55		134	-2		20
44	Deck where incubators were located	-43		105	-3		27
45	Final bucket blank	-6		15	-38		78

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 positive and larger than the error. All areas tested on the ship were free from any isotope contamination that requires cleaning.

Figure 1
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R/V Sikuliaq Main Lab

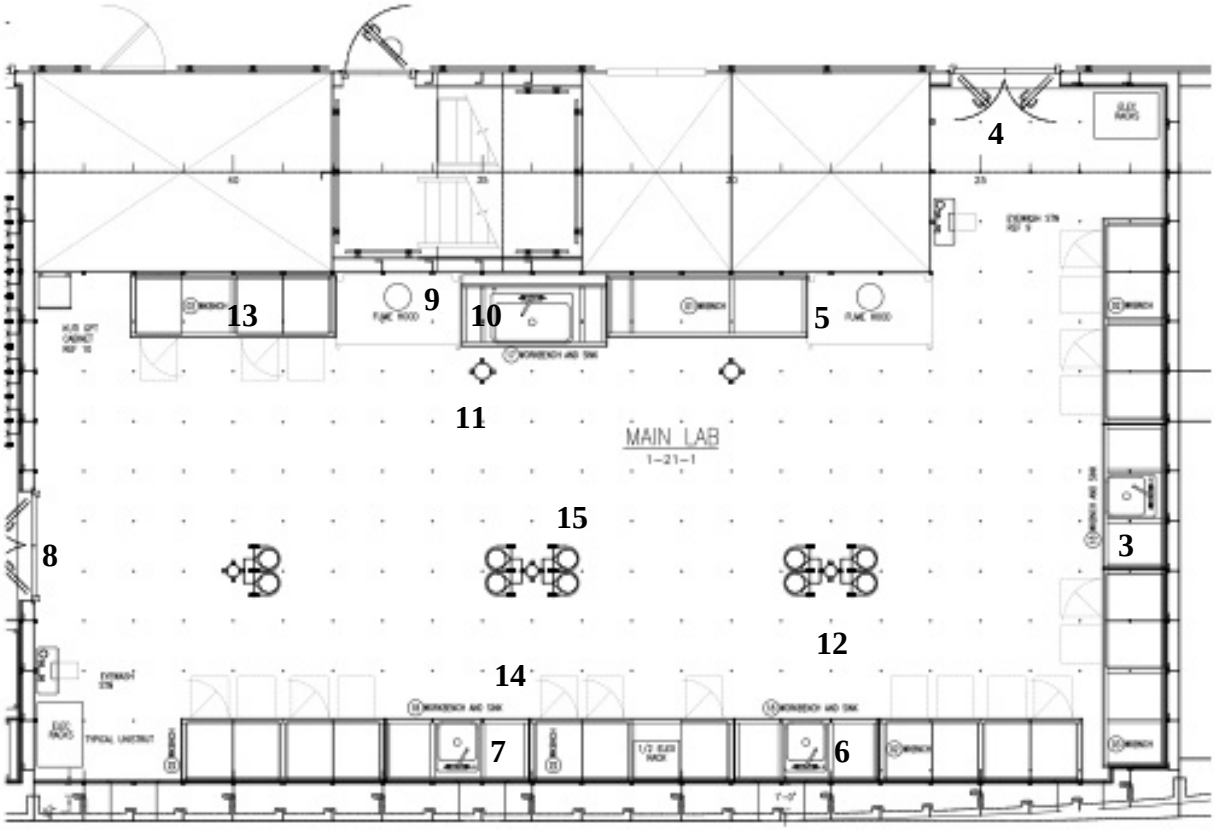

Figure 2
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R/V Sikuliaq Wet Lab

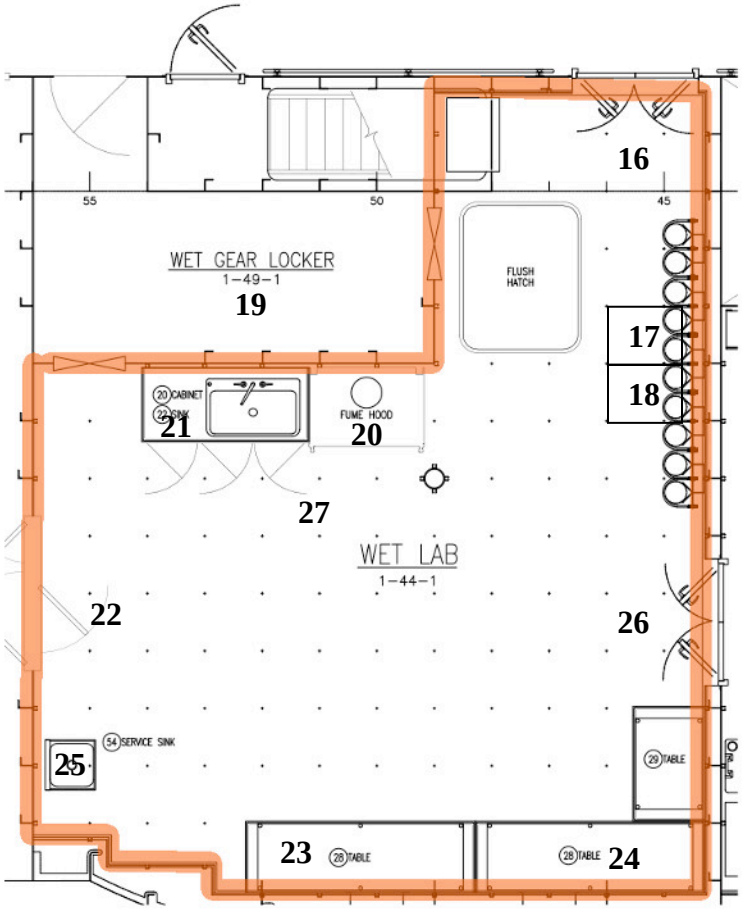

Figure 3
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R/V Sikuliaq BioAnalytical Lab

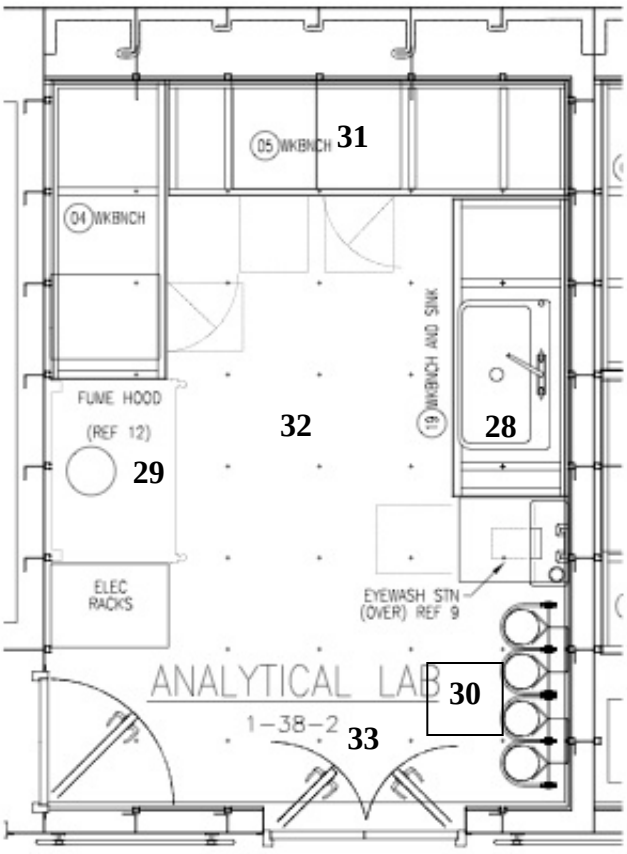

Figure 4
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R/V Sikuliaq Main Deck

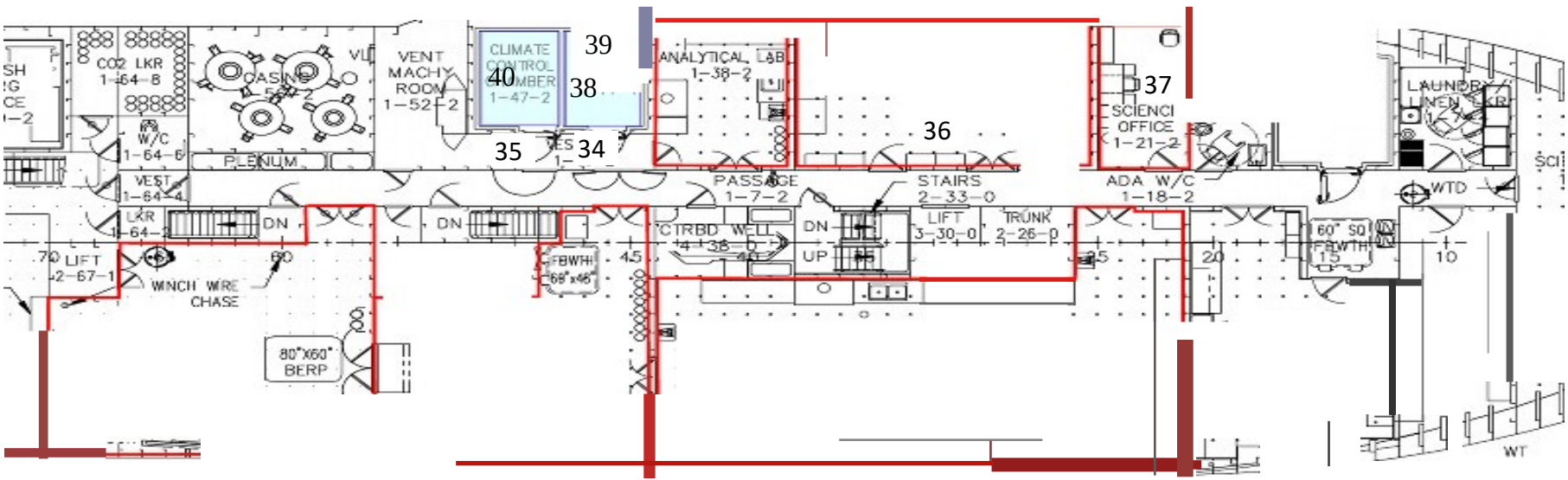

Figure 5
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R/V Sikuliaq Aft Maindeck