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Tritium Laboratory
18 September 2024

SWAB REPORT #1101

SWAB DATE: September 10-11, 2024

R/V Kilo Moana & OTG Radioisotope Van

James Happell Digitally signed by James Happell Date: 2024.09.20 10:52:18 -04'00'

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Distribution:
SWAB Committee
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UH Marine Ops

COMMENTS TO SWAB REPORTS 15 December 2021

The LSC is now a Quantulus GCT 6220, with the SWAB counting assay having background cpm of 0.3 & 1.2 for ^{3}H & ^{14}C. This replaces an LSC with background cpm of 1.6 & 5.5 for ^{3}H & ^{14}C.

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. All activities significantly above background will be in **bold**.

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 # 1101

LOCATION: Honolulu, HI
VESSEL/LAB: *R/V Kilo Moana*

DATE: 10-11 September 2024
TECHNICIAN: Charlene Grall

Sample #	Sample Identification	^{3}H dpm/m^{2}			^{14}C dpm/m^{2}		
		activity		error	activity		error
1	1st Vial Background	0	±	0	0	±	0
2	Initial bucket blank CO #1	1	±	4	15	±	13
	Lab #1 (Figure 1)						
3	Starboard benchtop	1	±	13	3	±	12
4	Deck in center of lab	-13	±	21	-3	±	16
5	Center section of port benchtop	-3	±	16	-10	±	13
	Hydro Lab (Figure 1)						
6	Starboard benchtop below forward porthole	4	±	10	10	±	12
7	Starboard benchtop below aft porthole	15	±	24	-2	±	7
8	Deck in front of starboard bench	8	±	17	7	±	12
9	Deck inside port entrance	-12	±	15	**18**	**±**	**13**
10	Aft benchtop	-15	±	24	**23**	**±**	**14**
11	Forward benchtop	-11	±	13	12	±	13
12	Aft sink area	-1	±	6	12	±	13
13	Port benchtop	-12	±	14	-4	±	12
14	Forward benchtop next to Fire Sta 17	**-1**	**±**	**9**	-2	±	10
	Chemistry Lab (Figure 1)						
15	Chem Lab F section of starboard benchtop	-11	±	13	3	±	14
16	Aft section of starboard benchtop	-26	±	21	1	±	4
17	Inside fume hood	2	±	9	5	±	12
18	Deck between forward sink & port entrance	-4	±	7	4	±	13
19	Center benchtop in front of aft sink	-16	±	26	10	±	14
20	Forward sink area	-2	±	35	5	±	12
21	Deck in front of fume hood	-6	±	12	-2	±	10
22	Aft sink and adjacent benchtop	-12	±	14	11	±	13
23	Aft benchtop next to Fire Sta 15	-38	±	21	-6	±	15
24	Forward benchtop between fume hood and sink	18	±	23	-1	±	17
25	Deck in front of aft sink	-6	±	317	12	±	13
	Wet Lab (Figure 1)						
26	Forward sink and adjacent benchtop	-21	±	17	21	±	14
27	Starboard benchtop	1	±	45	-1	±	5
28	Starboard side of fwd benchtop	-7	±	101	19	±	13
29	Deck port of CTD	-29	±	24	9	±	15

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
	Science Storeroom (Figure 1)						
30	Inside Cospolich refrigerator #1	**44**	±	**24**	**18**	±	**12**
31	Inside Cospolich refrigerator #2	17	±	18	**13**	±	**12**
32	Inside Cospolich refrigerator #3	-24	±	19	0	±	2
33	Top of HOT freezer	1	±	3	**18**	±	**13**
34	Top of OTG freezer	0	±	1	13	±	13
35	Intermediate bucket blank	-21	±	17	5	±	16
	Lab #2 (Figure 1)						
36	Port benchtop	-32	±	23	**15**	±	**14**
37	Deck in center of lab	-34	±	24	1	±	2
38	Aft sink and adjacent benchtop	5	±	9	**15**	±	**13**
39	Starboard benchtop	14	±	17	11	±	12
40	Forward benchtop	1	±	3	**15**	±	**13**
41	Forward sink and adjacent benchtop	-6	±	25	**25**	±	**14**
42	Aft sink and adjacent benchtop	-44	±	24	**37**	±	**15**
43	Deck between aft entrance and forward sink	-7	±	23	**28**	±	**14**
44	Deck in front of aft sink	-2	±	5	**18**	±	**13**
45	Forward benchtop port of forward sink	-5	±	9	4	±	13
46	Port benchtop	**30**	±	**26**	0	±	3
	OTG Radioisotope Van (Figure 2)						
47	Benchtop next to entrance	15	±	15	**20**	±	**13**
48	Inside refrigerator near entrance	**76**	±	**28**	**19**	±	**11**
49	Benchtop opposite front entrance	9	±	15	9	±	12
50	Inside fume hood	**16**	±	**13**	**36**	±	**14**
51	Deck inside rear entrance near fume hood	**455**	±	**64**	**47**	±	**11**
52	Benchtop adjacent to fume hood	**490**	±	**61**	**70***	±	**13**
53	Inside refrigerator near fume hood	**31**	±	**22**	10	±	11
54	Benchtop adjacent to LSC	**22**	±	**17**	**22**	±	**13**
55	Deck between the two refrigerators	**494**	±	**67**	**44**	±	**11**
56	Deck inside front entrance	**281**	±	**60**	**23**	±	**9**
57	Final bucket blank	-23	±	19	14	±	14

COMMENTS

Please note that the error reported for each isotope is the two-standard deviation counting error. Reports may now contain values less than zero. 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. Please note that we are now using a Quantulus 6220 LSC which counts very near natural background. While the cleanup standards have not changed; all values above background will now be in bold. All areas on the ship were free of radioisotope contamination that requires cleaning. Some minor ^{14}C

was seen in the rad van. No action is necessary

Figure 1
SWAB # 1101
10-11 September 2024

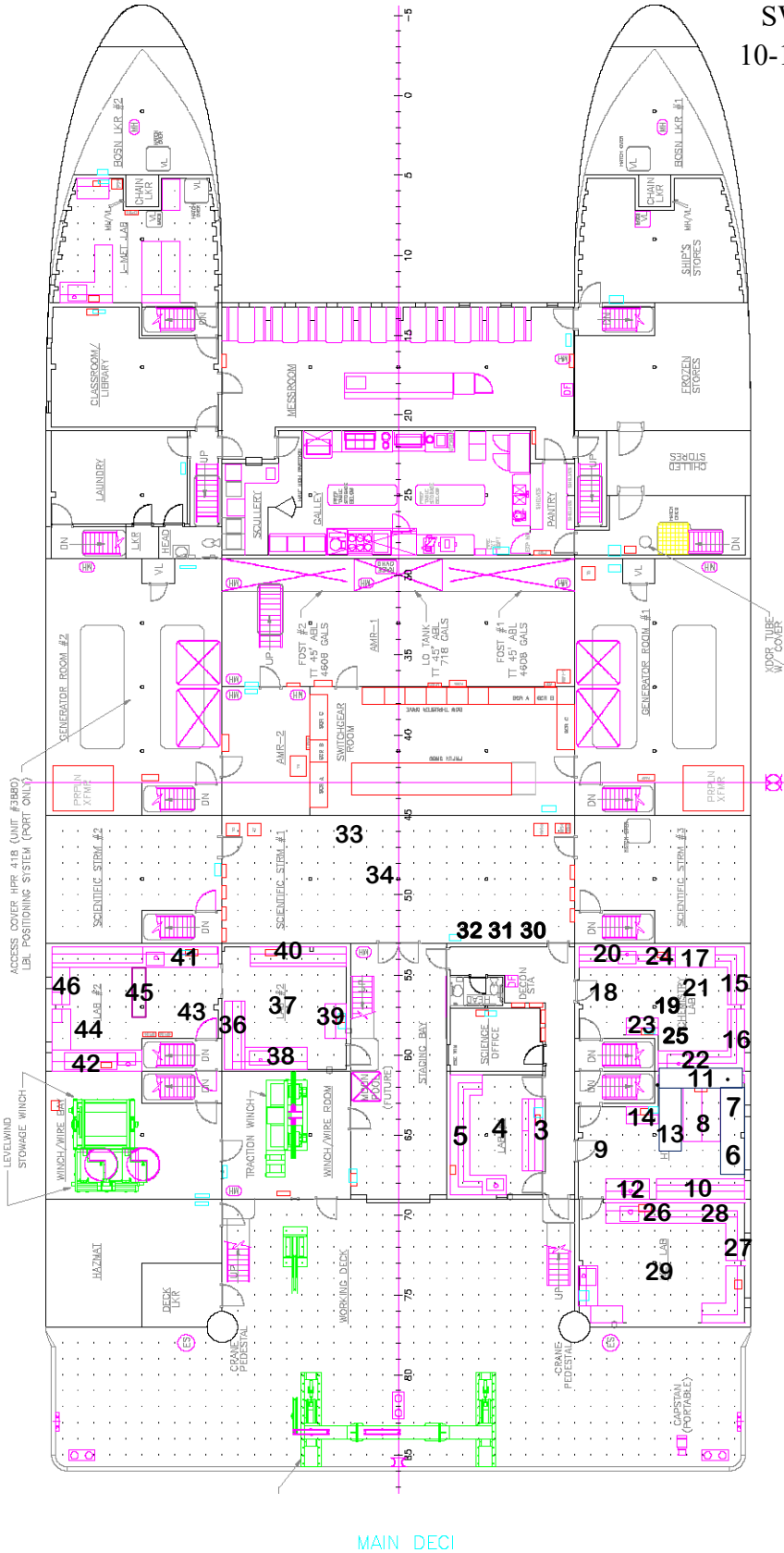

Figure #2
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