



Tritium Laboratory
4 January 2016

SWAB REPORT #801

SWAB DATE: 20 December 2015

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Distribution:
SWAB Committee
David Fisichella

COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for ^3H 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	^3H (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 $1000 \text{ dpm}/\text{m}^2$ 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}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 Procedure

Wearing ordinary household rubber gloves:

^3H : 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 $^{14}\text{CO}_2$). Follow up with wash as if for ^3H .

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 # 801

LOCATION: Charleston, SC
VESSEL/LAB: R/V Neil Armstrong

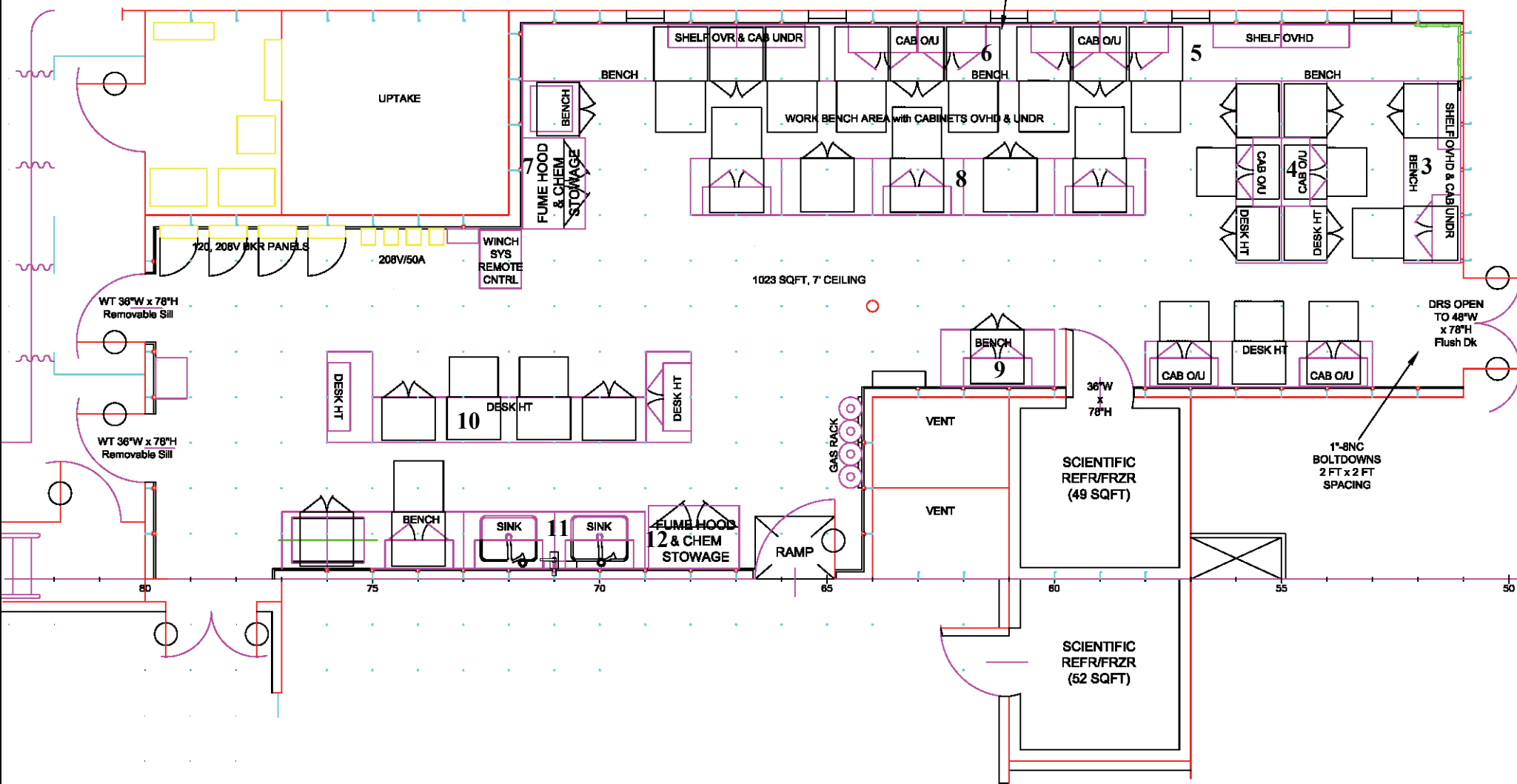
DATE: 20 December 2015
TECHNICIAN: Jim Happell

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	58	± 92	-61	± 136
	<u>Main Lab (Figure 1)</u>				
3	Forward bench top	17	± 248	-31	± 68
4	Center bench top	23	± 119	-31	± 68
5	Forward port bench top	48	± 88	-46	± 102
6	Aft port bench top	36	± 80	-31	± 69
7	Inside fume hood	70	± 76	-47	± 104
8	Center bench top	25	± 251	-44	± 97
9	Starboard bench top	59	± 83	-51	± 113
10	Aft center bench top	38	± 173	-60	± 134
11	Sink area	55	± 62	-25	± 56
12	Inside fume hood	42	± 114	-53	± 118
	<u>Wet Lab & Staging Bay (Figure 2)</u>				
13	Inside fume hood	50	± 75	-37	± 83
14	Forward port bench top	39	± 74	-30	± 66
15	Aft port bench top	38	± 72	-27	± 60
16	Aft starboard bench top	58	± 66	-30	± 67
17	Center starboard bench top	53	± 109	-64	± 141
18	Forward starboard bench top	18	± 432	-34	± 76
19	Forward starboard bench top	46	± 62	-20	± 45
20	Forward bench top	43	± 132	-57	± 127
21	Forward port bench top	-7	± 16	-36	± 79
22	Deck in center of staging bay	11	± 24	-59	± 132
23	Deck where vans will be located	96	± 70	-55	± 122
24	Final bucket blank.	46	± 89	-49	± 108

Comments

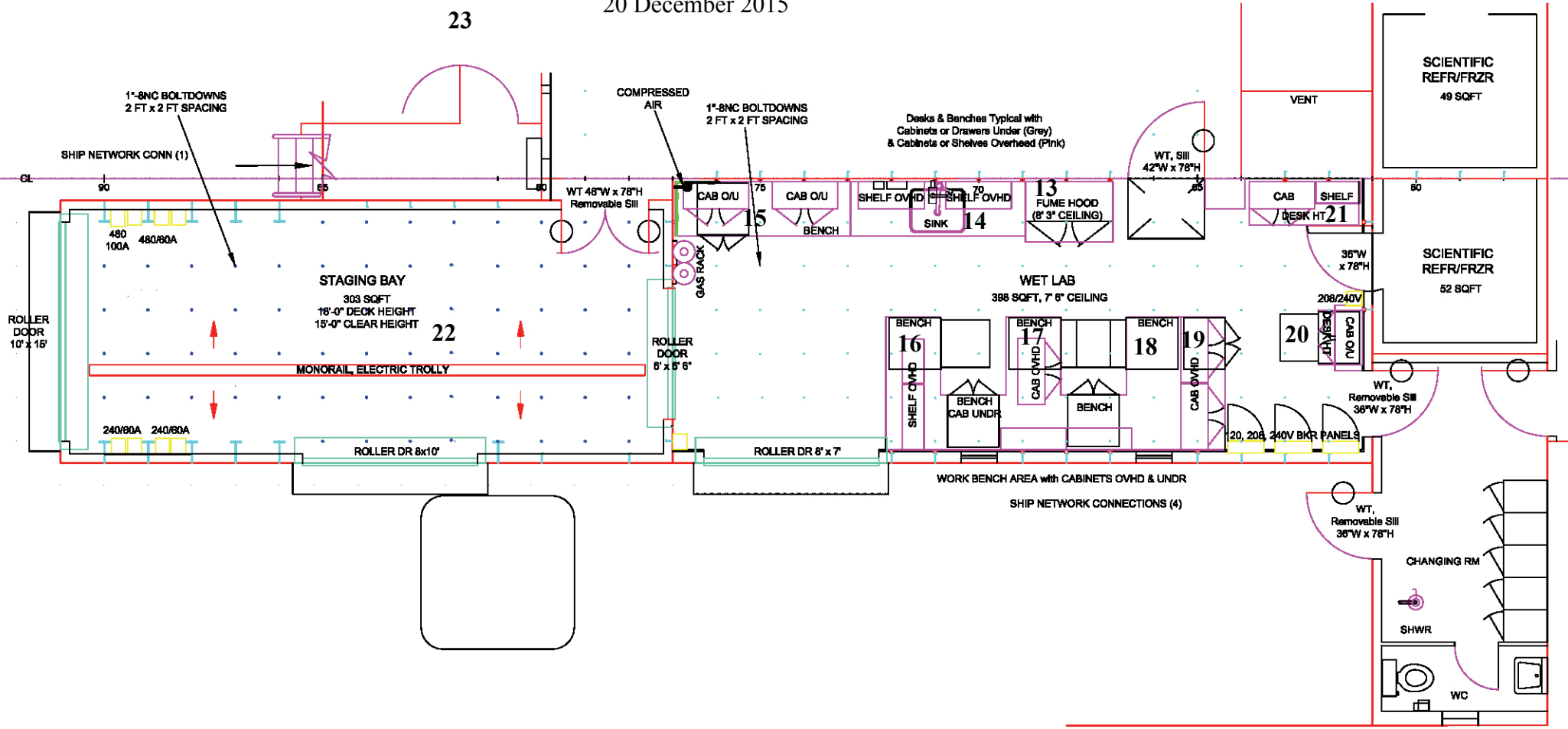
Please note that the error reported for each isotope is the two-standard deviation counting error. The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. All areas tested are free from ³H or ¹⁴C contamination that requires cleaning.

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Figure 1
20 December 2015



MAIN LABORATORY ARRANGEMENT

SWAB #801
 Figure 2
 20 December 2015



WET LABORATORY & STAGING BAY ARRANGEMENT