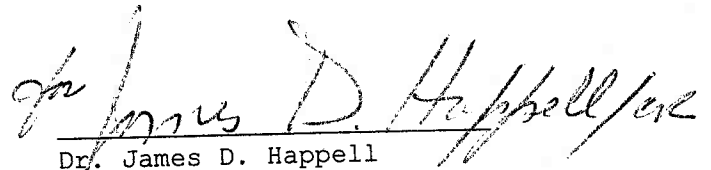




Tritium Laboratory  
December 15, 2009

SWAB REPORT #535  
SWAB DATE: 4 December 2009

*USCG POLAR SEA  
And Polar Programs Radioisotope Van*

  
Dr. James D. Happell  
Associate Research Professor

Distribution:

SWAB COMMITTEE  
Peter Zerr  
David Forcucci ✓  
Jeffrey Wenciker

Rosenstiel School of Marine and Atmospheric Science  
Tritium Laboratory  
4600 Rickenbacker Causeway • Miami, Florida 33149-1098  
Phone: 305-421-4100 • Fax: 305-421-4112  
E-mail: tritium@rsmas.miami.edu  
[www.rsmas.miami.edu/groups/tritium/](http://www.rsmas.miami.edu/groups/tritium/)

COMMENTS TO SWAB REPORTS

30 December 2008

Technical data below applies unless otherwise indicated.

Typical instrument background for tritium and C14: 7 and 15 cpm, respectively.

All data are means of at least three runs and are expressed in dpm/m<sup>2</sup> extracted; machine and wash solution blanks have been subtracted.

Typical error: 10% or 50 dpm/m<sup>2</sup>, whichever is larger, for both tritium and C14.

Criteria for SWAB Results

Category	Tritium (dpm/m <sup>2</sup> )	C14 (dpm/m <sup>2</sup> )	Recommendations
A	< 500	< 50	No action
B *	500-10,000	50-10,000	Needs cleaning before <u>natural tracer</u> work. No health hazard. Does not apply to Radiation Vans
C **	10,000-100,000	10,000-50,000	Must be cleaned before any use. Includes Radiation Vans
D ***	>100,000	>50,000	May be a health hazard. Notify local Radiation Safety Official

Note: C14 and S35 have peak energies of 156 and 167 KeV, respectively; thus S35 will be registered as C14 by our counting techniques.

Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

Tritium: Wash and scrub with radioactive cleanup detergent such as COUNT-OFF (50 ml or 1/4 cup COUNT-OFF to 1 gallon of water), using sponges to distribute solution and reabsorb it.

C14: Wash with 1% sulfuric or 2% hydrochloric (muriatic) acid with good ventilation (will dissolve carbonates, releasing <sup>14</sup>CO<sub>2</sub>). Follow up with wash as if for tritium.

Disposal of Cleaning Materials (gloves, sponges, etc.)

Categories A and B: Dispose as ordinary garbage.  
C and D: Dispose in radiation waste system.

Note: In case Category C or D is encountered, we try to notify the institution promptly by telephone.

REPORT FOR SWAB # 535

LOCATION: Seattle, WA  
 TECHNICIAN: Cecilia Roig  
 VESSEL/LAB: USCG Polar Sea

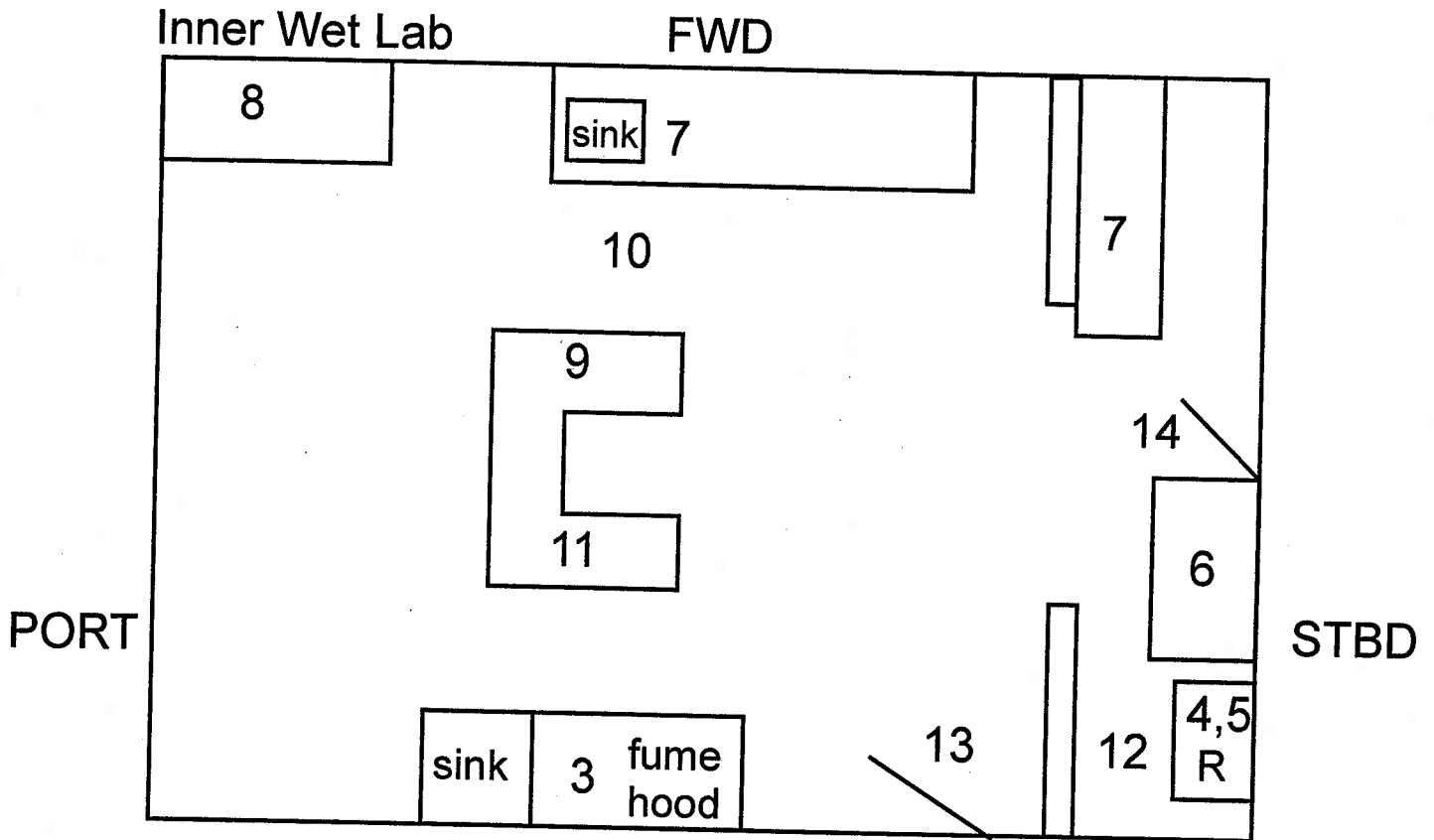
DATE: 4 December 2009  
 STATUS: See Comments.

SAMPLE #	SAMPLE IDENTIFICATION	NET ACTIVITY EXTRACTED	
		<sup>3</sup> H dpm/m <sup>2</sup>	<sup>14</sup> C dpm/m <sup>2</sup>
1	Machine Blank	-	-
2	Initial bucket blank C.O. #1	0	1
<u>Inner Wet Lab (See Figure 1)</u>			
3	Inside fume hood	0	0
4	Inside refrigerator, upper section	35	0
5	Inside refrigerator, lower section	24	0
6	Stbd. bench top	0	47
7	Sink area	0	0
8	Port fwd. bench top	0	0
9	Fwd. center benchtop	4	0
10	Deck between sink & fwd. center bench top	0	0
11	Aft center benchtop	18	0
12	Deck in front of refrigerator	0	10
13	Deck next to aft entrance	0	0
14	Deck inside stbd. entrance	0	0
15	Intermediate bucket blank	0	0
<u>Outer Wet Lab (No Figure)</u>			
16	Deck by aft entrance to Outer Wet Lab	9	0
17	Deck by entrance to Inner Wet Lab	0	0
<u>Dry Lab (See Figure 1)</u>			
18	Bench top stbd. of sink	8	0
19	Deck next to computer stack	0	0
20	Deck inside door	0	0
<u>Geo Lab (See Figure 2)</u>			
21	Inside fume hood	0	9
22	Bench top aft of fume hood	0	0
23	Deck inside door	2	0
<u>Radioisotope Van - Polar Programs (See Figure 3)</u>			
24	Inside hood	370	9,090*
25	Bench top right of fume hood	68	822*
26	Bench top left of sink	2,181*	12,026**
27	Sink area	452	2,705*
28	Top of LSC	141	1,372*
29	Bench top across from freezer	346	625*
30	Bench top across sink	278	719*
31	Deck at entrance next to hood	5,701*	4,907*
32	Inside freezer	1,167*	245
33	Inside refrigerator	17,200**	4,274*
34	Deck center of van	10,590**	4,198*
35	Deck at entrance next to sink	7,548*	4,101*
36	Final bucket blank	5	0

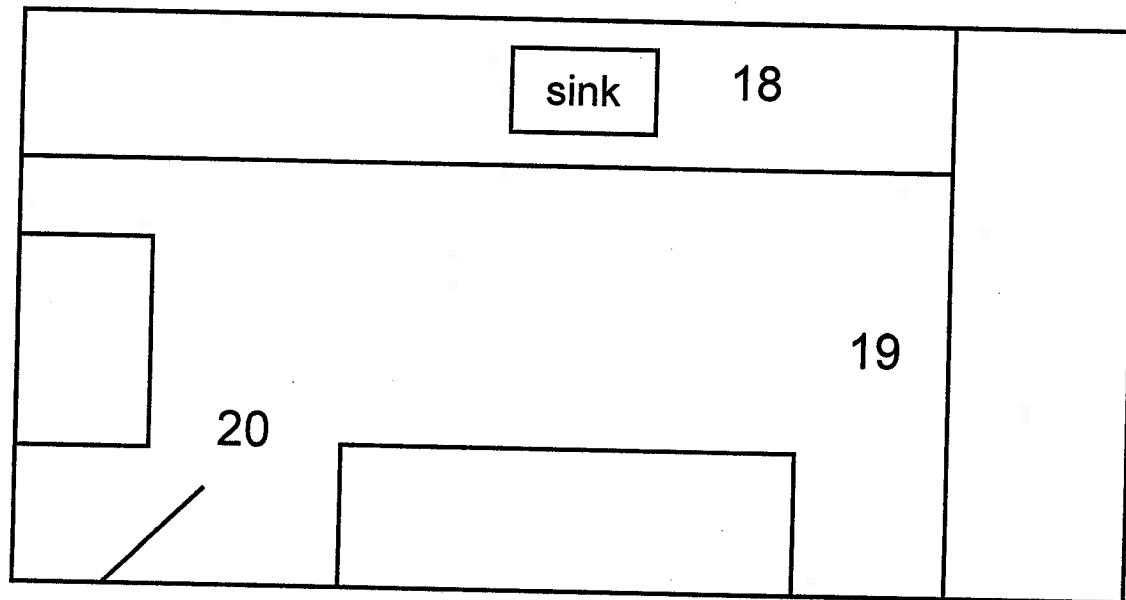
Comments

All areas tested on the ship were free of isotopes spills. Mild to moderate tritium and C14 contamination was found in several areas in the Radioisotope Van. Decks in the van should be cleaned to insure contamination is not spread into any ship areas. Other areas in the van requiring cleaning are the bench top left of the sink (above the refrigerator) and inside the refrigerator.

# USCG Polar Sea



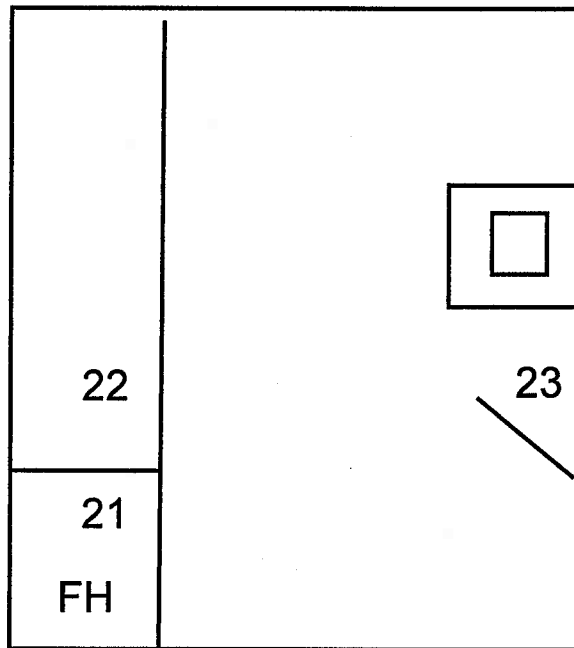
## Dry Lab



AFT

# USCG POLAR SEA

## Geo Lab



# Radioisotope Van - Polar Programs

