Tritium Laboratory
April 22, 2006

SWAB REPORT #408

SWAB DATE: 5 April 2006

R/V Nathaniel B. Palmer

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COMMENTS TO SWAB REPORTS 10 October 2001

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^2 extracted; machine and wash solution blanks have been substracted.

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

Category	Criteria for SWAB Result: Tritium (dpm/m^2)	C14 (dpm/m^2)	Recommendations
A	< 500	< 500	No action
B *	500-10,000	500-10,000	Needs cleaning before natural tracer 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 $^{14}CO_2$). 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 # 408

LOCATION : Punta Arenas, Chile
TECHNICIAN: Cecilia Roig
VESSEL/LAB: R/V Nathaniel B. Palmer

DATE : 5 April 2006
STATUS: **SEE COMMENTS**

SAMPLE #	SAMPLE IDENTIFICATION	NET ACTIVITY EXTRACTED 3H dpm/m2	14C dpm/m2
1	Machine Blank	-	-
2	Initial bucket blank C.O. #1	49	0
	Dry Lab (See Figure 1)		
3	Inside upright Revco	2	0
4	Inside bottom Persival Sci. RPS 00011175	0	0
5	Inside bottom Isotemp Fisher Sci. freezer	101	0
6	Inside bottom Percival Sci. RPS 00011176	71	103
7	Top of Revco freezer	4	12
8	Deck in front of freezer	0	0
9	Deck inside computer area	0	4
10	Aft workbench/sink area	62	0
11	Deck inside double doors	29	13
	Bio Lab (See Figure 2)		
12	Inside freezer top RPSC 00011165	141	0
13	Inside refrigerator bottom RPSC 00011165	93	0
14	Inside freezer top RPSC 00011164	19	0
15	Inside refrigerator bottom RSPC 00011164	0	11
16	Inside fume hood fwd. of port sink	100	0
17	Inside fume hood aft of port sink	333	0
18	Deck below aft sink	2	0
19	Workbench port of aft sink	30	3
20	Deck just outside ThermoKool room	93	0
21	Deck below fwd. fume hood	7	0
22	Workbench right of sink	134	0
23	Workbench right of sink	122	0
	Wet Lab (See Figure 3)		
24	Deck inside double door entrance	42	0
25	Workbench right of sink	0	0
26	Deck between Hydro Lab & Wet Lab	125	0
27	Workbench left of double doors	0	0
	Hydro Lab (See Figure 3)		
28	Stbd. sink area	105	0
29	Deck below stbd. sink area	60	0
30	Deck below icemaker	0	0
31	Aft sink area	0	0
	02 Deck/Helo Deck (See Figure 4)		
32	Workbench stbd. of sink in shop	102	0
33	Deck below sink	50	0
34	Inside freezer top Baxter Cryo-Fridge	85	0
35	Inside refrigerator bottom Baxter Cryo-Fridge	91	0
36	Deck below Baxter Cryo-Fridge	47	0
37	Workbench port of sink in shop	0	5

SAMPLE #	SAMPLE IDENTIFICATION	NET ACTIVITY EXTRACTED 3H dpm/m2	14C dpm/m2
38	Deck in front of door to passageway	86	0
39	Deck in front of passageway door to Workshop	83	0
40	Deck in front of door to stbd.	143	0
41	Deck in front of door to Helo Pad	0	12
42	Deck in front of door to Workshop	87	0
43	Final Bucket blank C.O. #1	119	0
	Warehouse freezers (No figures)		
44	Initial Bucket blank C.O. #2	93	0
45	Ice from Kenmore 15 chest freezer	102	0
46	Ice from Ultima II NSF 016981	78	0
47	Inside bottom of glass door Kelvinator Scientific	93	253
48	Inside top of Siemens Sikafrost Combi	64	102
49	Inside bottom of Siemens Sikafrost Combi	50	0
	USAP Van # 7 (See Figure 5)		
50	Workbench right of sink	149	0
51	Workbench across from sink	44	17
52	Deck below sink	66	0
53	Deck inside door	12	0
	USAP Van # 1 (See Figure 6)		
54	Inside fume hood	8,575*	0
55	Workbench left of sink	15,570**	0
56	Workbench across fume hood	4,718*	0
57	Inside Consul 230 freezer top	4,731*	0
58	Inside Consul 230 refrigerator bottom	76,686**	0
59	Deck inside door	53,998**	0
60	Deck left of workbench	11,455**	0
61	Deck in front of fume hood	36,119**	1
62	Workbench right of sink	2,587*	0
63	Drawer/basket inside Consul 230	1,044,151***	129
64	Final Bucket blank C.O. #2	24	0

COMMENTS

All areas test free of 14C contamination. The ship, warehouse freezers and Van #7 were clean of tritium contamination. Tritium contamination was found in Van #1, at levels that require cleanup before any use. We suggest that Van #1 be decontaminated using the enclosed procedure because there are areas in Van #1 above 10,000 dpm/m2 and there appears to be widespread tritium throughout the van, including deck areas. The heaviest contamination is in the Consul 230 refrigerator/freezer, we recommend thorough cleaning of the Consul 230 refrigerator/freezer and disposal of the drawer/basket at the bottom.