

Tritium Laboratory  
October 4, 2014

SWAB REPORT #331

SWAB DATE: 10 February 2003

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Distribution:  
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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> ) Recommendations	C14 (dpm/m <sup>2</sup> )	
A	< 500	< 500	No action
B *	500-10,000	500-10,000	Needs cleaning before <u>natural tracer work</u> . 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 # 331

LOCATION : Punta Arenas, Chile  
 TECHNICIAN: Cecilia Roig  
 VESSEL/LAB: R/V Laurence M. Gould

DATE : 10 February 2003  
 STATUS: Fume hood in Hydro-Lab contained minor amount of <sup>14</sup>C contamination. USAP Van # 00001 and Rad Van #3 are heavily contaminated by tritium and should be cleaned before ANY use, (see **COMMENTS** below).

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	5
<u>Hydrolab (See Figure 1)</u>			
3	Deck between sink area and workbench	0	13
4	Workbench next to port workbench	11	0
5	Deck in front of freezer	0	0
6	Deck in front of forward sink	10	0
7	Deck in front of entrance to Wet Lab	0	7
8	Inside fume hood	104	1,364*
9	Inside Kenmore freezer, top	17	7
10	Inside Revco Ultima II	0	0
11	Inside Sielen 330 freezer, top	77	0
12	Inside Sielen 330 refrigerator, bottom	0	0
13	Inside Revco Ultima II	0	0
<u>Wet Lab (See Figure 1)</u>			
14	Inside fume hood	0	0
15	Inside GE freezer, top	38	0
16	Inside GE refrigerator, bottom	251	0
17	Inside Percival Science incubator, 1360-W785	0	0
18	Inside Percival Science incubator, 2860-W502	0	10
19	Workbench opposite of freezers	0	0
20	Deck in front of sink	41	0
21	Deck in front of fume hood and fwd sink	0	15
22	Deck in front of aft sink	0	0
23	Workbench port of aft sink	5	0
<u>Maindeck (See Figure 1)</u>			
24	Fantail stbd side	21	3
25	Deck outside doors to aquarium	57	0
<u>Dry Lab (See Figure 1)</u>			
26	Deck in front of fume hood	106	0
27	Deck in front of entrance to CTD room	19	0
28	Deck in front of port sink	155	1
29	Inside GE freezer, top	0	0
30	Inside GE refrigerator, bottom	83	0
31	Inside fume hood	81	0

SAMPLE #	SAMPLE IDENTIFICATION	NET ACTIVITY EXTRACTED	
		<sup>3</sup> H dpm/m <sup>2</sup>	<sup>14</sup> C dpm/m <sup>2</sup>
32	Workbench aft of sink	25	0
33	Deck in front of freezers fwd of change room	63	0
34	Deck in front of refrigerator	17	0
35	Inside top of freezer	429	0
<u>Passageways (See Figure 1)</u>			
36	Deck outside port entrance to Dry Lab	0	0
37	Deck outside stbd entrance to Hydro Lab	0	0
38	Deck outside port entrance to Electronics Lab	0	0
39	Deck outside stbd entrance to Enviro Room	0	9
40	Deck outside stbd entrance to Laundry Room	0	0
41	Final bucket blank (C.O.#1)	0	0
<u>Radioisotope Van USAP 00001 (See Figure 2)</u>			
42	Initial bucket blank (C.O.#2)	0	31
43	Benchtop right of sink	2,012*	0
44	Inside fume hood	2,861*	0
45	Benchtop left of sink	2,066*	0
46	Benchtop adjacent to Consul 330 refrigerator	3,685*	0
47	Inside Consul 330 freezer, top	461	0
48	Inside Consul 330 refrigerator, bottom	12,948**	0
49	Deck inside door	32,933**	7
50	Deck in front of Wallac LSC	102,795***	0
51	Deck in front of fume hood	151,921***	0
<u>Radioisotope Van #3 (See Figure 3)</u>			
52	Benchtop right of sink	1,665*	0
53	Benchtop left of sink	12,157**	6
54	Inside fume hood	4,021*	39
55	Benchtop across from sink	785	0
56	Inside Kenmore freezer, meltwater from freezer pan	512,793***	386
57	Inside Kenmore refrigerator, bottom	5,813*	81
58	Benchtop where Beckman LSC sits	4,121*	0
59	Deck in front of sink	30,628**	0
60	Deck in front of fume hood	21,261**	31
61	Deck inside door	5,973*	0
<u>Convection oven in storage (No Figure)</u>			
62	Inside F.S.convection oven, SN 70700343	0	0
63	Final bucket sample(C.O.#2)	0	26

#### COMMENTS

The fume hood in the Hydro Lab contained a minor amount of radiocarbon (<sup>14</sup>C) and should be cleaned and decontaminated prior to any low-level tracer work in the lab. Both the USAP Radioisotope van and Van #3 were heavily contaminated in certain areas with tritium. These vans should be cleaned, decontaminated and rechecked prior to ANY science being done. Also, these vans should not be used for storage or any other science other than radioisotope work after the decontamination process.