



Tritium Laboratory
17 October 2011

SWAB REPORT # 587 rerun to check for ^{35}S

SWAB DATE: 14 July 2011

R/V Atlantis

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Distribution:
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COMMENTS TO SWAB REPORTS

23 November 2010

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 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 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 dispose in radiation waste system.

Note: If category C or D is encountered, we try to notify the insitution promptly by phone or email.

REPORT FOR SWAB # 587 rerun to check for ³⁵S

LOCATION: Astoria, OR
VESSEL: *R/V Atlantis*

DATE: 14 July 2011
TECHNICIAN: Cecilia Roig

Sample #	Sample Identification	¹⁴ C dpm/m ² (7/25)		¹⁴ C dpm/m ² (10/17)	
		activity	error	activity	error
8	Port sink area	223	± 43	103	± 42
13	Inside fume hood	64	± 39	7	± 38
14	Deck inside aft double doors	58	± 37	0	± 0
25	Aft. benchtop inside aft. walk-in	53	± 37	0	± 0
28	Deck inside stbd. doors	51	± 36	7	± 35
41	Port sink area	71	± 37	0	± 0
44	Inside fume hood	551	± 53	310	± 48
45	Bench top above freezer	7777	± 152	4149	± 115
46	Sink area	33832	± 311	17543	± 226
47	Benchtop above Fridge	23058	± 258	11797	± 188
48	Inside freezer	729	± 57	467	± 52
49	Inside fridge	209	± 40	69	± 33
50	Deck in front of freezer	11147	± 182	5752	± 133
51	Deck in front of sink	123550	± 593	62251	± 423
52	Deck inside entrances	71974	± 453	36241	± 323

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.

³⁵S was used on this cruise. ³⁵S is detected as ¹⁴C on any LSC. ³⁵S has an 89 day half-life.

Waiting approximately 90 days and rerunning the samples will indicate that ³⁵S was the isotope causing the signal if the activity drops by about 50 %. The rerun results are consistent with the presence of ³⁵S.