Tritium Laboratory
23 March 2009

SWAB REPORT #504

SWAB DATE: 20 December 2008

*R/V Atlantis and Radioisotope Van*
*C14 Original and Rerun Results*

_____
Dr. James D. Happell
Research Associate Professor

Distribution:
SWAB Committee
David Fisichella

REPORT FOR SWAB # 504
C14 ORIGINAL AND RERUN RESULTS

LOCATION: Guaymas, Mexico
TECHNICIAN: Cecilia Roig
VESSEL/LAB: *R/V Atlantis*

DATE: 20 December 2008
STATUS: See **Comments**

| SAMPLE # | SAMPLE IDENTIFICATION | NET ACTIVITY EXTRACTED 14C dpm/m2 12/08 run | 14C dpm/m2 3/09 run |
|---|---|---|---|
| 1 | Machine Blank | - | - |
| | Main Lab (See Figure 1) | | |
| 3 | Deck inside fwd. entrance | 149* | 67* |
| 9 | Deck in front of ice machine | 236* | 95* |
| 10 | Deck in front of port sink | 3,768* | 1,919* |
| 11 | Deck inside port aft entrance | 552* | 251* |
| 13 | Deck in front of fume hood | 991* | 479* |
| | Bio/Analytical Clean Lab (See Figure 1) | | |
| 16 | Deck in front of stbd. entrance | 100* | 0 |
| 17 | Deck in front of freezer | 69* | 25 |
| 19 | Fwd. benchtop & sink area | 81* | 11 |
| 21 | Deck in front of fume hood | 79* | 0 |
| 22 | Deck in front of aft entrance | 128* | 40 |
| | Misc. Areas (See Figure 2) | | |
| 24 | Deck inside aft walk-in freezer | 89* | 29 |
| 27 | Deck outside walk-in freezers | 163* | 61* |
| | Electronics/Computer Lab (See Figure 2) | | |
| 29 | Deck at stbd. entrance | 152* | 66* |
| | Hydro Lab (See Figure 3) | | |
| 32 | Inside fume hood | 113* | 18 |
| 33 | Stbd. sink area | 1,193* | 593* |
| 34 | Deck at stbd. door | 571* | 266* |
| 35 | Deck at aft entrance | 398* | 172* |
| 36 | Port sink area | 1,841* | 909* |
| | Wet Lab (See Figure 3) | | |
| 38 | Fwd. sink area | 91* | 0 |
| | Radioisotope Van (See Figure 4) | | |
| 43 | Sink area | 3,048* | 2,412* |
| 44 | Benchtop adjacent to sink | 2,279* | 2,076* |
| 45 | Inside Flow Sciences | 141* | 115* |
| 46 | Benchtop across Flow Sciences | 3,082* | 2,273* |
| 47 | Benchtop above freezer | 2,061* | 1,272* |
| 48 | Benchtop across sink | 6,349* | 3,782* |
| 49 | Inside fridge | 1,002* | 1,012* |
| 50 | Inside freezer | 1,079* | 585* |
| 51 | Deck under escape hatch | 6,902* | 3,709* |
| 52 | Deck middle of van | 17,235** | 9,032* |
| 53 | Deck inside entrance | 8,278* | 4,160* |

## ***Comments***

This cruise used both 35S and 14C and our LSC technique counts 35S as 14C. Therefore there was some question as to which isotope was responsible for the observed 14C contamination. One way to distinguish between the two isotopes is to rerun the samples after ~90 days to see if and how much the activity decreased. If the contamination was due to mainly 35S as opposed to 14C the activity should decrease by about 50% over 90 days since the half life of 35S is 87.4 days. The 90 day results show that most of the observed shipboard contamination does appear to be 35S rather than 14C. The activity of some samples in the Rad Van decreased by about 50%, but in others it did not. This suggests that that contamination found in the Rad Van was a mixture of 35S and 14C.