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29 August 2011

SWAB REPORT # 594

SWAB DATE: 16 August 2011

*R/V Kilo Moana*

James Happell

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Distribution:
SWAB Committee
Dan Fitzgerald

**COMMENTS TO SWAB REPORTS** 23 November 2010

Typical LSC instrument background values for $^{3}H$ 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 | $^{3}H$ (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/m2 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 Proceedure

Wearing ordinary household rubber gloves:

$^{3}H$: 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 $^{14}CO_2$). Follow up with wash as if for $^{3}H$.

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 # 593

LOCATION: Honolulu, HI DATE: 16 August 2011
VESSEL/LAB: *R/V Kilo Moana* TECHNICIAN: Cecilia Roig

| Sample # | Sample Identification | $^{3}$H dpm/m$^{2}$ activity | ± | error | $^{14}$C dpm/m$^{2}$ activity | ± | error |
|---|---|---|---|---|---|---|---|
| 1 | 1st Vial Bkgnd | 0 | ± | 0 | 0 | ± | 0 |
| 2 | Initial bucket blank | 0 | ± | 0 | 0 | ± | 0 |
| | Lab # 2 (See Figure) | | | | | | |
| 3 | Mid lab bench top port of sink | 0 | ± | 0 | 0 | ± | 0 |
| 4 | Deck center of lab | 21 | ± | 61 | 0 | ± | 0 |
| 5 | Bench top port of fwd. sink | 0 | ± | 0 | 0 | ± | 0 |
| 6 | Deck inside entrance | 67 | ± | 66 | 0 | ± | 0 |
| | I-Met Lab (See Figure) | | | | | | |
| 7 | Sink area | 0 | ± | 0 | 0 | ± | 0 |
| 8 | Stbd. bench top | 0 | ± | 0 | 0 | ± | 0 |
| 9 | Deck center of lab | 0 | ± | 0 | 0 | ± | 0 |
| 10 | Deck inside entrance | 0 | ± | 0 | 8 | ± | 43 |
| | Wet Lab (See Figure) | | | | | | |
| 11 | Inside fume hood | 44 | ± | 62 | 2 | ± | 18 |
| 12 | Deck at entrance to Hydro Lab | 172 | ± | 63 | 0 | ± | 0 |
| 13 | Fwd. sink area | 8 | ± | 412 | 0 | ± | 0 |
| 14 | Port sink area | 0 | ± | 0 | 3 | ± | 39 |
| | Hydro Lab (See Figure) | | | | | | |
| 15 | Fwd. bench top | 0 | ± | 0 | 0 | ± | 0 |
| 16 | Deck center of lab | 30 | ± | 65 | 0 | ± | 0 |
| 17 | Sink area | 13 | ± | 0 | 0 | ± | 0 |
| | Scientific Store Room # 1 (See Figure) | | | | | | |
| 18 | Ice inside Gibson chest freezer | 0 | ± | 0 | 0 | ± | 0 |
| 19 | Ice inside Thermo upright freezer | 0 | ± | 0 | 7 | ± | 48 |
| 20 | Inside port Cospolich bottom | 0 | ± | 0 | 0 | ± | 0 |
| 21 | Inside middle Cospolich bottom | 8 | ± | 47 | 3 | ± | 33 |
| 22 | Inside stbd. Cospolich bottom | 90 | ± | 63 | 0 | ± | 0 |

| Sample # | Sample Identification | $^{3}$H dpm/m$^{2}$ activity | | error | $^{14}$C dpm/m$^{2}$ activity | | error |
|---|---|---|---|---|---|---|---|
| | Chemistry Lab (See Figure) | | | | | | |
| 23 | Inside hood | 88 | ± | 69 | 0 | ± | 0 |
| 24 | Stbd. bench top | 0 | ± | 0 | 0 | ± | 0 |
| 25 | Sink area | 0 | ± | 0 | 0 | ± | 0 |
| 26 | Deck center of lab | 25 | ± | 82 | 0 | ± | 0 |
| 27 | Deck in front of fountain | 0 | ± | 0 | 0 | ± | 0 |
| | Lab # 1 (See Figure) | | | | | | |
| 28 | Deck inside aft entrance | 0 | ± | 0 | 0 | ± | 0 |
| 29 | Deck inside fwd. entrance | 0 | ± | 0 | 14 | ± | 44 |
| 30 | Deck inside Clean Power room | 0 | ± | 0 | 0 | ± | 0 |
| 31 | Final bucket blank | 7 | ± | 0 | 0 | ± | 0 |

**Comments**

Please note that the error reported for each isotope is the two-standard deviation counting error.
All areas tested on the ship were free of radioisotope contamination.

SWAB #594
16 August 20