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Tritium Laboratory
15 June 2012

SWAB REPORT # 640

SWAB DATE: 9 August 2012

*R/V Atlantis*

James Happell

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Date: 2012.08.20 14:34:02 -04'00'

James D. Happell

Distribution:
SWAB Committee
Dave Fisichella

COMMENTS TO SWAB REPORTS 23-Nov-10

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 a
reported in dpm/m2. 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 activi
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/$m^2$ 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 haza

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 dissc 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 ema

REPORT FOR SWAB # 640

LOCATION: Woods Hole, MA
VESSEL: *R/V Atlantis*

DATE: 9 August 2012
TECHNICIAN: Jim Happell

| Sample # | Sample Identification | $^{3}$H dpm/m$^{2}$ activity | ± | $^{3}$H dpm/m$^{2}$ error | $^{14}$C dpm/m$^{2}$ activity | ± | $^{14}$C dpm/m$^{2}$ error |
|---|---|---|---|---|---|---|---|
| 1 | 1st Vial Bkgnd | 0 | ± | 0 | 0 | ± | 0 |
| | UNOLS Radiation Van #6251057 (See Fig. 1) | | | | | | |
| 2 | Initial bucket blank C.O. #1 | 8 | ± | 47 | 0 | ± | 0 |
| 3 | Center benchtop | 49 | ± | 46 | 0 | ± | 0 |
| 4 | Inside fume hood | 20 | ± | 49 | 0 | ± | 0 |
| 5 | Benchtop adjacent to LSC | 54 | ± | 63 | 0 | ± | 0 |
| 6 | Sink area | 339 | ± | 58 | 26 | ± | 21 |
| 7 | Inside refrigerator | *697 | ± | 71 | *130 | ± | 31 |
| 8 | Deck in front of fume hood | 409 | ± | 59 | *102 | ± | 32 |
| 9 | Deck between sink and entrance | *848 | ± | 81 | *77 | ± | 24 |
| | WHOI Radiation Van #2001400 (See Fig. 2) | | | | | | |
| 10 | Center benchtop | 272 | ± | 56 | 7 | ± | 11 |
| 11 | Inside fume hood | **20617 | ± | 348 | *460 | ± | 21 |
| 12 | Benchtop adjacent to fume hood | 154 | ± | 51 | 24 | ± | 27 |
| 13 | Sink area | 173 | ± | 49 | 0 | ± | 0 |
| 14 | Inside refrigerator | 208 | ± | 33 | *433 | ± | 48 |
| 15 | Inside freezer | *1570 | ± | 98 | *124 | ± | 24 |
| 16 | Deck between freezer and fume hood | *783 | ± | 77 | 10 | ± | 7 |
| 17 | Deck between sink and entrance | *783 | ± | 74 | *75 | ± | 25 |
| | Main Lab (See Fig. 3) | | | | | | |
| 18 | Top of Revco freezer #1 | 4 | ± | 0 | 0 | ± | 0 |
| 19 | Top of Revco freezer #2 | 17 | ± | 474 | 0 | ± | 0 |
| 20 | Inside stbd. freezer top | 10 | ± | 439 | 0 | ± | 0 |
| 21 | Inside stdb. fridge bottom | 19 | ± | 107 | 0 | ± | 0 |
| 22 | Deck in front of freezer | 3 | ± | 0 | 0 | ± | 0 |
| 23 | Port sink area | 8 | ± | 0 | 0 | ± | 0 |
| 24 | Deck inside fwd. port entrance | 15 | ± | 0 | 0 | ± | 0 |
| 25 | Deck inside aft. port entrance | 0 | ± | 0 | 0 | ± | 0 |
| 26 | Center benchtop across from port sink | 12 | ± | 0 | 0 | ± | 0 |
| 27 | Stbd sink area | 52 | ± | 53 | 0 | ± | 0 |
| 28 | Inside fume hood | 0 | ± | 0 | 0 | ± | 0 |
| 29 | Deck inside aft doors | 22 | ± | 0 | 0 | ± | 0 |
| 30 | Center benchtop | 0 | ± | 0 | 0 | ± | 0 |

| Sample # | Sample Identification | $^{3}$H dpm/m$^{2}$ activity | ± | $^{3}$H dpm/m$^{2}$ error | $^{14}$C dpm/m$^{2}$ activity | ± | $^{14}$C dpm/m$^{2}$ error |
|---|---|---|---|---|---|---|---|
| Bioanalytical/Clean Lab (See Fig. 3) | | | | | | | |
| 31 | Inside Cospolitch top | 23 | ± | 184 | 0 | ± | 0 |
| 32 | Inside Cospolitch bottom | 45 | ± | 57 | 0 | ± | 0 |
| 33 | Forward sink area | 7 | ± | 0 | 0 | ± | 0 |
| 34 | Deck in front of Cospolitch | 2 | ± | 0 | 0 | ± | 0 |
| 35 | Inside fume hood | 21 | ± | 98 | 0 | ± | 0 |
| 36 | Aft. sink area | 0 | ± | 0 | 0 | ± | 0 |
| 37 | Deck in front of fume hood | 0 | ± | 0 | 0 | ± | 0 |
| 38 | Deck inside stbd door | 0 | ± | 0 | 0 | ± | 0 |
| Walk-in coolers (no Fig.) | | | | | | | |
| 39 | Benchtop in forward walk-in cooler | 8 | ± | 0 | 0 | ± | 0 |
| 40 | Deck in aft walk-in cooler | 1 | ± | 0 | 0 | ± | 0 |
| 41 | Deck in forward walk-in cooler | 12 | ± | 0 | 0 | ± | 0 |
| 42 | Benchtop in aft. walk-in cooler | 1 | ± | 0 | 0 | ± | 0 |
| 43 | Final bucket blank C.O. #1 | 14 | ± | 0 | 0 | ± | 0 |
| 44 | Initial bucket blank C.O. #2 | 9 | ± | 0 | 0 | ± | 0 |
| Electronics Lab (No Fig.) | | | | | | | |
| 45 | Deck at stbd. entrance | 0 | ± | 0 | 0 | ± | 0 |
| 46 | Deck at fwd. entrance | 0 | ± | 0 | 0 | ± | 0 |
| 47 | Deck inside Science storeroom | 7 | ± | 37 | 0 | ± | 0 |
| Wet Lab (See Fig. 4) | | | | | | | |
| 48 | Inside fume hood | 0 | ± | 0 | 0 | ± | 0 |
| 49 | stbd. sink area | 3 | ± | 0 | 0 | ± | 0 |
| 50 | Deck at stbd. door | 10 | ± | 109 | 0 | ± | 0 |
| 51 | Stbd benchtop | 0 | ± | 0 | 0 | ± | 0 |
| Hydro Lab (See Fig. 5) | | | | | | | |
| 52 | Inside Cospolitch top | 18 | ± | 0 | 0 | ± | 0 |
| 53 | Inside Cospolitch bottom | 6 | ± | 0 | 0 | ± | 0 |
| 54 | Deck in front of Cospolitch bottom | 0 | ± | 0 | 0 | ± | 0 |
| 55 | Deck inside aft door | 0 | ± | 0 | 0 | ± | 0 |
| 56 | Port sink area | 32 | ± | 57 | 0 | ± | 0 |
| 57 | Deck inside stbd doors | 8 | ± | 0 | 0 | ± | 0 |
| 58 | Stbd sink area | 20 | ± | 59 | 0 | ± | 0 |
| 59 | Inside fume hood | 0 | ± | 0 | 0 | ± | 0 |
| 60 | Final bucket blank C.O. #2 | 39 | ± | 75 | 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 $^{3}H$ and $^{14}C$ contamination that requires cleaning. Minor $^{3}H$ and $^{14}C$ contamination found in UNOLS Radiation Van #6251057. No cleaning needed. Minor $^{14}C$ and minor to moderate $^{3}H$ contamination found in WHOI Radiation Van #2001400. The fume hood in this van should be cleaned before any further use.

Figure 1
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9 August 2012

# UNOLS Radioisotope Van #6251057

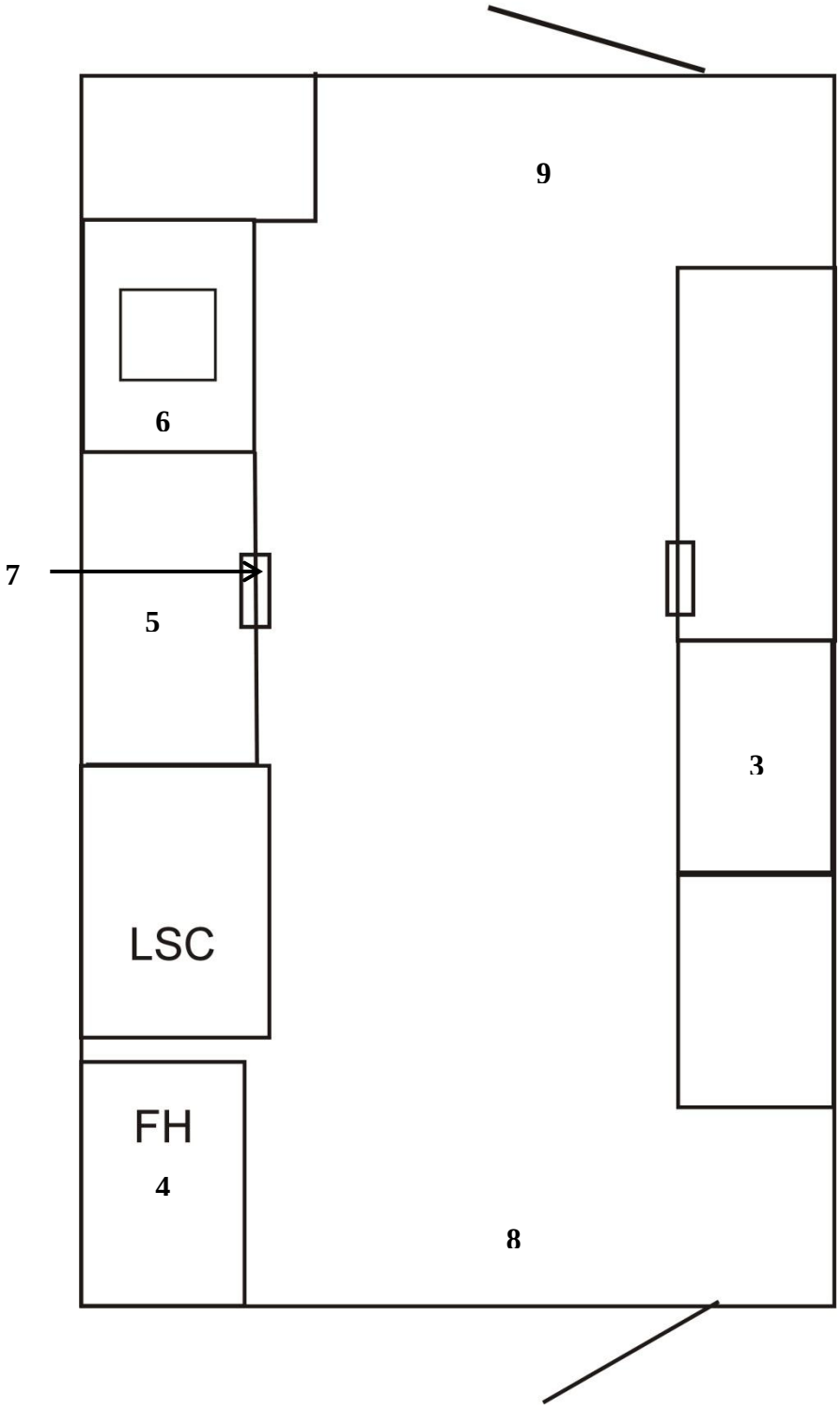

Figure 2
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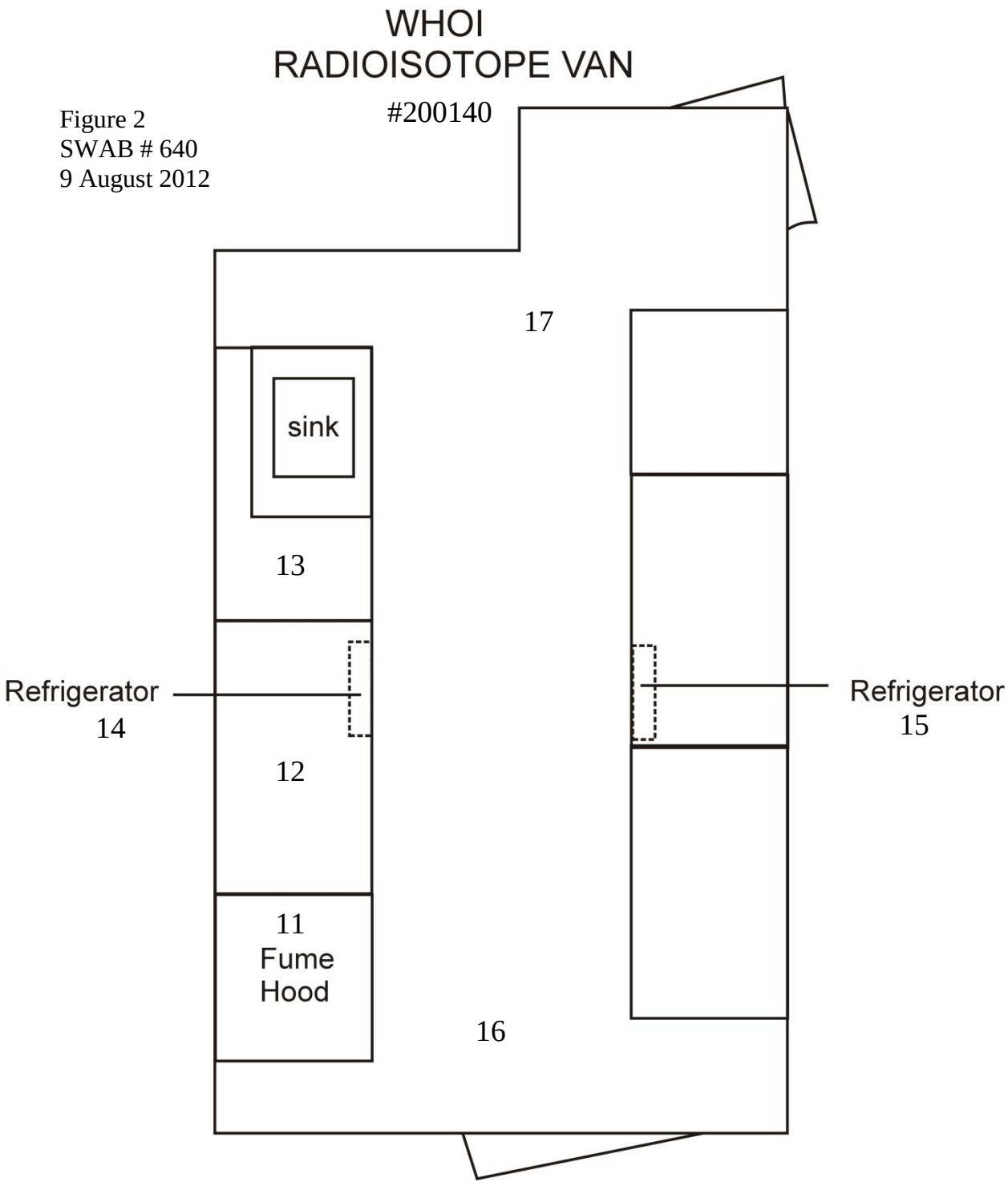

Figure 3
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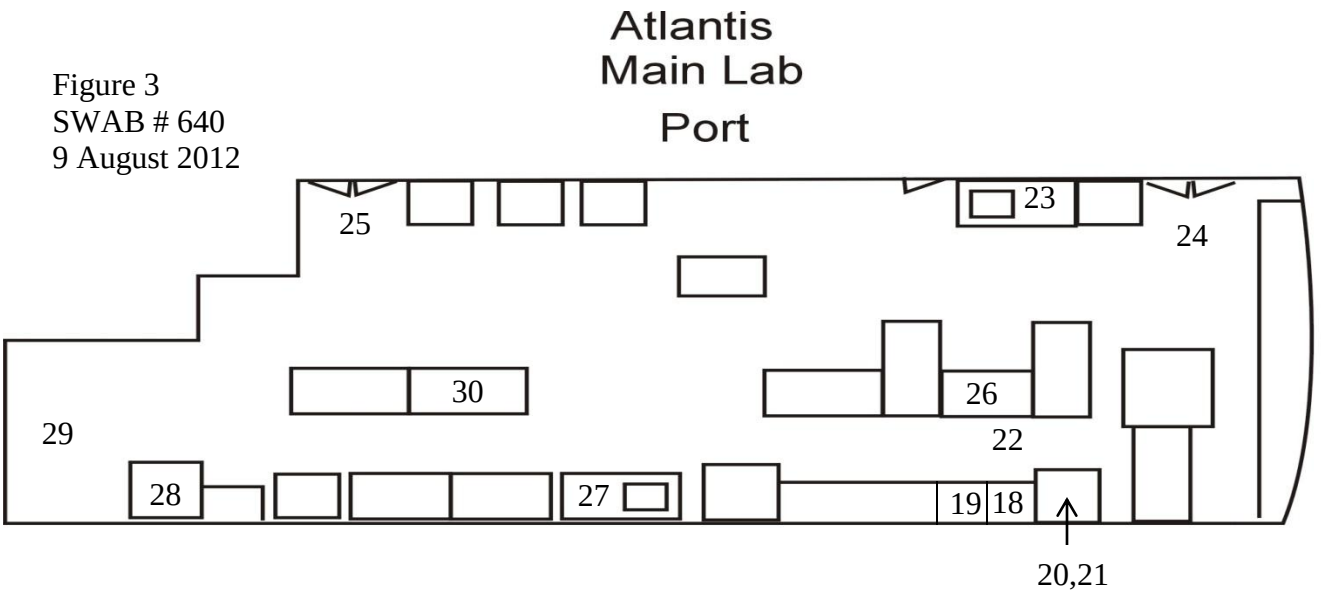


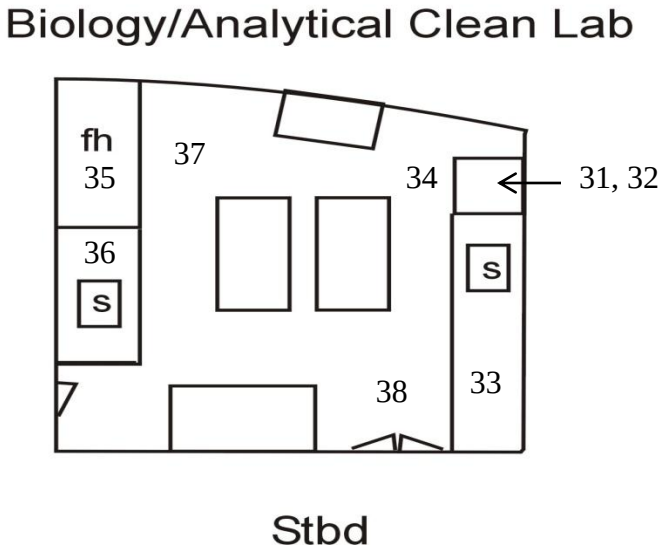

Figure 4
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