



3 April 2012

SWAB REPORT # 620

SWAB DATE: 24 March 2012

R/V Roger Revelle

James D. Happell

Distribution:
SWAB Committee
Gary Lain
Scripps Swab Committee

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 institution promptly by phone or email.

REPORT FOR SWAB # 620

LOCATION: Henderson, Australia
VESSEL/LAB: *R/V Roger Revelle*

DATE: 24 March 2012
TECHNICIAN: Cecilia Roig

| Sample # | Sample Identification | ³ H dpm/m ² | | ¹⁴ C dpm/m ² | |
|--|------------------------------|-----------------------------------|-------|------------------------------------|-------|
| | | activity | error | activity | error |
| 1 | 1st Vial Bkgnd | 0 | ± 0 | 0 | ± 0 |
| 2 | Initial bucket blank C.O. #1 | 0 | ± 0 | 38 | ± 37 |
| <u>Main Lab (Figure 1)</u> | | | | | |
| 3 | Port sink area | 9 | ± 22 | 23 | ± 34 |
| 4 | Inside -80 freezer | 7 | ± 19 | 22 | ± 34 |
| 5 | Deck inside fwd port door | 0 | ± 0 | 22 | ± 35 |
| 6 | Aft freezer top | 0 | ± 0 | 14 | ± 36 |
| 7 | Aft freezer bottom | 0 | ± 0 | 25 | ± 38 |
| 8 | Deck in front of aft freezer | 7 | ± 397 | 0 | ± 0 |
| 9 | Deck inside aft door | 2 | ± 7 | 25 | ± 34 |
| 10 | Inside fume hood | 0 | ± 0 | 23 | ± 35 |
| 11 | Inside Kenmore chest freezer | 0 | ± 0 | 4 | ± 38 |
| 12 | Stbd. sink area | 14 | ± 24 | 34 | ± 34 |
| 13 | Deck inside middle door | 0 | ± 0 | 10 | ± 34 |
| 14 | Deck in front of stbd sink | 8 | ± 59 | 0 | ± 0 |
| 15 | Deck in front of port sink | 0 | ± 0 | 12 | ± 37 |
| 16 | Inside Sanyo freezer | 0 | ± 0 | 26 | ± 36 |
| 17 | Bench top right of sink | 0 | ± 0 | 14 | ± 35 |
| 18 | Deck inside stbd door | 0 | ± 0 | 6 | ± 41 |
| <u>Bio/Analytical Lab (Figure 1)</u> | | | | | |
| 19 | Inside Revco chest freezer | 0 | ± 0 | 0 | ± 0 |
| 20 | Inside Cospolich freezer | 0 | ± 0 | 21 | ± 37 |
| 21 | Deck in front of Cospolich | 8 | ± 19 | 27 | ± 34 |
| 22 | Inside fume hood | 26 | ± 34 | 21 | ± 32 |
| 23 | Aft sink area | 6 | ± 11 | 45 | ± 35 |
| 24 | Deck in front of hood | 0 | ± 0 | 18 | ± 35 |
| 25 | Deck inside aft doors | 0 | ± 0 | 27 | ± 37 |
| 26 | Deck inside stbd doors | 0 | ± 0 | 38 | ± 36 |
| 27 | Bench top across aft sink | 0 | ± 0 | 33 | ± 37 |
| <u>Climate Control Chambers (Figure 1)</u> | | | | | |
| 28 | Deck inside fwd chamber | 34 | ± 39 | 16 | ± 30 |
| 29 | Deck inside aft chamber | 0 | ± 0 | 23 | ± 36 |

| Sample # | Sample Identification | ³ H dpm/m ² | | ¹⁴ C dpm/m ² | |
|----------|---|-----------------------------------|-------|------------------------------------|-------|
| | | activity | error | activity | error |
| 30 | Deck in vestibule area | 0 | ± 0 | 19 | ± 34 |
| 31 | Final bucket blank C.O. #1 | 5 | ± 18 | 19 | ± 34 |
| | <u>Hydro Lab (Figure 2)</u> | | | | |
| 32 | Initial bucket blank C.O. #2 | 0 | ± 0 | 11 | ± 36 |
| 33 | Inside fume hood | 0 | ± 0 | 0 | ± 0 |
| 34 | Stbd. sink area | 1 | ± 7 | 15 | ± 34 |
| 35 | Deck in front of hood | 20 | ± 35 | 16 | ± 32 |
| 36 | Port sink area | 0 | ± 1 | 38 | ± 35 |
| 37 | Deck in front of port sink | 20 | ± 38 | 16 | ± 32 |
| 38 | Fwd. bench top | 0 | ± 0 | 0 | ± 0 |
| 39 | Bench top fwd of port sink | 0 | ± 0 | 32 | ± 36 |
| 40 | Bench top aft of stbd sink | 0 | ± 0 | 6 | ± 37 |
| 41 | Deck inside stbd doors | 5 | ± 20 | 17 | ± 33 |
| | <u>Wet Lab (Figure 2)</u> | | | | |
| 42 | Inside hood | 9 | ± 16 | 41 | ± 35 |
| 43 | Deck in front of hood | 0 | ± 0 | 16 | ± 36 |
| 44 | Sink area | 1 | ± 5 | 14 | ± 34 |
| 45 | Staging bay | 0 | ± 0 | 33 | ± 35 |
| 46 | Inside Cospolich top | 0 | ± 0 | 0 | ± 0 |
| 47 | Inside Cospolich bottom | 0 | ± 0 | 25 | ± 36 |
| 48 | Deck inside aft doors | 1 | ± 3 | 44 | ± 35 |
| 49 | Deck center of lab | 3 | ± 0 | 0 | ± 0 |
| 50 | Intermediate bucket blank | 14 | ± 37 | 7 | ± 30 |
| | <u>UNOLS Shared-Use Van 625.5.02 (Figure 3)</u> | | | | |
| 51 | Sink area | 0 | ± 0 | 22 | ± 36 |
| 52 | Bench top above fridge | 32 | ± 41 | 10 | ± 29 |
| 53 | Bench top above freezer | 0 | ± 0 | 32 | ± 36 |
| 54 | Inside hood | 0 | ± 0 | 43 | ± 35 |
| 55 | Deck inside entrance next to hood | 25 | ± 29 | 38 | ± 34 |
| 56 | Top of LSC | 18 | ± 14 | *111 | ± 37 |
| 57 | Bench top next to LSC | 0 | ± 0 | 4 | ± 37 |
| 58 | Bench top across sink | 0 | ± 0 | 15 | ± 34 |
| 59 | Inside freezer | 0 | ± 0 | 29 | ± 35 |
| 60 | Inside fridge | 18 | ± 41 | 6 | ± 29 |
| 61 | Deck center of van | 0 | ± 0 | 17 | ± 35 |
| 62 | Deck inside entrance next to sink | 0 | ± 0 | 46 | ± 36 |
| 63 | Final bucket blank C.O. #2 | 2 | ± 12 | 16 | ± 34 |

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 from radioisotope activity that requires cleaning. Only one sample in the van showed minor ^{14}C activity and this area will need to be cleaned before any natural tracer work.

R/V ROGER REVELLE

Figure 1

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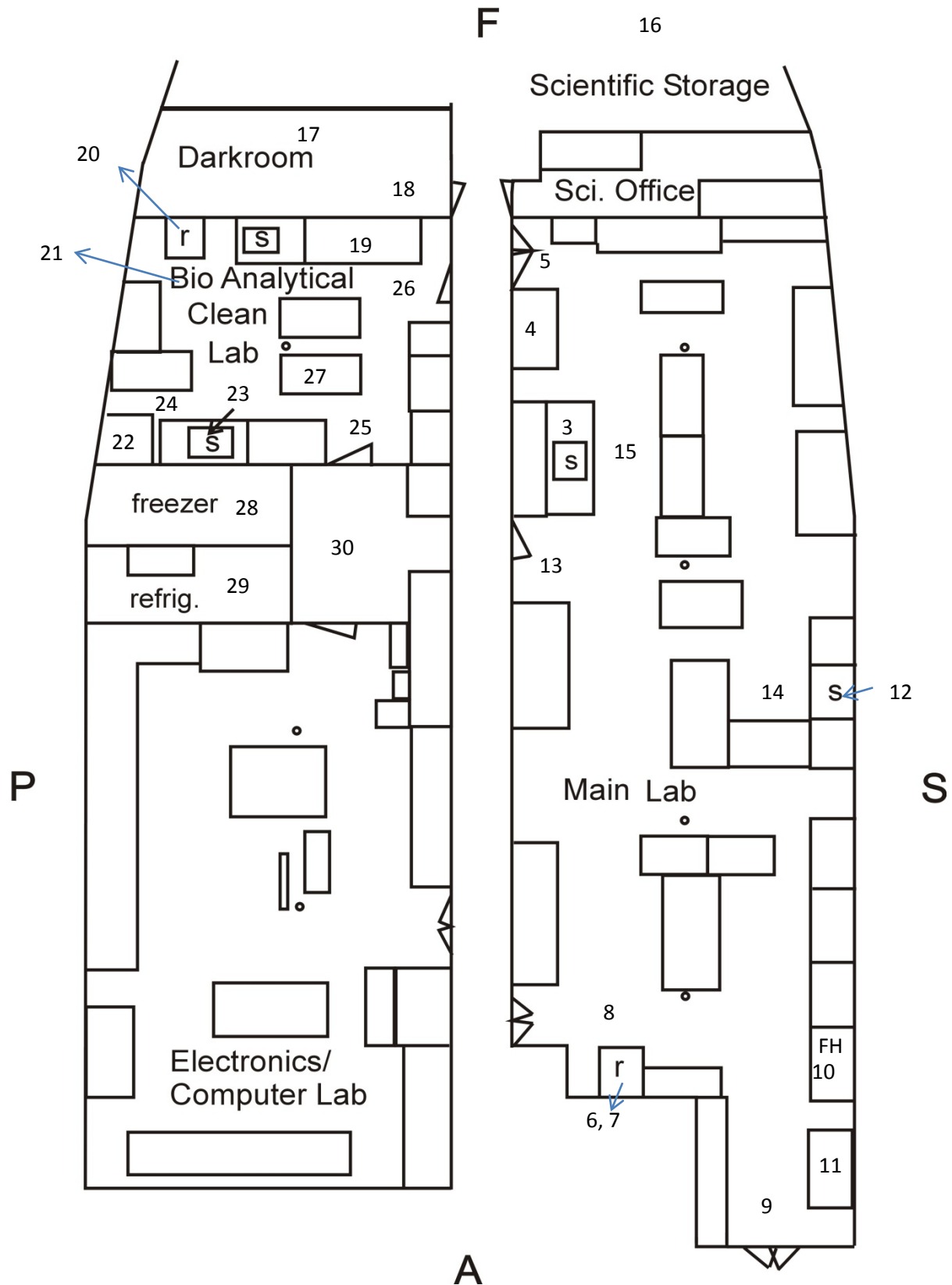
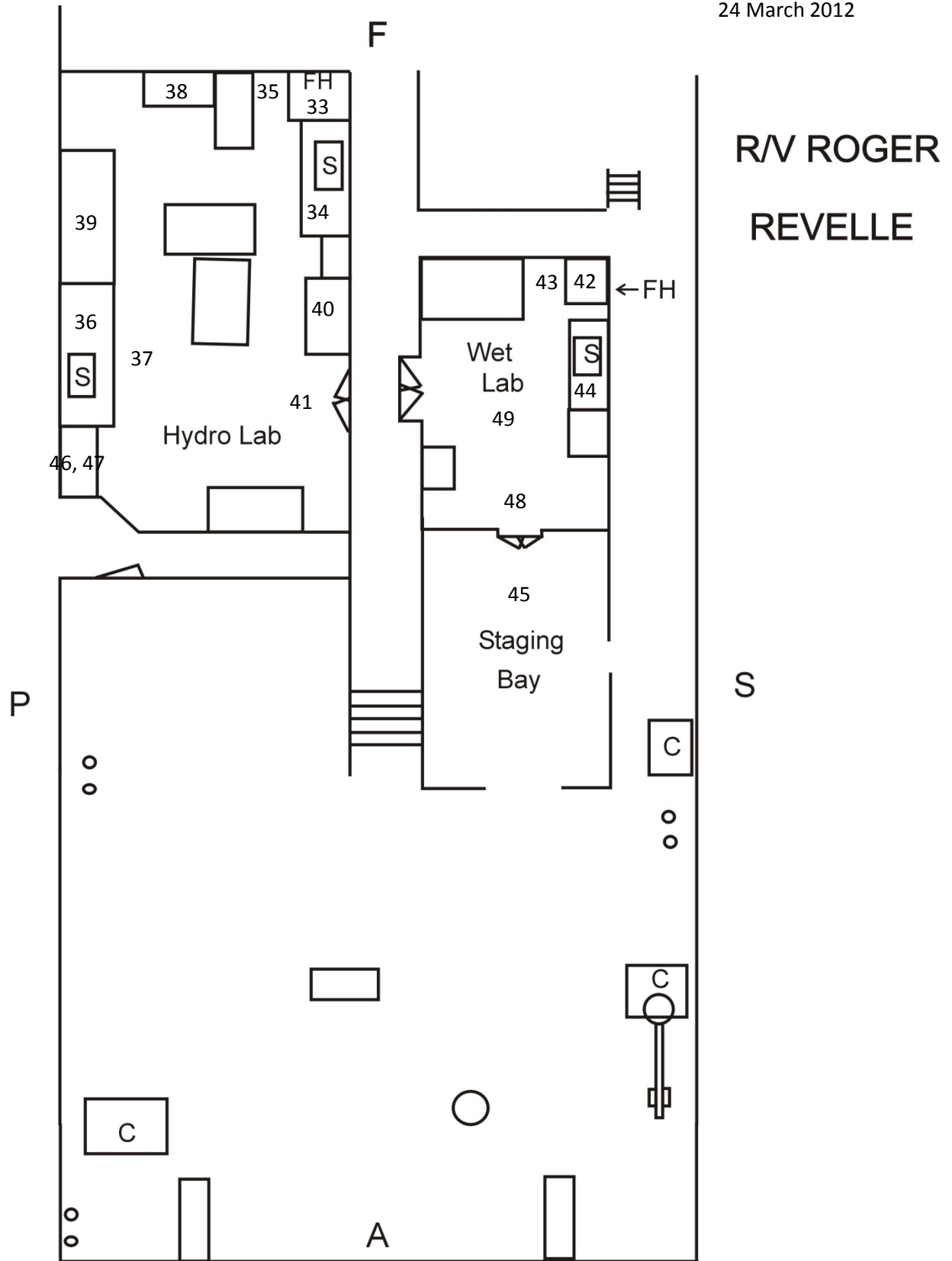


Figure 2

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UNOLS VAN 625.5.02

