



2 June 2026

SWAB REPORT # 1141

SWAB DATE: 11 April 2026

Palmer Station

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COMMENTS TO SWAB REPORTS

15 December 2021

The LSC is now a Quantulus GCT 6220, with the SWAB counting assay having background cpm of 0.3 & 1.2 for ^3H & ^{14}C . This replaces an LSC with background cpm of 1.6 & 5.5 for ^3H & ^{14}C .

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. All activities significantly above background will be in **bold**.

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 contact your institution's radiation safety office.

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

REPORT FOR SWAB # 1141

LOCATION: Palmer Station, Antarctica
 VESSEL: Lab 4 (Radioisotope Lab)

DATE: 11 April 2026
 TECHNICIAN: A. Klemmedson, N. Jac

| 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 | -28 | ± 27 | -3 | ± 56 |
| 3 | Lab 10 island | -25 | ± 24 | 2 | ± 28 |
| 4 | Lab 10 bench to the left of computer | -18 | ± 17 | 3 | ± 19 |
| 5 | Lab 10 entrance, floor | -15 | ± 15 | 7 | ± 15 |
| 6 | Aquarium vestibule, floor | -11 | ± 6 | 1 | ± 39 |
| 7 | Lab 1 hallway by freezers, floor | -23 | ± 23 | 0 | ± 0 |
| 8 | Lab 2 hallway in front of lab 2 | -39 | ± 37 | 16 | ± 15 |
| 9 | Lab 3 hallway in front of lab 3 | -25 | ± 24 | 10 | ± 15 |
| 10 | Instrument tech office, hallway | -2 | ± 5 | 2 | ± 13 |
| 11 | Lab 5 hallway in front of lab 5 | 5 | ± 347 | -9 | ± 166 |
| 12 | Bucket blank 2 | -17 | ± 16 | 9 | ± 15 |
| 13 | Floor in front of lab 4 | -30 | ± 29 | 24 | ± 15 |
| 14 | Lab 4 clean benchtop (0.5m ² - 100ml) | 17 | ± 23 | 8 | ± 12 |
| 15 | Left side of right benchtop | -12 | ± 6 | *158 | ± 21 |
| 16 | Center of right benchtop | -14 | ± 14 | *88 | ± 18 |
| 17 | Right side of right benchtop | -6 | ± 58 | 17 | ± 14 |
| 18 | Left side of floor in front of right benchtop | 26 | ± 17 | 44 | ± 15 |
| 19 | Center of floor in front of right benchtop | 19 | ± 21 | 17 | ± 13 |
| 20 | Floor in front of left LSC | -15 | ± 14 | 15 | ± 14 |
| 21 | Floor in front of right LSC | 156 | ± 43 | 26 | ± 12 |
| 22 | Left side of left bench | -3 | ± 9 | 21 | ± 14 |
| 23 | Left side of floor in front of left bench (rectangle to p | *598 | ± 80 | *62 | ± 12 |
| 24 | Floor in front of mini-fridge | 125 | ± 43 | 20 | ± 11 |
| 25 | Floor in front of fume hood | 89 | ± 29 | *80 | ± 17 |
| 26 | Fume hood sill and inside countertop | 45 | ± 29 | 12 | ± 12 |
| 27 | Dry ASC lab debris bin inside | -17 | ± 16 | 31 | ± 15 |
| 28 | Floor under ASC dry debris can | 183 | ± 44 | 21 | ± 10 |
| 29 | Inside C-019 dry lab debris bin | -33 | ± 32 | 48 | ± 16 |
| 30 | Plexiglass table | -46 | ± 44 | *75 | ± 17 |
| 31 | Under yellow secondary containment tray | 7 | ± 5 | *72 | ± 17 |
| 32 | Inside yellow secondary containment tray | -67 | ± 25 | *326 | ± 28 |
| 33 | White secondary containment tray and HCL bath | -113 | ± 27 | *605 | ± 35 |
| 34 | Gray cart not used for C-019 this season (only used fo | -12 | ± 6 | 1 | ± 24 |
| 35 | Final bucket blank | -18 | ± 17 | 12 | ± 14 |

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. Reports may now contain values less than zero. Decay counting background samples will be distributed about

the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. Please note that we are now using a Quantulus 6220 LSC which counts very near natural background. While the cleanup standards have not changed all values above background will now be in bold. Minor ^3H and ^{14}C contamination was detected Lab 4 and 5. If these are rad labs then no action is needed. If they are not rad labs then they should be cleaned before any natural abundance work.