



20 March 2012

SWAB REPORT # 618

SWAB DATE: 24 February 2012

R/V N. B. Palmer

James D. Happell

Distribution:
SWAB Committee
Melissa Paddock

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 insitution promptly by phone or email.

REPORT FOR SWAB # 618

LOCATION: Punta Arenas, Chile
VESSEL/LAB: *R/V N. B. Palmer*

DATE: 24 February 2012
TECHNICIAN: Melissa Paddock

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	41	± 49	0	± 0
	<u>Dry Lab (Figures 1 & 2)</u>				
3	Top of Revco chest freezer	0	± 0	3	± 38
4	Inside of Revco chest freezer	35	± 47	0	± 0
5	Inside Thermo Scientific freezer	34	± 43	1	± 10
6	Inside Revco upright freezer	24	± 35	12	± 31
7	Inside Perceival incubator 00011176	0	± 0	27	± 36
8	Inside Fischer Freezer 00113062	31	± 54	0	± 0
9	Deck between tables	0	± 0	0	± 0
10	Deck in front of incubators and freezers	26	± 41	4	± 24
11	Port sink area	20	± 25	34	± 34
12	Deck at forward door to passageway	40	± 68	0	± 0
13	Deck at aft door to passageway	0	± 0	12	± 35
14	Deck at door to Baltic Room	8	± 24	13	± 34
15	Aft sink area	52	± 40	17	± 30
16	Inside Perceival incubator 00011175	30	± 53	0	± 0
17	Deck in front of door to aft lab	32	± 44	0	± 0
18	Deck inside door to passageway	5	± 19	14	± 34
	<u>Bio Lab (Figure 3)</u>				
19	Big Antarctica walk-in cooler sink area	29	± 35	17	± 32
20	Little Antarctica walk-in cooler benchtop right of sink	0	± 0	48	± 36
21	Inside aft fume hood	22	± 46	0	± 0
22	Inside forward fume hood	12	± 43	1	± 20
23	Port sink area	17	± 58	0	± 0
24	Deck in front of aft fume hood	28	± 36	14	± 31
25	Deck in front of forward fume hood	0	± 0	16	± 38
26	Deck inside forward entrance	21	± 38	6	± 29
27	Deck in front of port sink	11	± 27	15	± 33
28	Starboard sink area	32	± 41	5	± 25
29	Inside Fischer refrigerator 00011985	1	± 4	13	± 34
30	Inside Fischer refrigerator 00011986	19	± 34	12	± 32
31	Deck in front of refrigerators	29	± 39	7	± 28

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
32	Deck inside door to passageway	48	± 52	0	± 0
33	Bench top forward of port sink	21	± 49	0	± 0
34	Bench top aft of port sink	25	± 33	20	± 33
35	Bench top port of aft sink	20	± 41	3	± 24
36	Final bucket blank #1	36	± 50	0	± 0
37	SAMPLE ARRIVED BROKEN				
38	Bench top next to forward entrance	20	± 45	0	± 0
	<u>Hydro Lab (Figure 4)</u>				
39	Inside Summit refrigerator	53	± 49	0	± 0
40	Inside Fischer refrigerator	21	± 95	0	± 0
41	SAMPLE ARRIVED BROKEN				
42	Starboard sink area	25	± 34	23	± 33
43	Aft bench top	38	± 46	0	± 0
44	Deck in front of aft sink	16	± 48	0	± 0
45	Deck in front of starboard sink	26	± 37	12	± 31
46	Deck in front of refrigerators	42	± 55	0	± 0
	<u>Wet Lab (Figure 5)</u>				
47	Forward bench top	0	± 0	0	± 0
48	Deck inside forward door	31	± 28	37	± 34
49	Aft sink area	32	± 48	0	± 0
50	Starboard bench top	16	± 48	0	± 0
51	Deck inside port door	34	± 43	5	± 24
52	Deck in center of lab	31	± 32	24	± 33
53	Deck inside starboard doors	94	± 38	32	± 30
54	Aft benchtop	28	± 46	0	± 0
	<u>Aquarium (Figure 6)</u>				
55	Deck outside aft entrance	29	± 42	0	± 1
56	Deck outside forward entrance	11	± 40	3	± 28
	<u>02 Deck, Helo Workshop & Pad (Figure 7)</u>				
57	Inside Baxter 00011923, top	48	± 46	0	± 0
58	inside Baxter 00011923, bottom	28	± 41	5	± 26
59	Benchtop starboard of sink	5	± 169	0	± 0
60	Benchtop port of sink	21	± 46	0	± 0
61	Deck in front of Baxter	39	± 45	0	± 0
62	Deck in front of sink	12	± 111	0	± 0

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
63	Deck in passageway	37	± 62	0	± 0
64	Deck outside passageway door	64	± 41	26	± 31
65	Deck outside starboard door	22	± 34	15	± 32
66	Deck outside where rad waste is stored	15	± 44	0	± 0
67	Deck outside where rad van was located	0	± 0	9	± 38
	<u>128 Office (No figure)</u>				
68	Deck in front of sofa	21	± 38	6	± 29
69	Final bucket blank #2	32	± 39	9	± 29

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.

Figure 1
SWAB #607
Nathaniel B. Palmer 11/5/2011

Forward Dry Lab

1150 sq. ft.

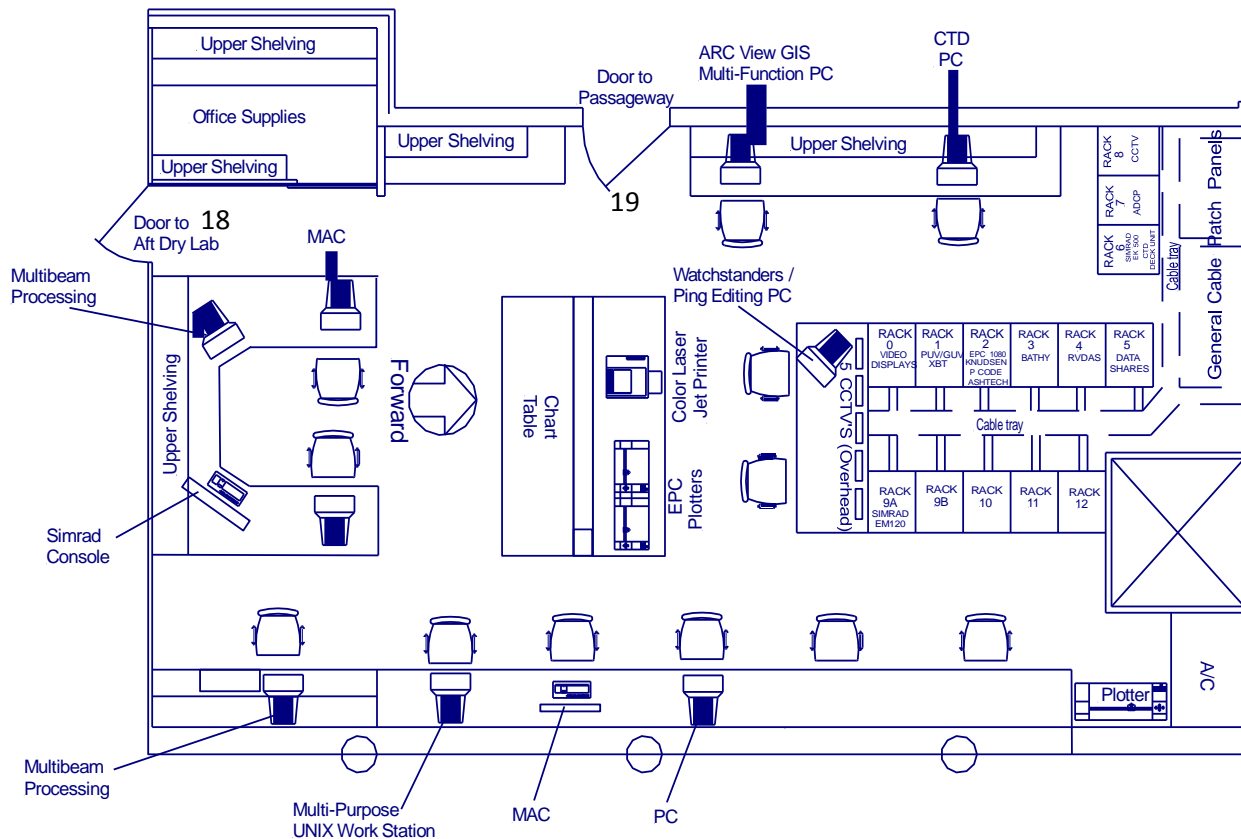


Figure 3 SWAB #618 Nathaniel B. Palmer

Bio Lab

460 sq. ft.

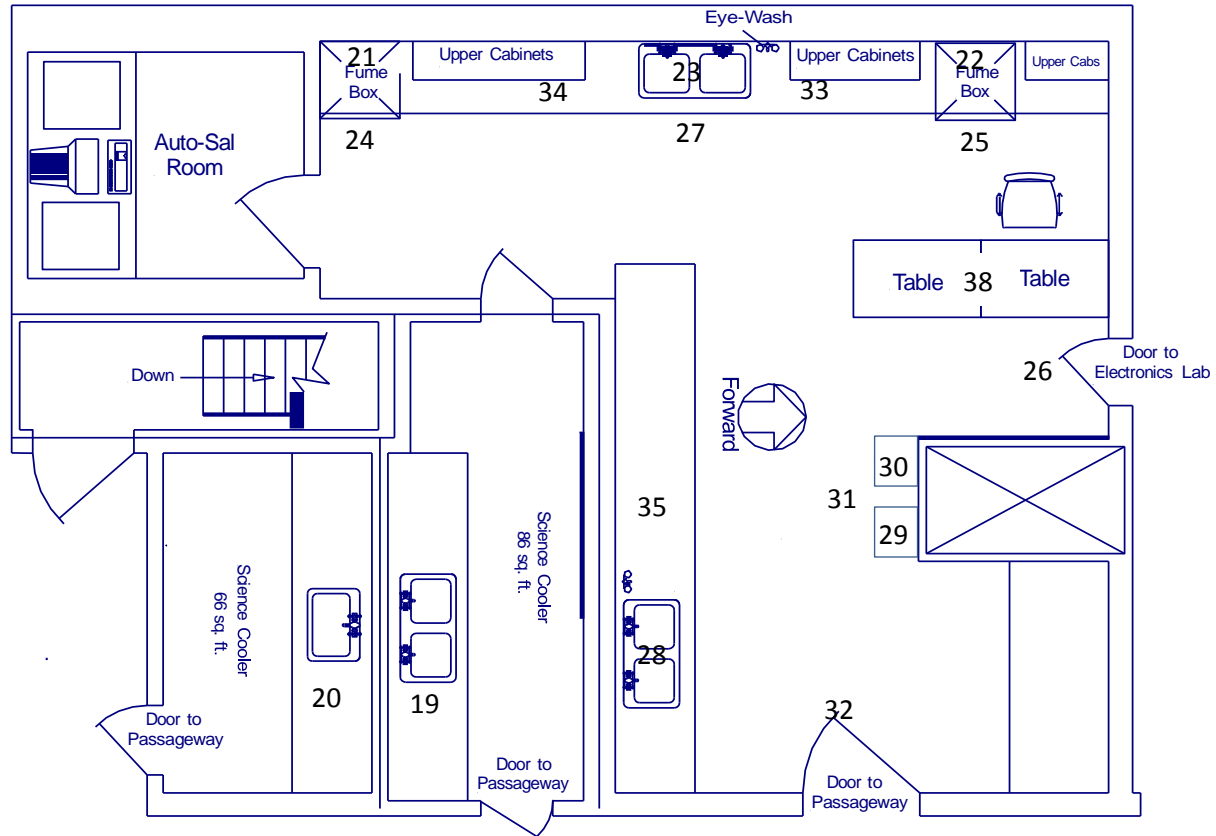


Figure 4 SWAB #618
Nathaniel B. Palmer

Hydro Lab

445 sq. ft.

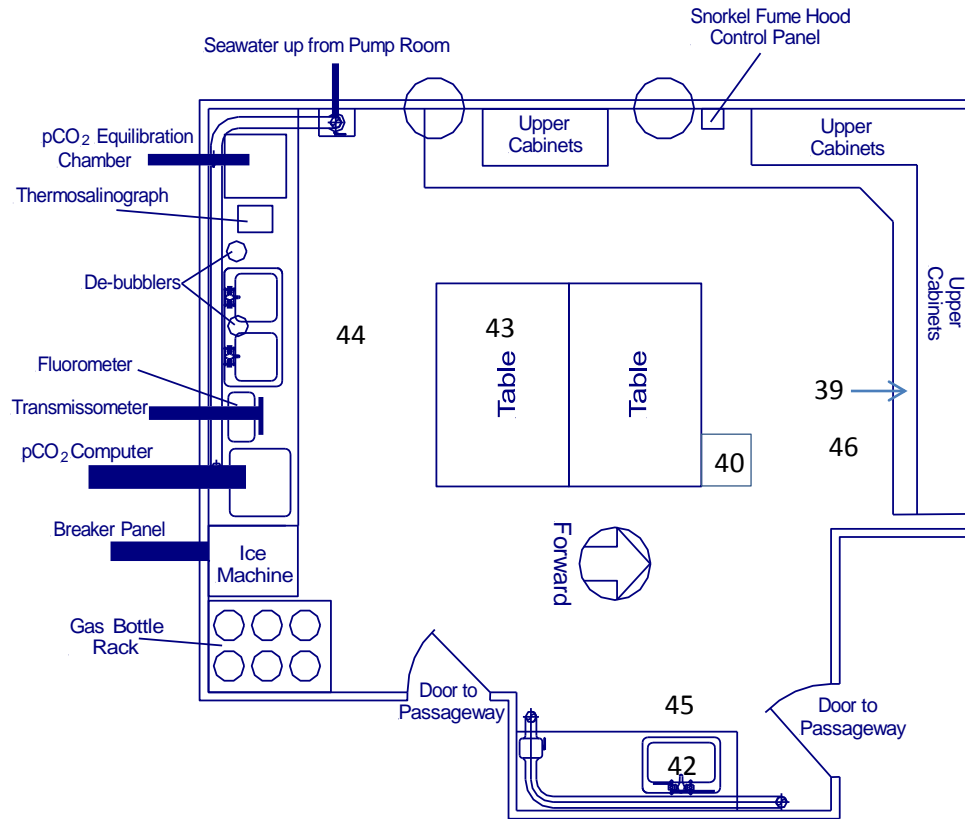


Figure 5 SWAB #618 Nathaniel B. Palmer

Wet Lab

416 sq. ft.

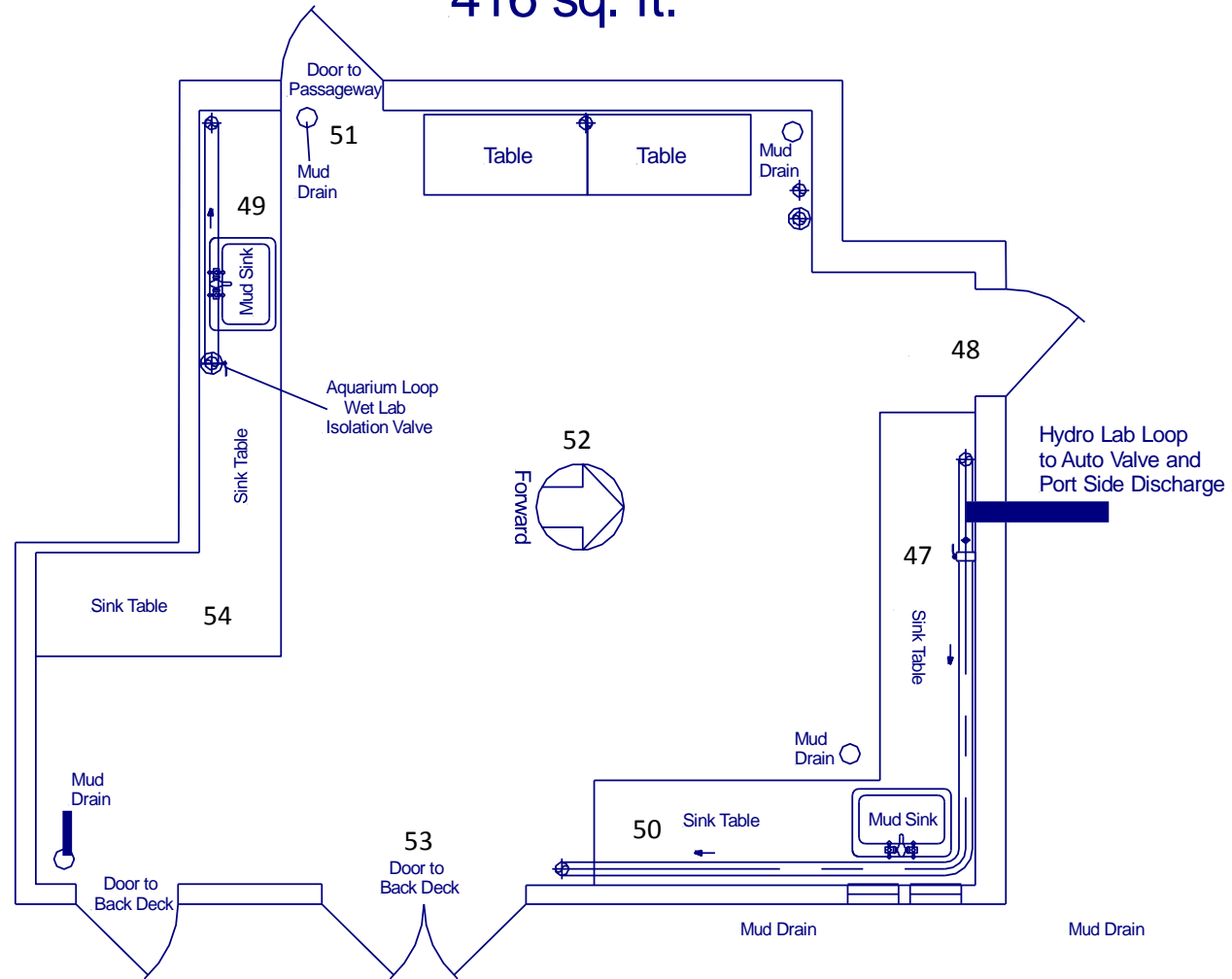


Figure 6
SWAB #618
Nathaniel B. Palmer

Aquarium Room

298 sq. ft.

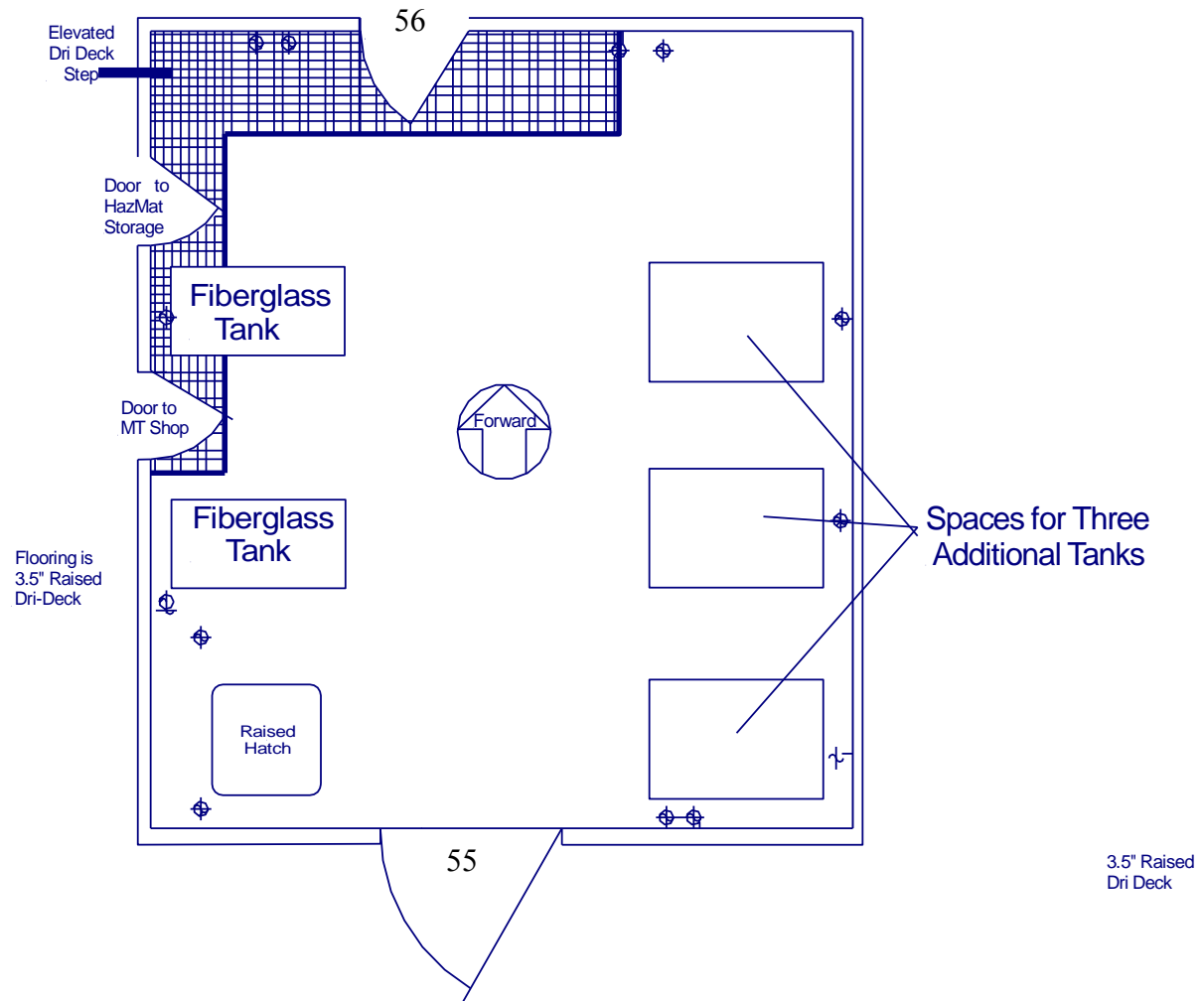


Figure 7 SWAB #618 Nathaniel B. Palmer

