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Tritium Laboratory
5 November 2018

SWAB REPORT # 918

SWAB DATE: 30 October 2018

R/V Sally Ride
CalCOFI Van

James Happell

Digitally signed by James Happell
DN: cn=James Happell, o=University of Miami, ou=RSMAS, email=jhappell@rsmas.miami.edu, c=US
Date: 2018.11.06 11:39:19 -10'00'

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Gary Lain

COMMENTS TO SWAB REPORTS 12 May 2014

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/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 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 contact your institution's radiation safety office.

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

REPORT FOR SWAB # 918

LOCATION: San Diego, CA
VESSEL: *R/V Sally Ride*

DATE: 30 October 2018
TECHNICIAN: Yudy Mendoza

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
2	Initial bucket blank C.O. # 1	58	±	61	-25	±	40
	Wet Lab (Figure 1)						
3	Sink area	21	±	117	-27	±	35
4	Inside fume hood	20	±	89	-20	±	33
5	Starboard bench	5	±	15	-25	±	36
6	Wooden benchtop forward of starboard benchtop	-20	±	23	-19	±	42
7	Benchtop aft of sink	46	±	60	-17	±	28
8	Deck inside aft entrance	28	±	70	-20	±	31
9	Deck inside port entrance	22	±	178	-35	±	22
10	Deck in front of Science Freezer	21	±	62	-11	±	16
11	Benchtop opposite of port entrance	16	±	131	-21	±	15
	Main Lab (Figure 2)						
12	Starboard sink are	7	±	27	-25	±	32
13	Inside starboard fume hood	6	±	16	-12	±	19
14	Inside port fume hood	43	±	85	-41	±	23
15	Deck in front of port fume hood	-15	±	32	-30	±	41
16	Deck in front of starboard fume hood	-1	±	20	1	±	40
17	Aft section of port bench	-1	±	18	-38	±	22
18	Forward section of port bench	20	±	131	-28	±	35
19	Aft section of center bench	-6	±	35	-35	±	8
20	Forward section of center bench	1	±	14	-1	±	16
21	Deck in front of Science Freezer	-15	±	17	-32	±	23
22	Deck inside forward entrance to lab	-35	±	23	-2	±	29
23	Benchtop across from starboard fume hood	3	±	18	-22	±	50
24	Deck at aft entrance between starboard benches	-19	±	25	-9	±	7
25	Benchtop opposite of starboard aft entrance	9	±	339	-18	±	21

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
	Main Deck (Figure 3)						
26	Inside head aft of Electronics Shop	26	±	113	-35	±	28
27	Deck in center of Electronics Shop	5	±	21	-32	±	17
28	Deck between Main Lab and Computer Lab	17	±	433	-33	±	26
29	Starboard working deck aft of entrance to vestibule	-9	±	18	-19	±	33
30	Deck where CTD rosette was located	-5	±	17	-29	±	25
31	Aft deck of Staging Bay	32	±	128	-46	±	18
32	Deck below entrance to CALCofi Van	-4	±	22	-28	±	21
33	Deck behind van where incubator stood	11	±	145	-16	±	42
	CalCOFI Rad Van						
34	Inside refrigerator on bottom	2	±	19	-31	±	11
35	Benchtop adjacent to refrigerator	5	±	38	3	±	34
36	Sink area	-3	±	15	-26	±	16
37	Top of refrigerator	25	±	277	-43	±	18
38	Desk across from sink	12	±	31	-34	±	25
39	Deck in center of van	10	±	399	-19	±	30
40	Final bucket sample	14	±	23	-37	±	32

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error.
The reports may now contain values less than zero. When 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. All areas tested on the ship and in the van were free from any isotope contamination that requires cleaning.

Figure 1
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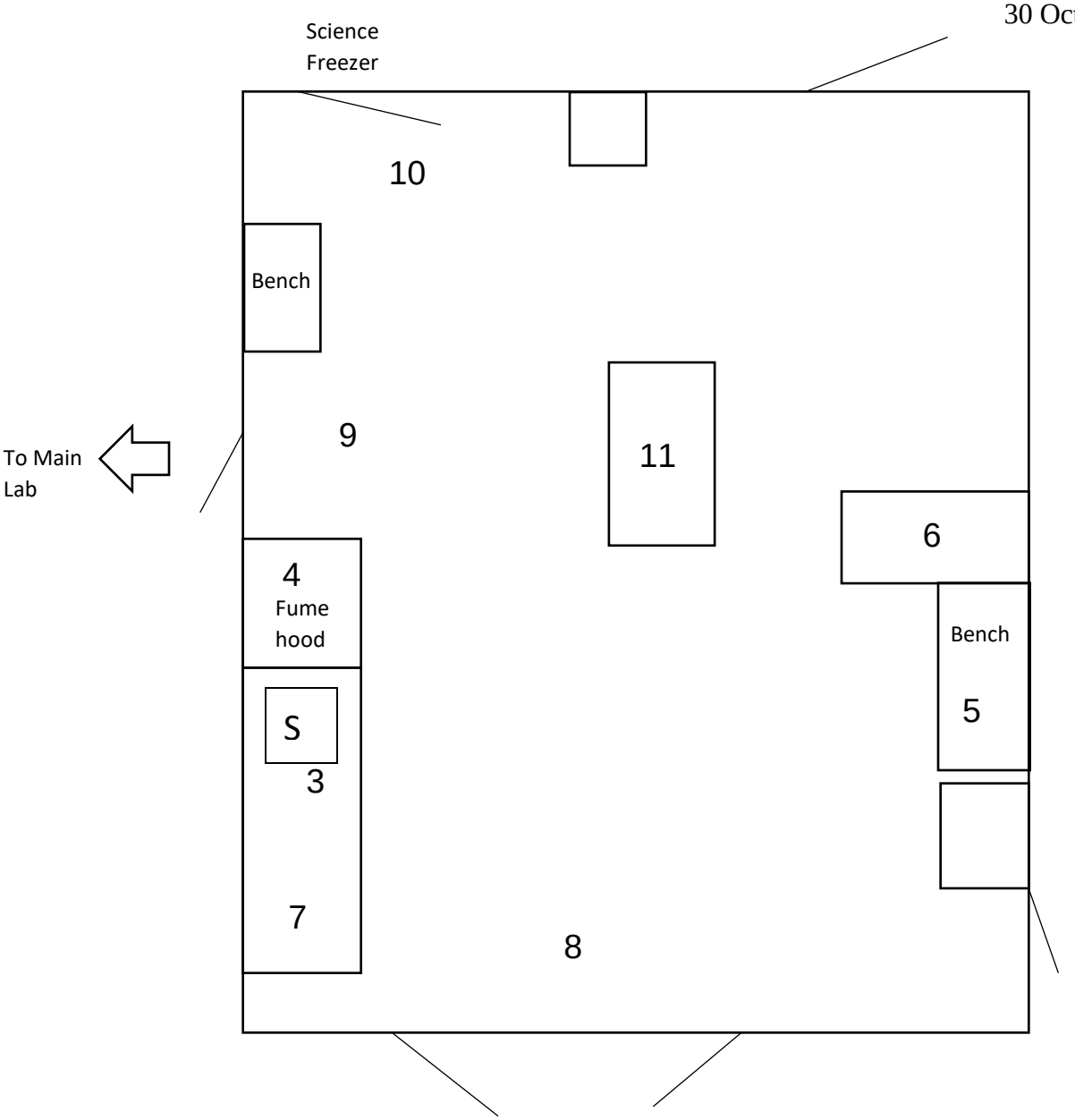
30 October 2018



R/V Sally Ride

WET LAB

Figure 2
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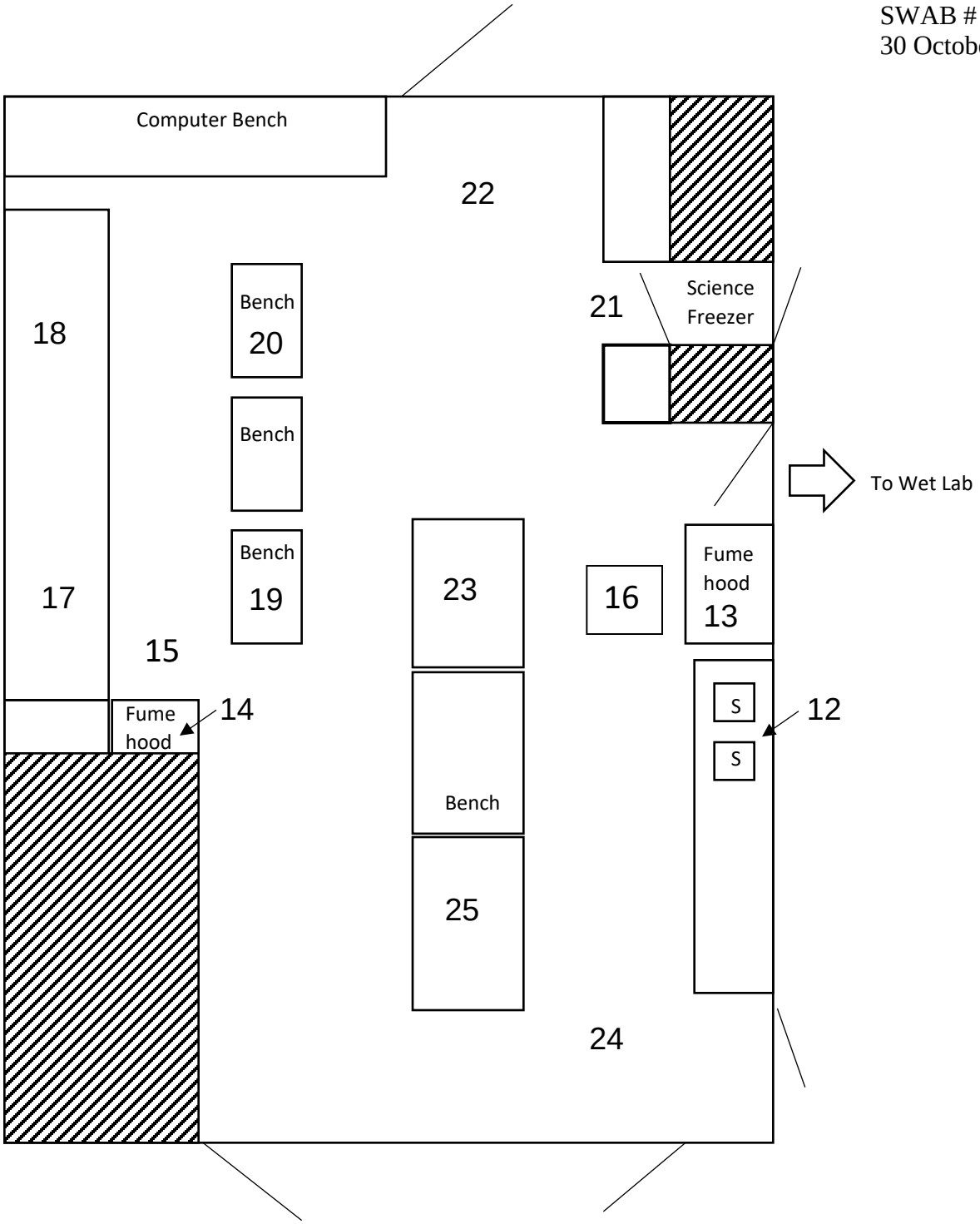

R/V Sally Ride

MAIN LAB

Figure 3
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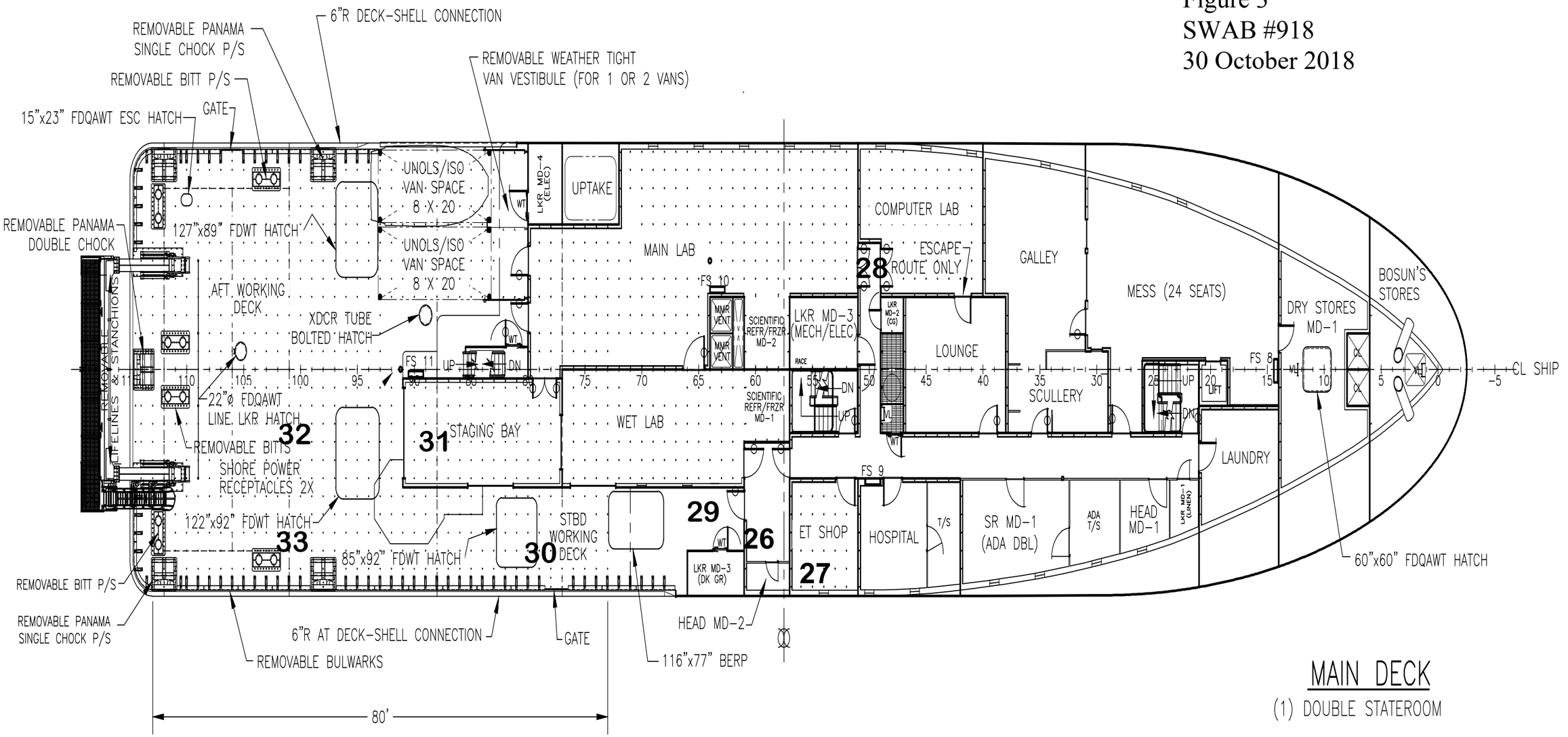

MAIN DECK

(1) DOUBLE STATEROOM

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PLOT TIME: 11:29:35 am
PLOT ID:
FILE DIR: 65311_C:\USERS\DC\APPDATA\LOCAL\TEMP\ACPUBLISH_5116\
FILE NAME: DCI 027-04 R6010 REV-D.DWG

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Figure 4
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CalCOFI Van