

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Tritium Laboratory
4600 Rickenbacker Causeway
Miami, Florida 33149-1031

Ph: 305-421-4100
Fax: 305-421-4112
E-mail: Tritium@rsmas.miami.edu

21 November 2011

SWAB REPORT # 610

SWAB DATE: 14 November 2011

R/V Hugh Sharp and Vans

James D. Happell

Distribution:
SWAB Committee
Tim Deering

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 # 610

LOCATION: Lewes, Delaware
VESSEL/LAB: *Hugh Sarp and Vans*

DATE: 14 November 2011
TECHNICIAN: Charlene Grall

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	25	± 106	0	± 0
<u>Main Lab (see Figure 1)</u>					
3	Inside Whirlpool freezer top	0	± 0	18	± 37
4	Inside Whirlpool refrigerator bottom	51	± 62	0	± 0
5	Bench top across from Whirlpool fridge	35	± 52	0	± 0
6	Top of Holiday freezer	76	± 58	0	± 0
7	Starboard bench top middle section	107	± 54	13	± 25
8	Port benchtop across from sink starboard s	7	± 60	0	± 0
9	Deck below sink	228	± 64	13	± 19
10	Port benchtop across from sink port section	0	± 0	4	± 47
<u>Wet Lab (see Figure 1)</u>					
11	Inside Roper freezer	43	± 59	0	± 0
12	Inside Roper refrigerator	4	± 57	0	± 0
13	Benchtop aft of stbd sink	97	± 54	6	± 19
14	Fwd benchtop next to Rosette	0	± 0	0	± 0
15	Vestibule deck outside GP Lab Van	42	± 46	20	± 33
16	Vestibule deck outside Rad Van	398	± 74	32	± 23
<u>Shared Use Van (see Figure 2)</u>					
17	Inside fume hood	50	± 58	0	± 0
18	Deck below fume hood and incubator	*1339	± 98	*932	± 60
19	Benchtop adjacent to sink	0	± 0	0	± 0
20	Benchtop adjacent to incubator	0	± 0	34	± 37
21	Inside black refrigerator	22	± 98	0	± 0
22	Deck below black fridge near entrance	142	± 47	101	± 37
<u>Radioisotope Van (see Figure 3)</u>					
23	Deck inside entrance below fume hood	*1862	± 127	*67	± 17
24	Inside fume hood	*1463	± 113	44	± 14
25	Lid of LSC	*3936	± 176	*154	± 20
26	Benchtop above refrigerator	*863	± 93	28	± 14
27	Sink area	**49948	± 604	*1201	± 34
28	Deck inside fwd entrance	**27085	± 455	*617	± 25
29	Benchtop opposite of sink	182	± 59	20	± 25
30	Benchtop opposite of refrigerator	*690	± 86	2	± 2
31	Benchtop near aft entrance	266	± 67	0	± -36

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
32	Deck below LSC in center of van	**41445	± 564	*1030	± 33
33	Final bucket blank C.O. # 1	40	± 52	0	± -99
<u>Radioisotope Van #2408-04 (see Figure 4)</u>					
34	Initial bucket blank C.O. # 2	20	± 85	0	± 0
35	Inside fume hood	43	± 39	34	± 35
36	Benchtop adjacent to sink	2	± 20	6	± 35
37	Benchtop adjacent to LSC	12	± 37	9	± 34
38	Deck at entrance near fume hood	*1266	± 106	46	± 16
39	Deck at entrance near sink	265	± 63	36	± 27
<u>Radioisotope Van #625.5.02 (see Figure 5)</u>					
40	Inside fume hood	213	± 63	2	± 6
41	Benchtop adjacent to sink	20	± 31	28	± 35
42	Benchtop opposite of sink	54	± 62	0	± 0
43	Deck between fume hood and LSC	92	± 34	*155	± 40
44	Deck at entrance near sink	167	± 43	*176	± 40
45	Final bucket blank C.O. # 2	0	± 0	32	± 38

Comments

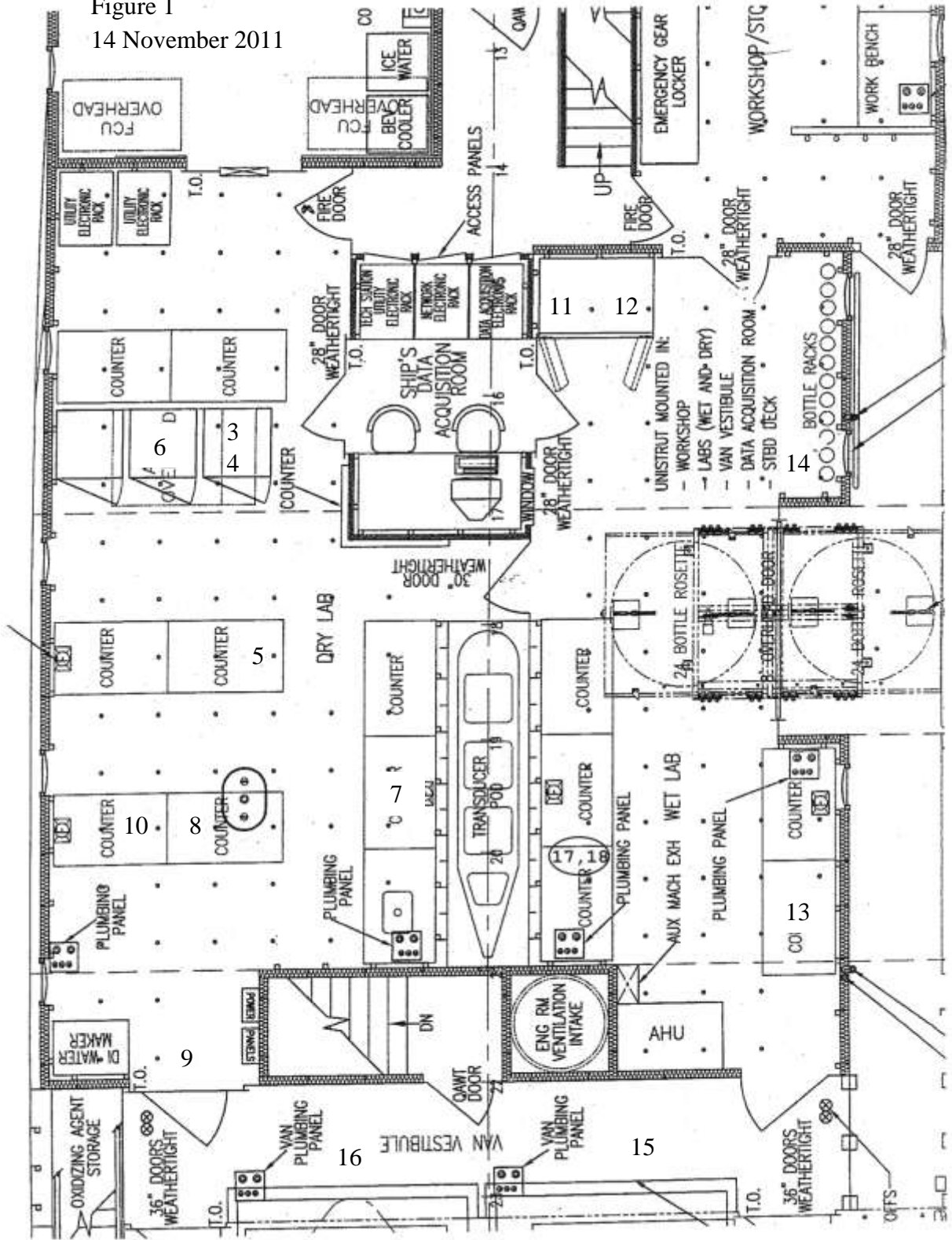
Please note that the error reported for each isotope is the two-standard deviation counting error. All areas tested on the R/V Hugh R. Sharp were free of radioisotope contamination that requires cleaning. However several samples (6, 7, 9, 13, and 16) have above background ³H suggesting that ³H has been transported from the rad van into the ship. Minor ¹⁴C and minor to moderate ³H contamination was found inside the Rad Van on the deck and around the sink area. We suggest cleaning the deck and all contaminated areas. The Shared Use Van and Rad Vans 2408-04 and 625.5.02 also had some minor ³H and/or ¹⁴C contamination on their decks. The Shared Use Van should be cleaned before any use, and we recommend that the decks of the vans 2408-04 and 635.5.02 be cleaned to help prevent tracking of contamination into the ship.

RV Hugh Sharp Lab Spaces

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Figure 1

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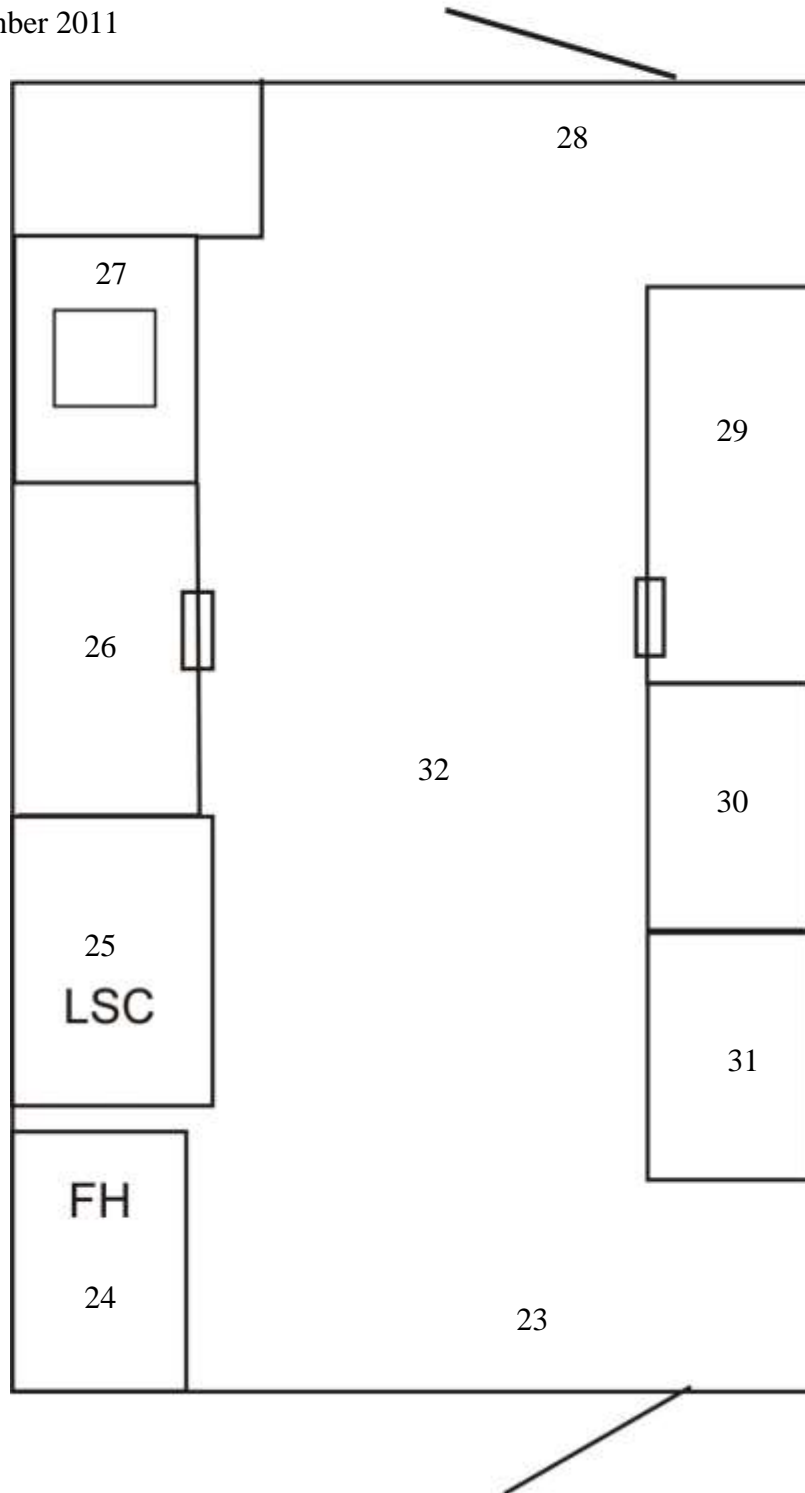


University of Delaware Radioisotope Van

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Figure 2

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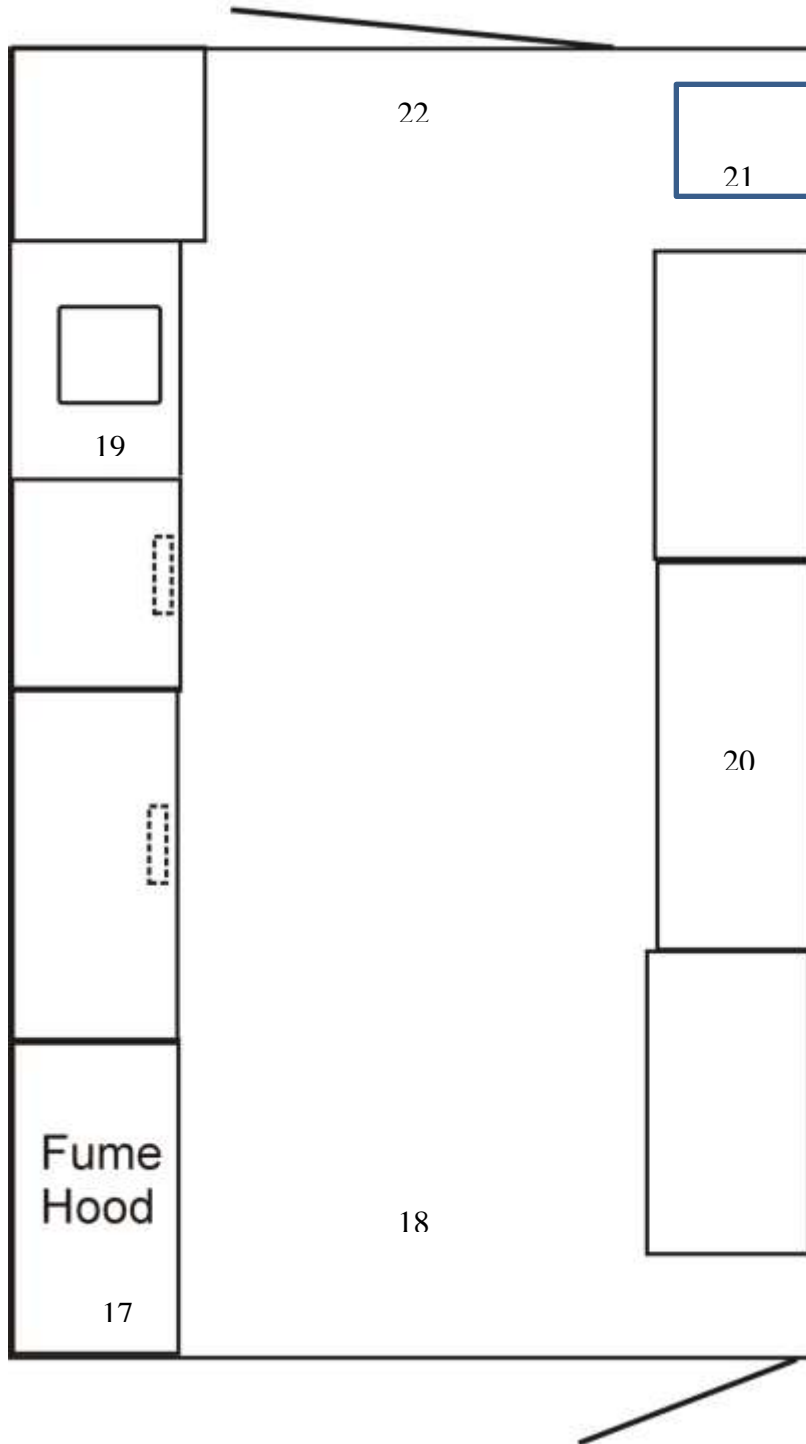


UNOLS Shared Use Van

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Figure 3

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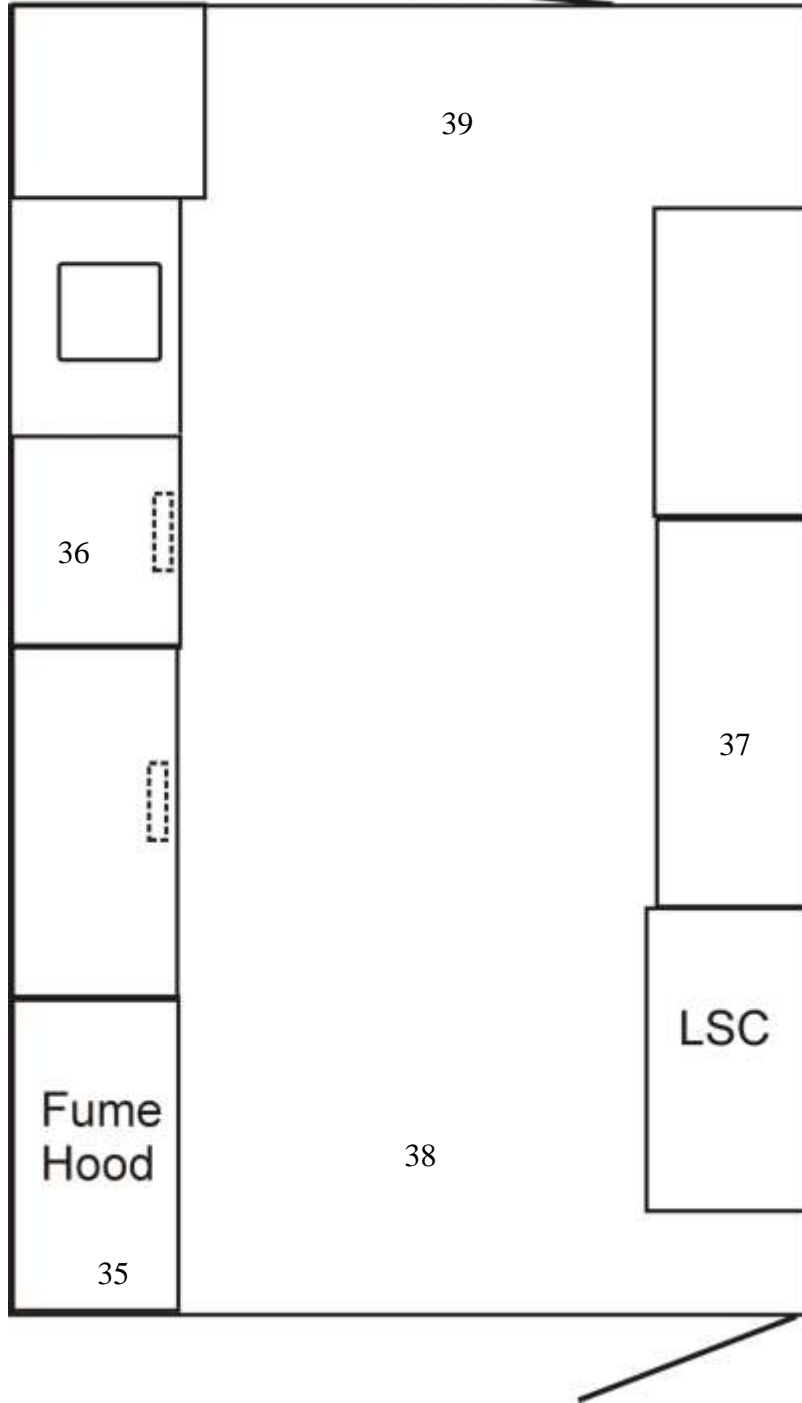


UNOLS VAN 2408-04

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Figure 4

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UNOLS VAN 625.5.02

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Figure 5

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