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

Tritium Laboratory
23 April 2019

SWAB REPORT # 942

SWAB DATE: 15-16 April 2019

R/V Oceanus
West Coast Van Pool Vans

James Happell
Digitally signed by James Happell
Date: 2019.04.24 15:19:00 -04'00'

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Andrew Woogen
Tom Mattoon
Stewart Lamerdin
Monita Lou Hantze-Cheever

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 # 942

LOCATION: Newport, OR
VESSEL: *R/V Oceanus* & Vans

DATE: 15-16 April 2019
TECHNICIAN: Charlene Grall

Sample #	Sample Identification	^{3}H dpm/m^{2} activity	±	error	^{14}C dpm/m^{2} activity	±	error
1	1st Vial Bkgnd	0	±	0	0	±	0
	Main Lab (Figure 1)						
2	Initial bucket blank (C.O.#1)	6	±	32	8	±	35
3	Deck at winch operations station	-3	±	25	20	±	37
4	Mid-section of port benchtop	-4	±	321	10	±	37
5	Deck in front of So-Low freezer	-33	±	88	42	±	39
6	Aftmost benchtop	16	±	35	16	±	35
7	Aft benchtop adjacent to So-Low freezer	-23	±	55	29	±	39
8	Port bench between middle & aft benches	-29	±	23	16	±	40
9	Middle benchtop	-8	±	19	8	±	38
10	Forward benchtop	9	±	31	14	±	35
11	Sink area	-1	±	36	17	±	37
12	Deck in front of stairs to 01 deck	-1	±	41	25	±	37
13	Deck between middle and forward benches	-26	±	84	11	±	41
	Wet Lab (Figure 1)						
14	Wet Lab Inside fume hood	-42	±	101	12	±	45
15	Sink area	-48	±	98	40	±	40
16	Forward benchtop	-20	±	34	22	±	39
17	Port benchtop	0	±	5	3	±	36
18	Deck inside port entrance	-60	±	87	23	±	42
19	Deck inside aft entrance	-10	±	53	39	±	38
	Upper Lab (Figure 1)						
20	Deck at top of stairs	-26	±	61	-9	±	19
21	Deck of Upper Lab	-38	±	33	21	±	41
22	Deck outside of Infirmary	7	±	63	-2	±	30
23	Final bucket sample (C.O.#1)	-16	±	28	3	±	49
	General Purpose Van 625.4.03 (Figure 2)						
24	Initial bucket blank (CO#2)	-17	±	62	-5	±	12
25	Sink area	-35	±	99	27	±	40
26	Benchtop adjacent to sink	17	±	35	18	±	35
27	Benchtop adjacent to fume hood	-46	±	82	19	±	42
28	Bench across from fume hood	-14	±	77	14	±	38

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
29	Inside refrigerator	-50	±	106	25	±	41
30	Inside freezer	-15	±	56	26	±	38
31	Deck in center of Van	-26	±	32	35	±	39
32	Deck inside entrance	1	±	202	-2	±	19
	Polar Programs Radiation Van #2408.01 (Figure 3)						
33	Sink area and adjacent bench	-30	±	88	25	±	39
34	Benchtop adjacent to fume hood	-47	±	54	29	±	40
35	Inside fume hood	36	±	40	25	±	34
36	Benchtop across from refrigerator	4	±	14	22	±	36
37	Benchtop across from sink	64	±	45	33	±	34
38	Inside freezer	55	±	43	33	±	34
39	Inside refrigerator	2997*	±	159	35	±	8
40	Deck between sink and entrance	-8	±	63	4	±	40
	UNOLS Calibration Van 625.4.05 (Figure 4)						
41	Deck in small room	-44	±	95	32	±	40
42	Benchtop above refrigerator	-32	±	49	4	±	64
43	Sink area	-39	±	22	14	±	43
44	Benchtop adjacent to sink	-4	±	291	11	±	37
45	Benchtop above freezer	-51	±	78	17	±	43
46	Deck near entrance in large room	-27	±	82	-30	±	66
	Radioisotope Van 625.101-2 (Figure 5)						
47	Sink area	17	±	77	-11	±	19
48	Inside freezer under LSC	-21	±	82	1	±	22
49	Inside incubator	13	±	10	*126	±	40
50	Benchtop adjacent to fume hood	-27	±	44	17	±	40
51	Inside fume hood	-19	±	56	28	±	38
52	Benchtop across from LSC	-18	±	39	11	±	40
53	Deck in front of fume hood	44	±	51	11	±	30
54	Deck between sink and entrance	-5	±	42	-14	±	45
	Polar Programs Radiation Van #2408-05 (Figure 6)						
55	Van 2408-01 Sink area	-36	±	91	18	±	41
56	Benchtop adjacent to fume hood	17	±	54	-1	±	48
57	Deck in front of fume hood	-40	±	85	14	±	43
58	Benchtop across from fume hood	-17	±	64	27	±	38
59	Benchtop across from sink	-2	±	25	-1	±	14
60	Deck in front of sink	0	±	3	24	±	37

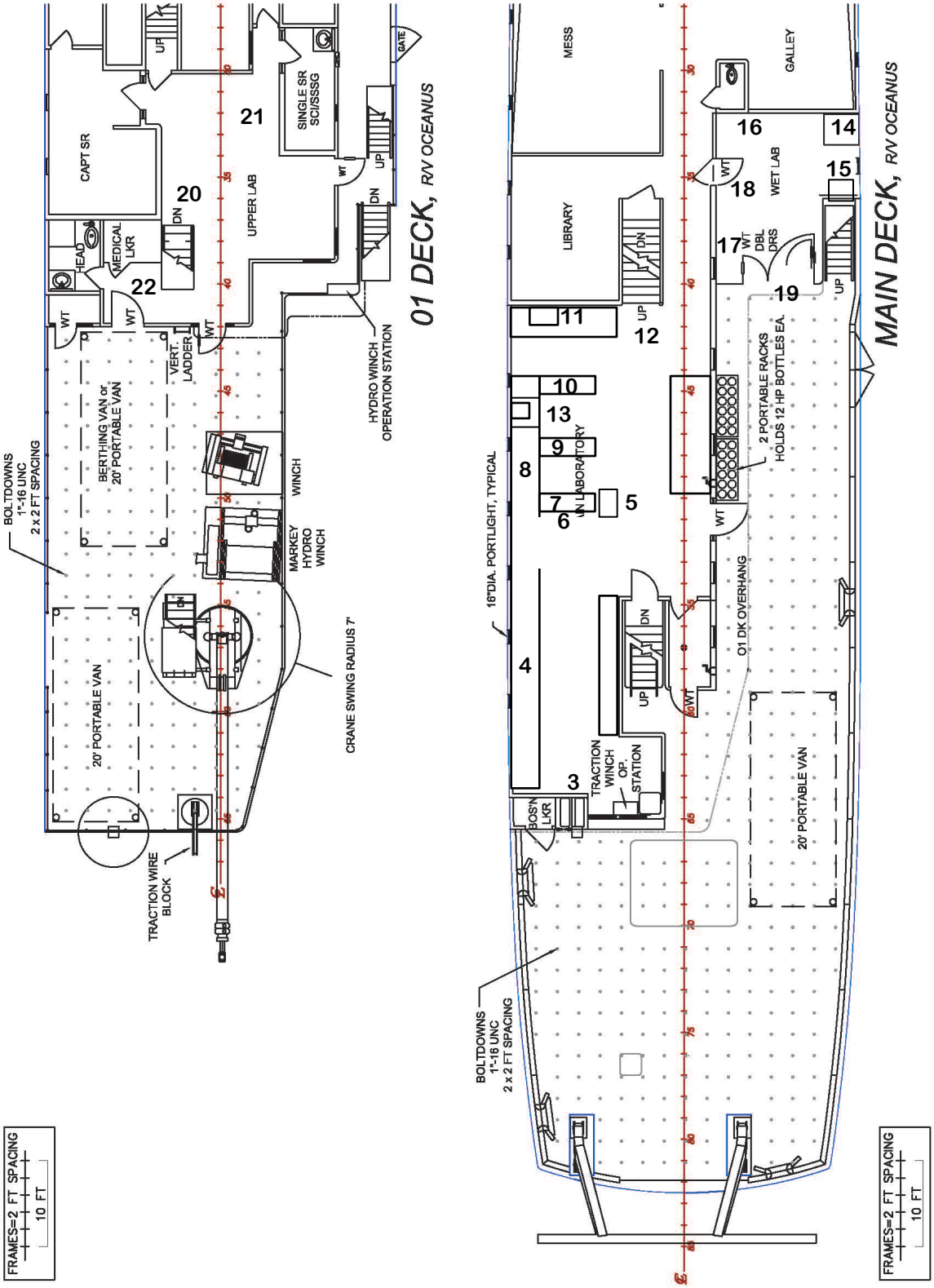
Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
61	Inside refrigerator	-27	±	22	7	±	45
62	Inside freezer	-67	±	90	25	±	43
	Cold Van 2408-06 (Figure 7)						
63	Benchtop next to escape ladder	-34	±	65	2	±	40
64	Benchtop across from fume hood	-25	±	44	15	±	40
65	Fume hood area	-61	±	89	12	±	49
66	Sink area	-20	±	72	9	±	41
67	Deck at rear of van	-27	±	35	24	±	39
68	Deck in front of sink	-15	±	22	12	±	39
69	Deck inside entrance	-32	±	86	-32	±	93
70	Final bucket blank	-2	±	17	-20	±	55

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 were free from contamination that requires cleaning. Minor ^{3}H contamination was found in refrigerator on board Rad Van 2408.01. Minor ^{14}C contamination was found in the incubator in Rad Van 625.101-2. No action is necessary in the vans.

Figure 1
SWAB #942
15 April 2019

R/V Oceanus



GENERAL PURPOSE VAN
625.4.03

Figure 2
SWAB #942
16 April 2019

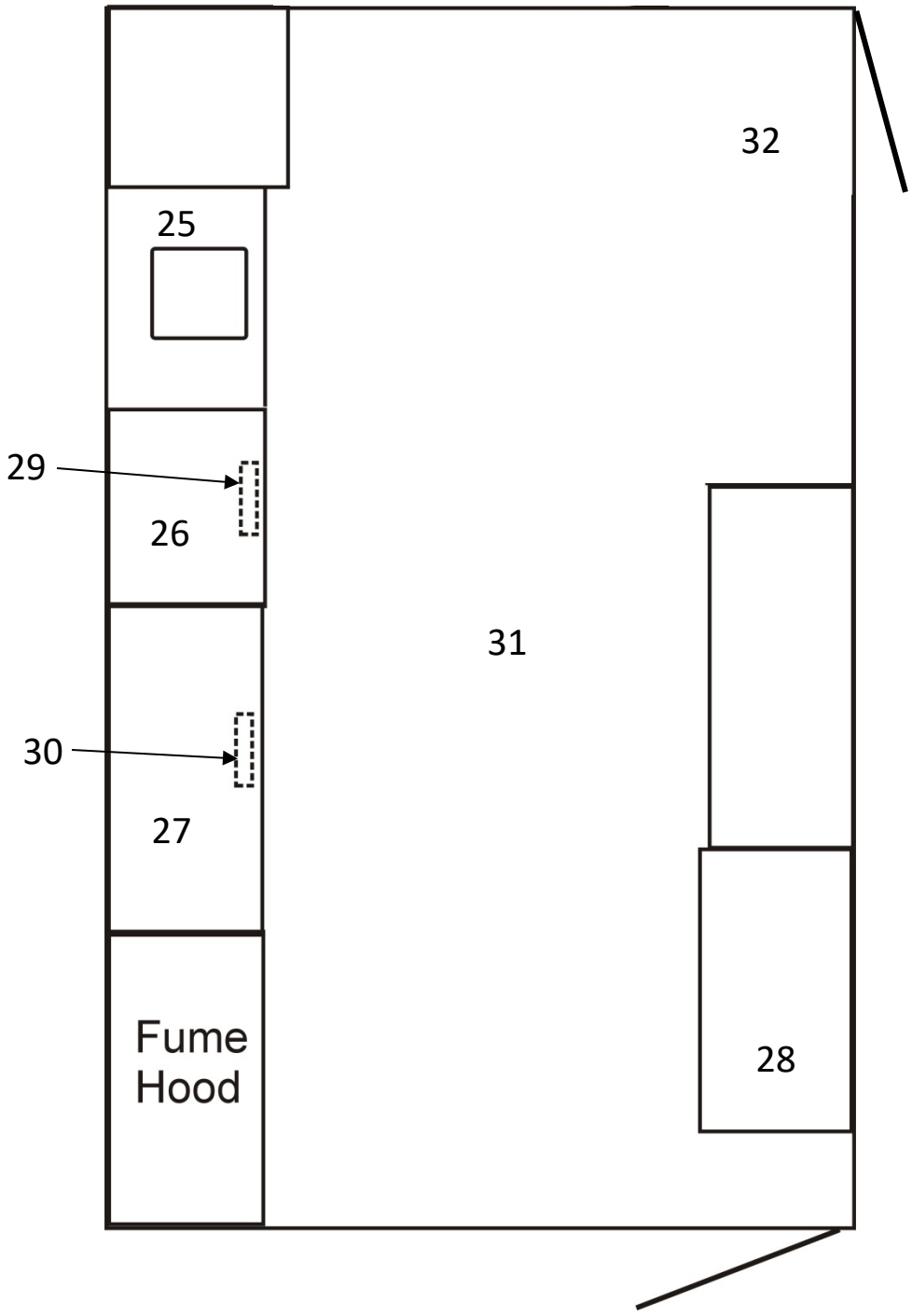


Figure 3
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Polar Programs Van 2408-01

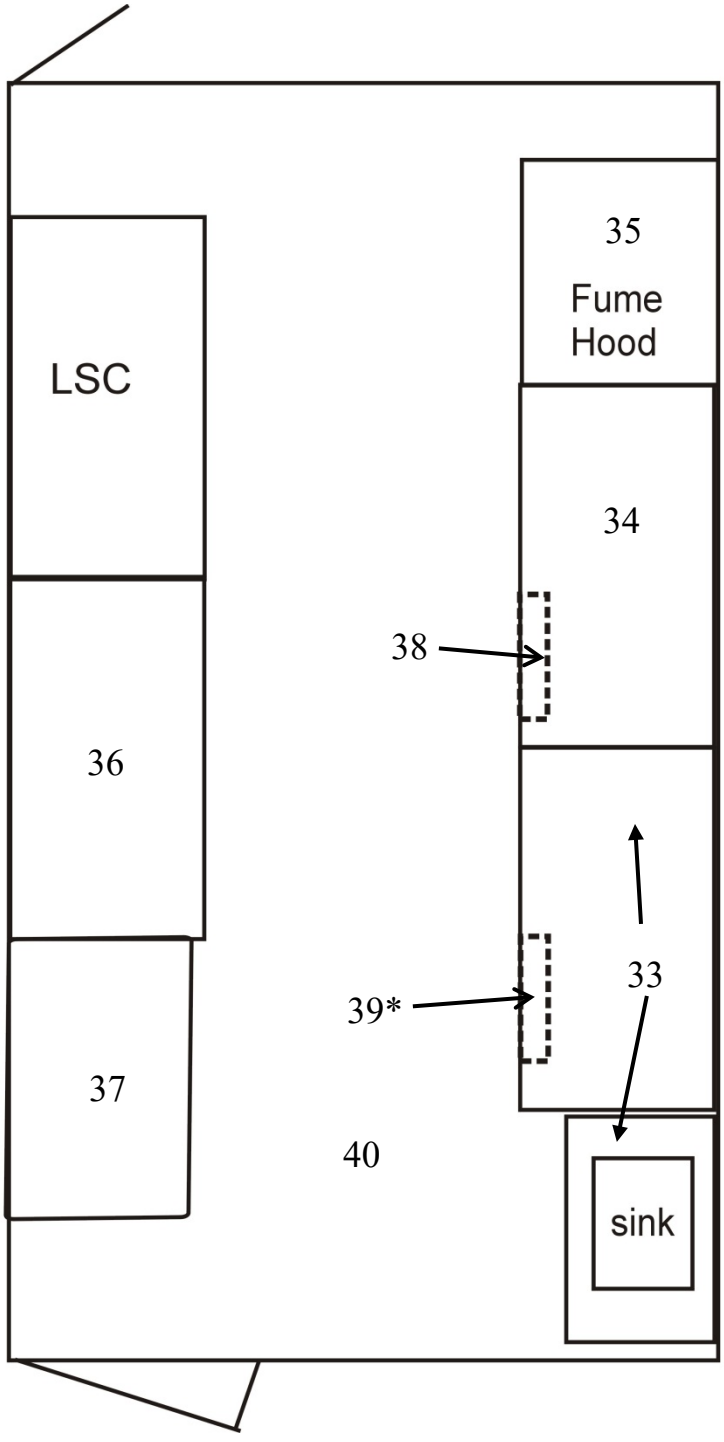

Figure 4
SWAB #942
16 April 2019

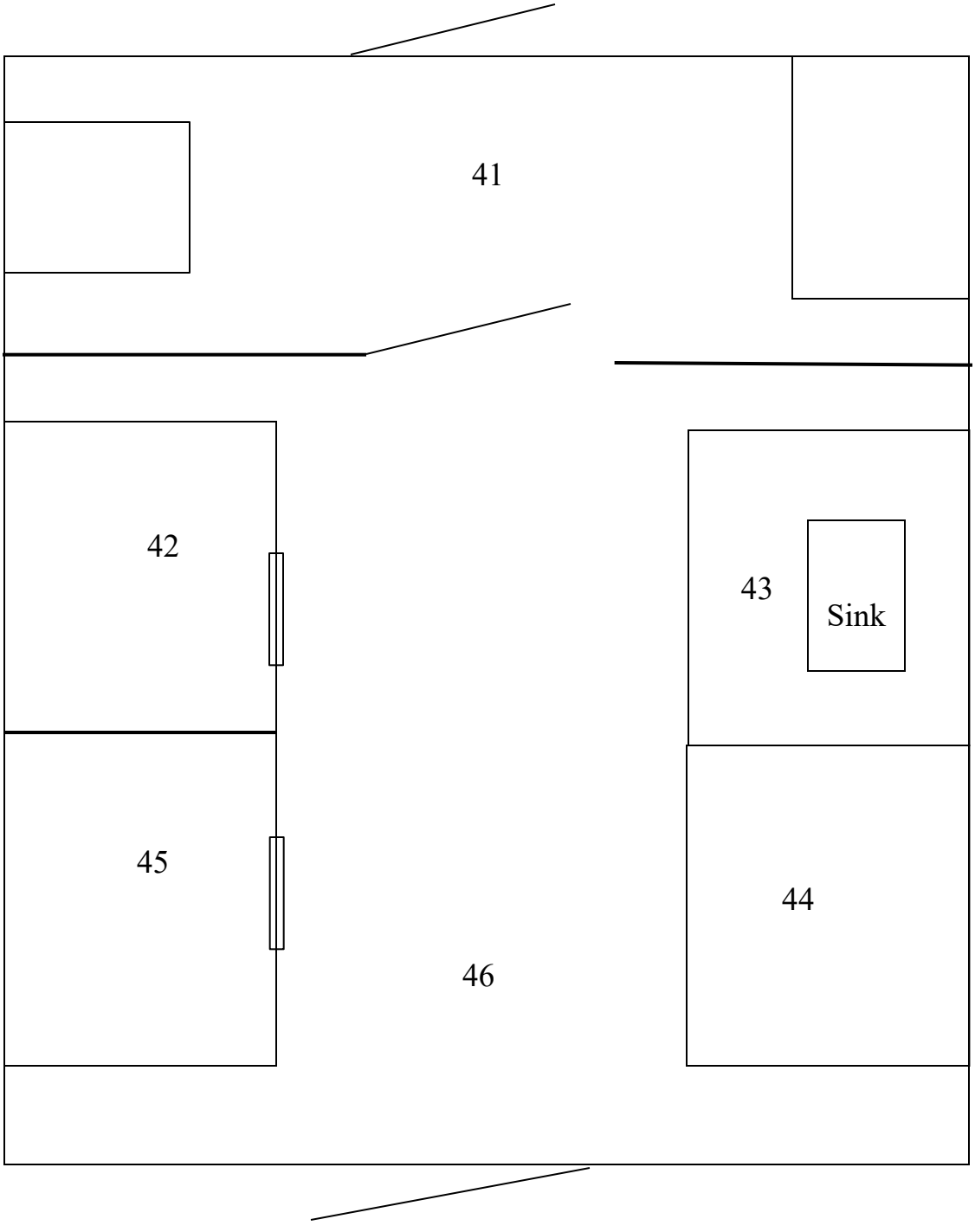

Figure 5
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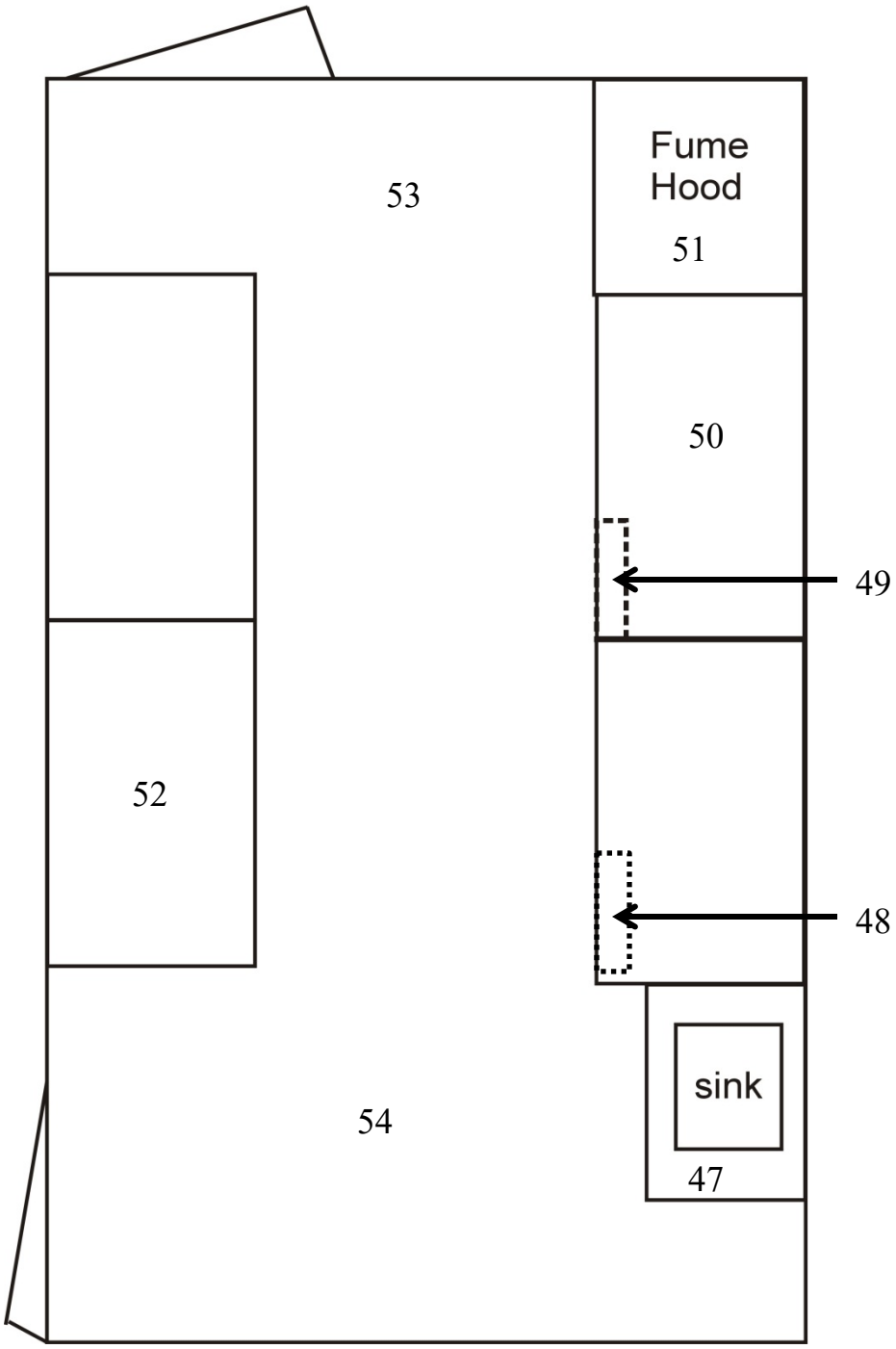
Radioisotope Van #625.101-2



Polar Programs Van #2408-05

Figure 6
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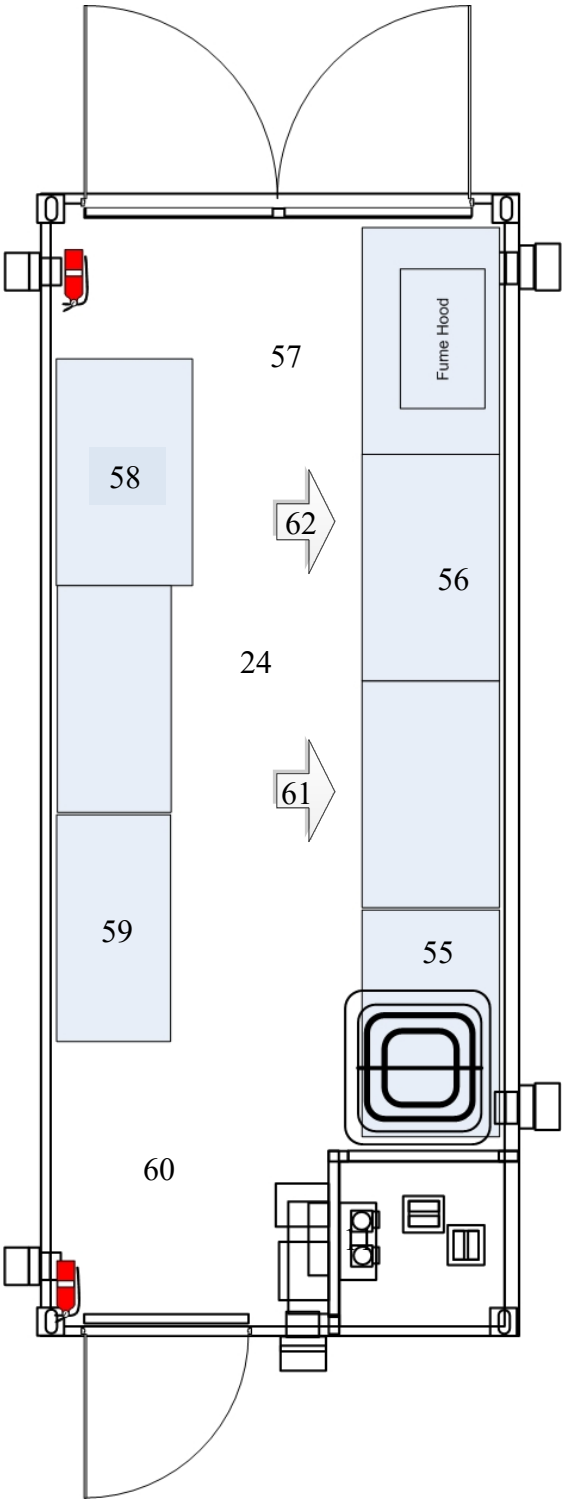

COLD VAN 2408-06

Figure 7
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