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Tritium Laboratory
10 December 2018

SWAB REPORT # 922

SWAB DATE: 5 December 2018

R/V Atlantic Explorer

James Happell

Digitally signed by James Happell
Date: 2018.12.10 13:21:33 -05'00'

Dr. James D. Happell
Associate Research Professor

Distribution:
SWAB Committee
Ronald H. Harelstad
Rod Johnson
Nick Mathews

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 # 922

LOCATION: Fort Pierce, Florida
VESSEL: *R/V Atlantic Explorer*

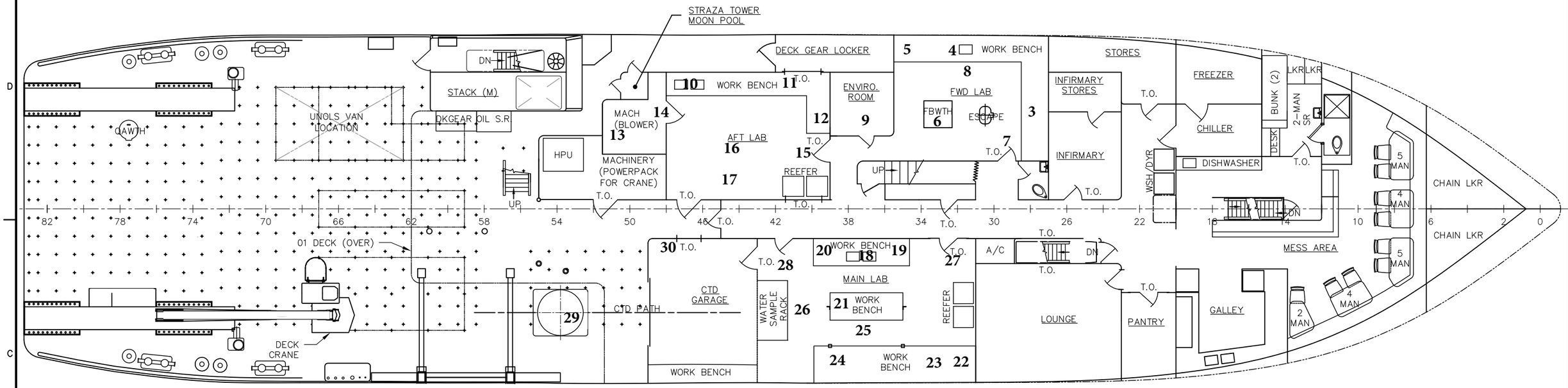
DATE: 5 December 2018
TECHNICIAN: Charlene Grall

Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
1	1st Vial background	0	±	0	0	±	0
2	Initial bucket blank	-9	±	33	-4	±	13
	Forward Lab (Figure 1)						
3	Forward benchtop	-5	±	31	24	±	36
4	Sink area	0	±	0	21	±	36
5	Port benchtop aft of sink	25	±	51	-2	±	8
6	Center benchtop	16	±	35	14	±	34
7	Deck inside starboard entrance	-3	±	10	34	±	37
8	Deck in front of sink	24	±	67	-14	±	33
9	Deck inside Enviro Room	10	±	34	9	±	34
	Aft Lab (Figure 1)						
10	Port sink area	-15	±	31	14	±	38
11	Benchtop forward of sink	-30	±	47	17	±	39
12	Forward benchtop	13	±	34	12	±	34
13	Inside fume hood	-3	±	12	2	±	39
14	Deck in front of fume hood	-33	±	50	32	±	38
15	Deck inside forward entrance	52	±	48	7	±	25
16	Center benchtop	-12	±	43	9	±	38
17	Deck below -80oC freezers	-1	±	24	9	±	36
	Main Lab (Figure 1)						
18	Port sink area	2	±	8	25	±	36
19	Benchtop forward of sink	14	±	40	6	±	32
20	Benchtop aft of sink	2	±	35	2	±	33
21	Center benchtop	8	±	47	0	±	12
22	Benchtop forward of lamiar flow hood	3	±	16	14	±	35
23	Inside laminar flow hood	-7	±	26	2	±	44
24	Benchtop aft of laminar flow hood	-6	±	20	-1	±	11
25	Deck between starboard & center benches	8	±	23	19	±	35
26	Deck below CTD racks	16	±	47	3	±	27
27	Deck inside forward entrance	25	±	63	-10	±	34

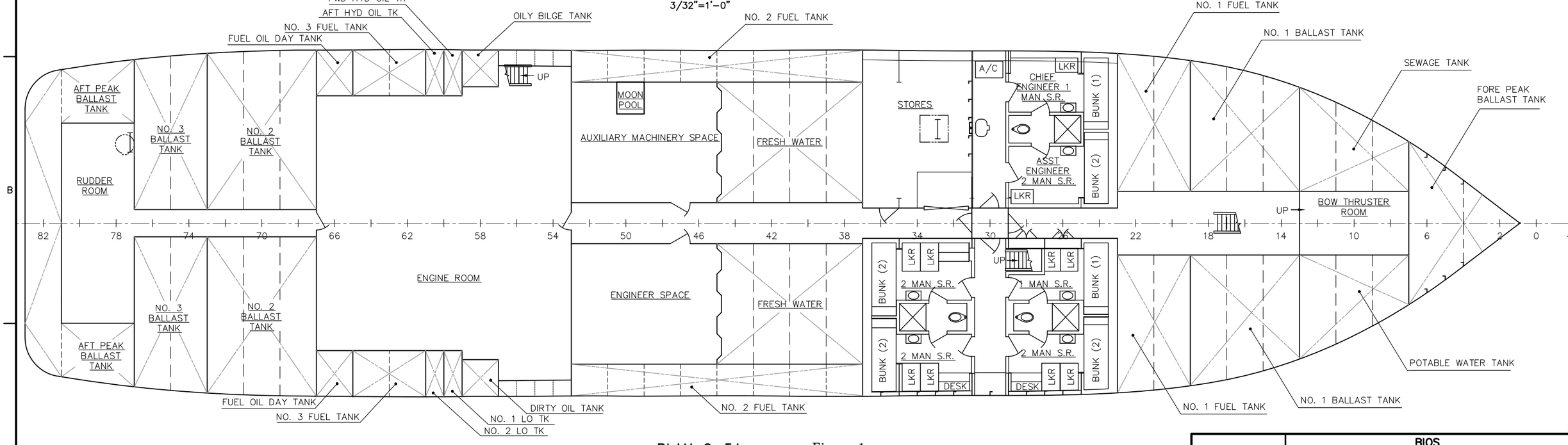
Sample #	Sample Identification	^{3}H dpm/m^{2} activity		error	^{14}C dpm/m^{2} activity		error
	Aft Deck (Figure 1)						
28	Deck inside aft entrance	13	±	47	2	±	26
29	CTD platform next to J-frame	-1	±	16	5	±	36
	01 Deck (Figure 2)						
30	Top of chect against port bulkhead	12	±	26	23	±	35
31	Deck at top of aft stairs	28	±	49	2	±	20
	02 Deck (Figure 2)						
32	Deck outside entrance to sleeping quarters	29	±	45	9	±	30
33	Top of stairs to science study	14	±	39	11	±	33
	03 Deck (Figure 3)						
34	Deck inside aft entrance next to head	11	±	26	23	±	35
35	Top of stairs to bridge	-12	±	210	29	±	37
36	Aft deck near science monitors	-36	±	56	25	±	39
37	Final bucket blank	-4	±	0	-5	±	17

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 isotope contamination that requires cleaning.



PLAN 2–5C
MAIN DECK
3/32"=1'–0"



PLAN 2–5A
HOLD LEVEL
3/32"=1'–0"

Figure 1
SWAB #922
5 December 2018

BIOS
ST. GEORGE'S, BERMUDA

R/V ATLANTIC EXPLORER
GENERAL ARRANGEMENT
HOLD LEVEL AND MAIN DECK PLANS

THE GLOSTEN ASSOCIATES
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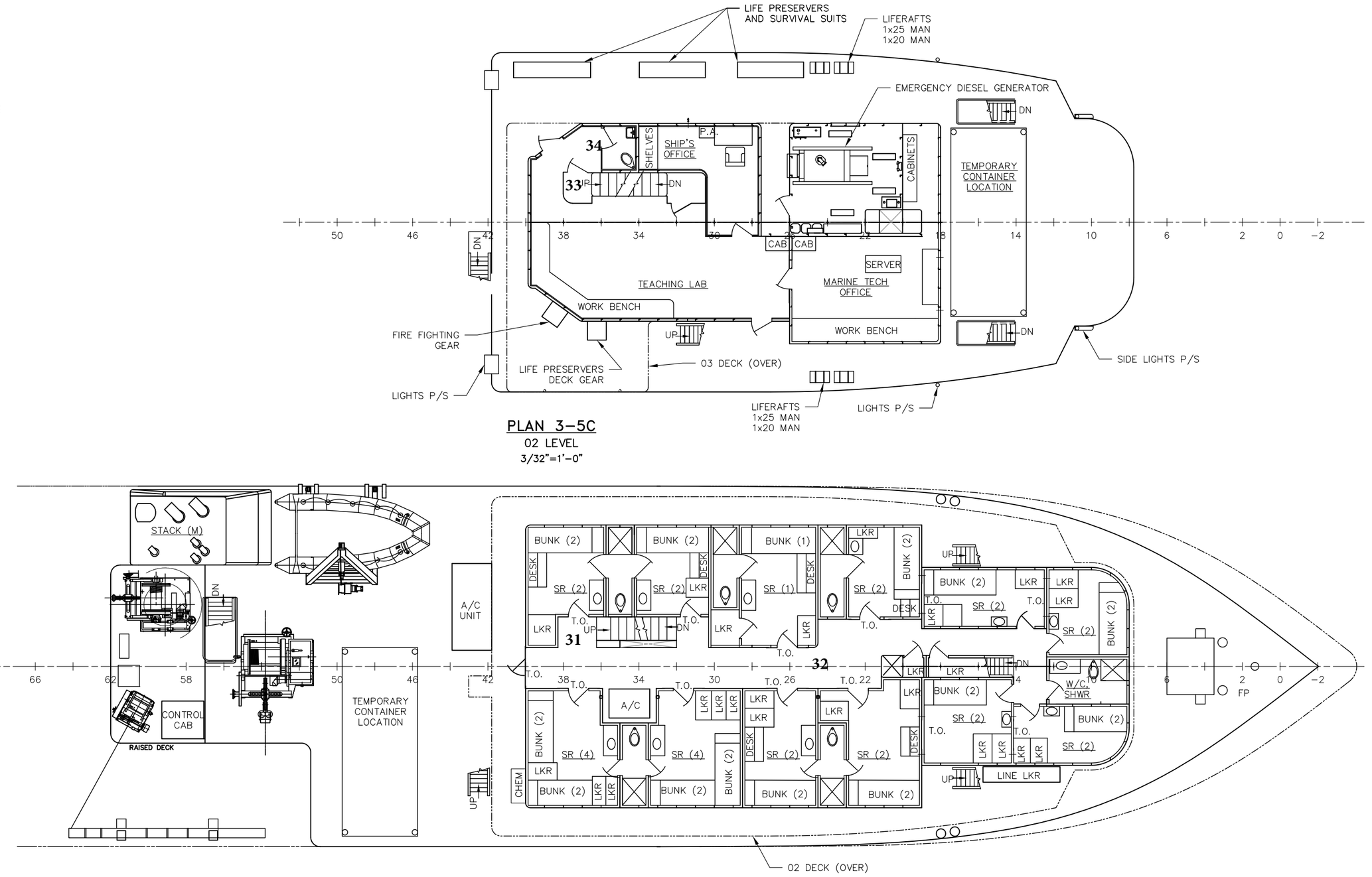
AS NOTED	12146-070-01	2	4	A

Figure 2
SWAB #922
5 December 2018



PLAN 3–5C
02 LEVEL
3/32"=1'-0"

PLAN 3–5A
01 LEVEL
3/32"=1'-0"

BIOS
ST. GEORGE'S, BERMUDA

R/V ATLANTIC EXPLORER
GENERAL ARRANGEMENT
01 LEVEL AND 02 LEVEL PLANS

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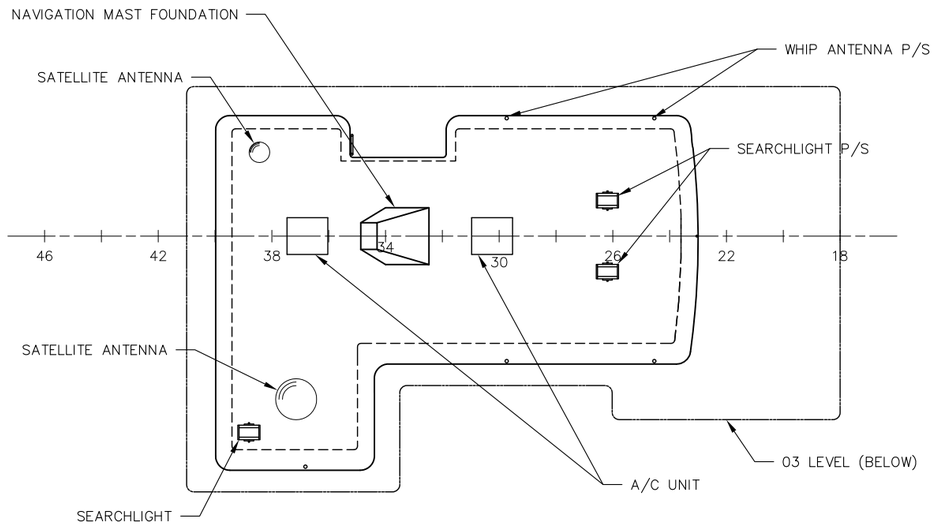
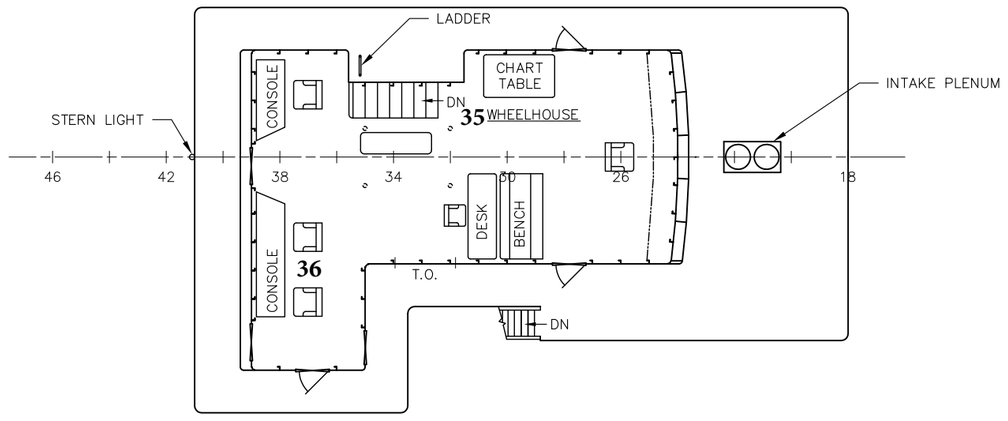


PLAN 4–5C

HOUSE TOP / 04 LEVEL

3/32"=1'–0"



PLAN 4–5A

03 LEVEL

3/32"=1'–0"

Figure 3
SWAB #922
5 December 2018

BIOS
ST. GEORGE'S, BERMUDA

R/V ATLANTIC EXPLORER
GENERAL ARRANGEMENT
03 LEVEL AND 04 LEVEL / HOUSE TOP PLANS

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