APPENDIX TO

STABILITY BOOKLET

TO

179'-6" x 36' x 15' RESEARCH VESSEL "GYRE"

HALTER MARINE HULL 375

FOR

TEXAS A&M UNIVERSITY

GALVESTON, TEXAS

APPROVED
Subject to comments in
CCGD8 (MMT) letter of
JUL 9 1984
Chief Merchant Marine Technical Branch
By Direction of Commander
Eighth Coast Guard District

APRIL 16, 1984

DWG. NO. 2042-D5

ALT. 1

schuller & allan, inc
NAVAL ARCHITECTS • MARINE CONSULTANTS
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HOUSTON, TEXAS 77087-3598

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ALT. 1 - SINGH 06/15/84
CHANGED TO REFLECT
COMMENTS OF U.S.C.G. LETTER SER H2-6443
DATED 25 MAY 1984

schuller & allan, inc. date _____ by SINGH file 2042

FOREWORD

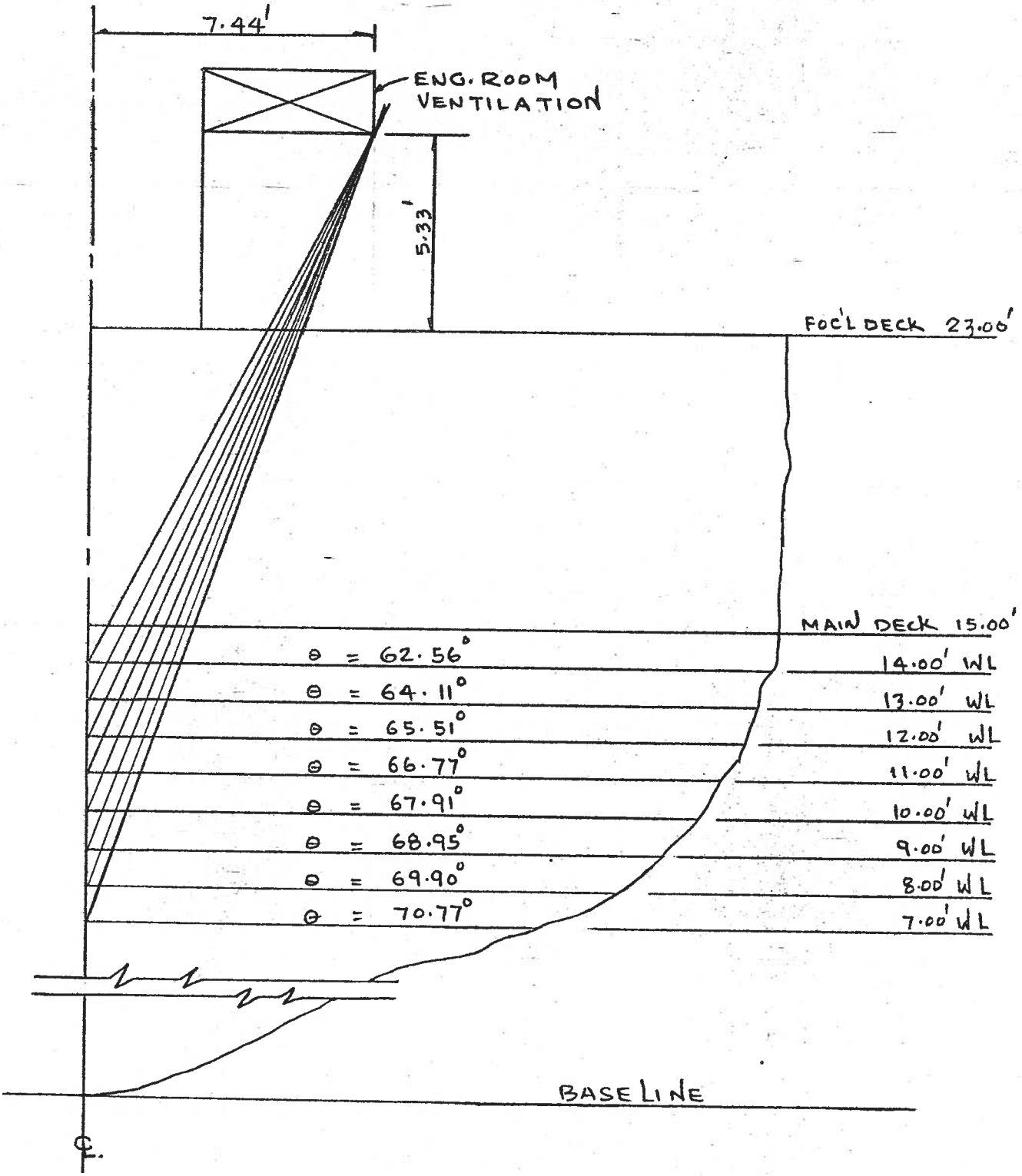
This booklet contains the supporting calculations for the stability booklet, dwg. no. 2042-D6, alt. 1.

The calculations consist of the following:

179'-6" x 36' x 15' RESEARCH VESSEL "GYRE"
HALTER MARINE HULL NO. 375

schuller & allan, inc. date _____ by SINGH file 2042

DOWNFLOODING ANGLE FOR ENERGY & WEATHER CRITERIA

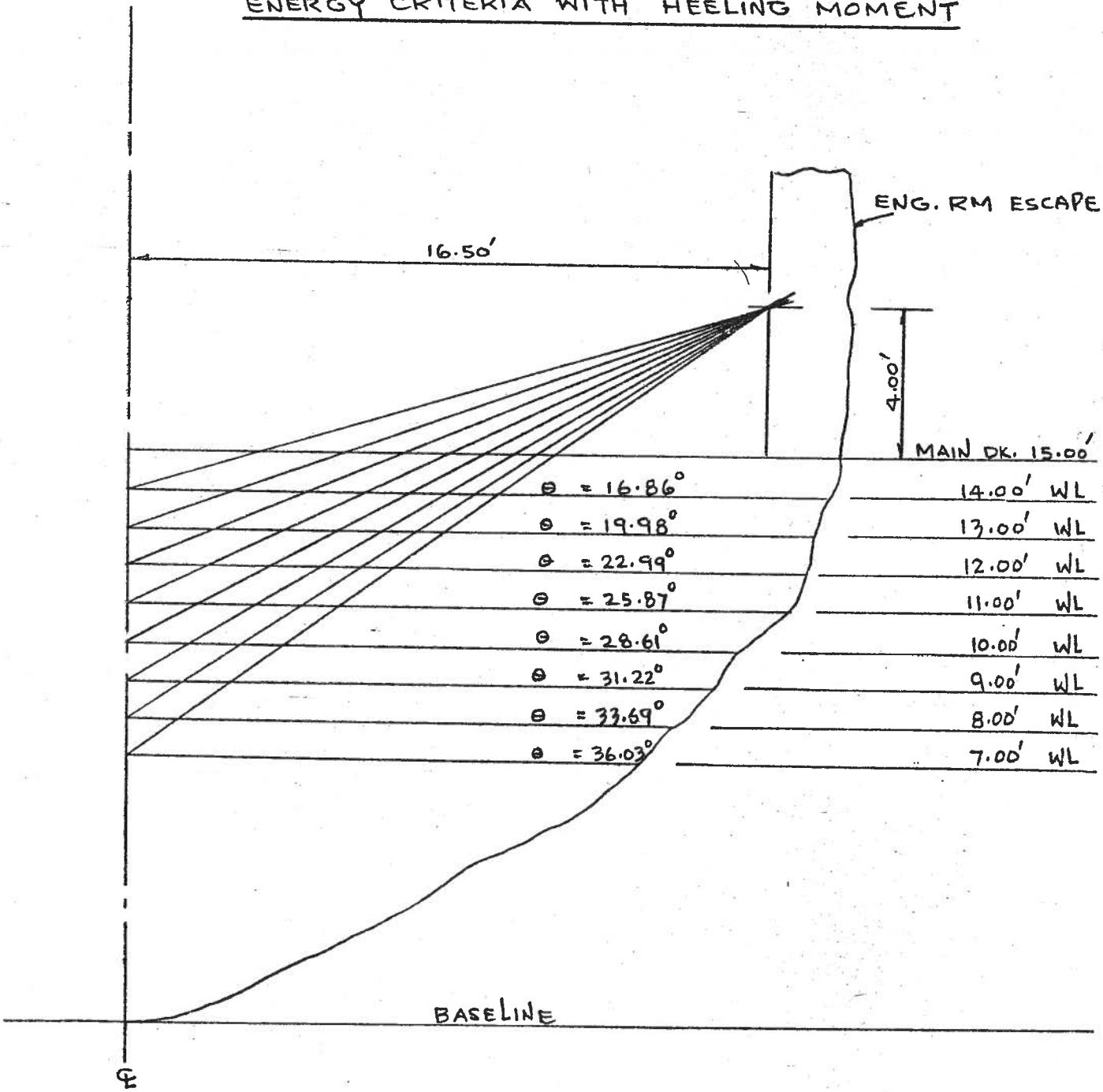


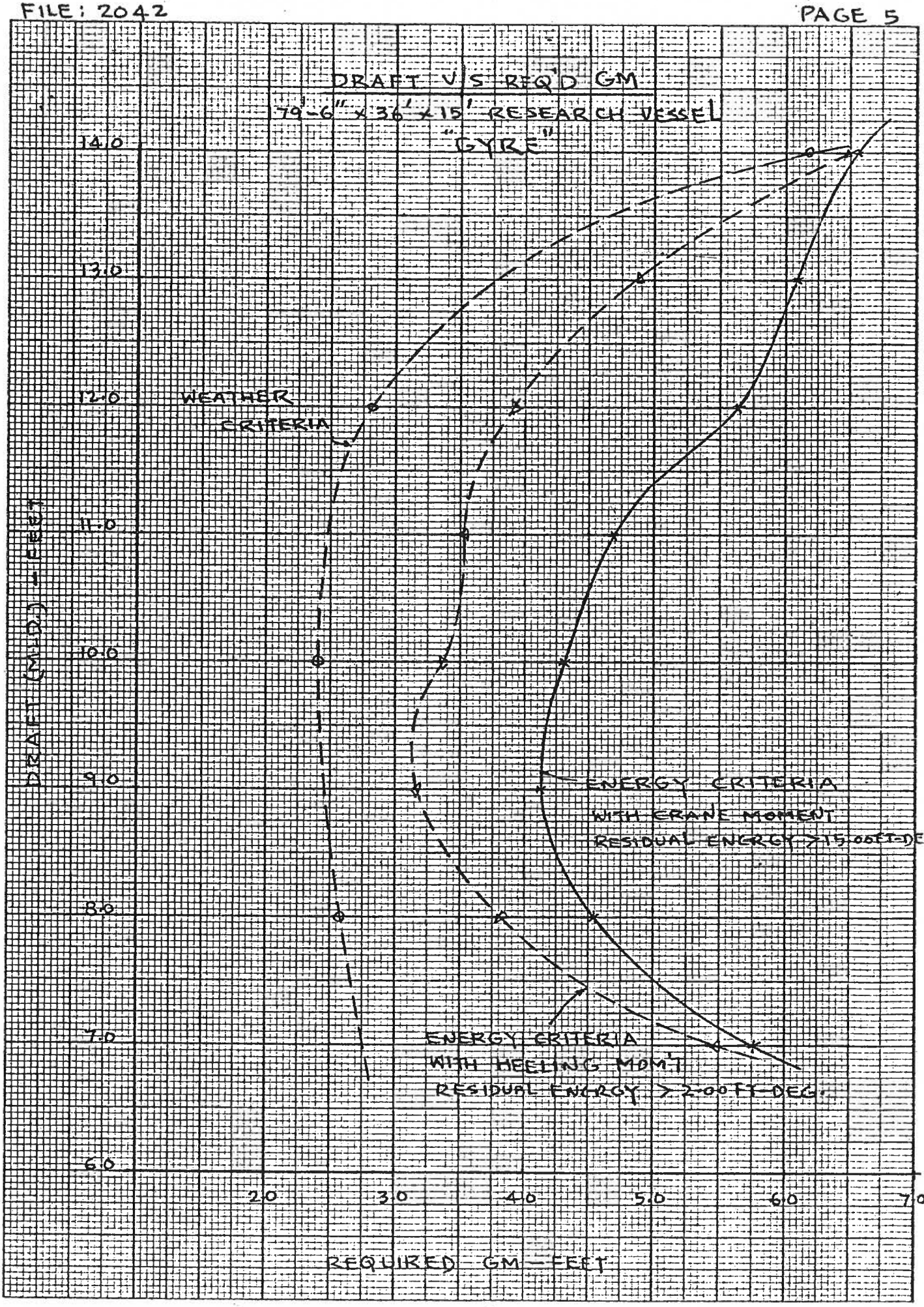
179'-6" x 36' x 15' RESEARCH VESSEL "GYRE"

HALTER MARINE HULL NO. 375

schuller & allan, inc. date _____ by SINGH file 2042

DOWN FLOODING ANGLE FOR ENERGY CRITERIA WITH HEELING MOMENT




DRAFT VS REQ'D GM
79'-6" x 36' x 15' RESEARCH VESSEL
"GYRE"
14.0
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
DRAFT (MLD.) - FEET
WEATHER CRITERIA
ENERGY CRITERIA WITH CRANE MOMENT
RESIDUAL ENERGY >15.00 FT-DEG.
ENERGY CRITERIA
WITH HEELING MOM'T
RESIDUAL ENERGY >2.00 FT-DEG.
2.0
3.0
4.0
5.0
6.0
7.0
REQUIRED GM — FEET

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 1 DISPLACEMENT 583.20 LT

DRAFT	7.00 FT	HEEL MOMENT	150. FT-LTS
KMT	23.58 FT	HEEL ARM	.26 FT
KG-MAX	17.82 FT	EQUILIBRIUM ANGLE	2.54 DEGS
GM-REQD	5.76 FT	DOWNFLOODING ANGLE	70.77 DEGS

ANGLE	RA: 0.00	RA: 17.82	HA
0	0.000	0.000	.257
5	2.061	.508	.256
10	4.118	1.024	.253
15	6.075	1.463	.248
20	7.696	1.601	.242
25	9.060	1.529	.233
30	10.210	1.300	.223
35	11.106	.885	.211
40	11.804	.350	.197
50	12.813	-.838	.165
60	13.286	-2.146	.129

AREA "A" = 15.09 FT-DEGS FROM 2.54 DEGREES UP TO 20.44 DEGREES.

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 2		DISPLACEMENT	711.20 LT
DRAFT	8.00 FT	HEEL MOMENT	150. FT-LTS
KMT	21.83 FT	HEEL ARM	.21 FT
KG-MAX	17.28 FT	EQUILIBRIUM ANGLE	2.67 DEGS
GM-REQD	4.55 FT	DOWNFLOODING ANGLE	69.90 DEGS

ANGLE	RA: 0.00	RA: 17.28	HA
0	0.000	0.000	.211
5	1.901	.395	.210
10	3.790	.789	.208
15	5.685	1.213	.204
20	7.379	1.469	.198
25	8.794	1.491	.191
30	9.897	1.257	.183
35	10.755	.844	.173
40	11.441	.334	.162
50	12.440	-.797	.136
60	12.875	-2.090	.105

AREA "A" = 15.94 FT-DEGS FROM 2.67 DEGREES UP TO 23.07 DEGREES.

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 3		DISPLACEMENT	845.50 LT
DRAFT	9.00 FT	HEEL MOMENT	150. FT-LTS
KMT	20.51 FT	HEEL ARM	.18 FT
KG-MAX	16.38 FT	EQUILIBRIUM ANGLE	2.42 DEGS
GM-REQD	4.13 FT	DOWNFLOODING ANGLE	68.95 DEGS

ANGLE	RA: 0.00	RA: 16.38	HA
0	0.000	0.000	.177
5	1.795	.368	.177
10	3.586	.742	.175
15	5.358	1.120	.171
20	7.081	1.480	.167
25	8.455	1.534	.161
30	9.503	1.315	.154
35	10.340	.947	.145
40	11.034	.508	.136
50	12.011	-.534	.114
60	12.426	-1.756	.089

AREA "A" = 15.11 FT-DEGS FROM 2.42 DEGREES UP TO 23.60 DEGREES.

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 4		DISPLACEMENT	987.80 LT
DRAFT	10.00 FT	HEEL MOMENT	150. FT-LTS
KMT	20.00 FT	HEEL ARM	.15 FT
KG-MAX	15.69 FT	EQUILIBRIUM ANGLE	2.06 DEGS
GM-REQD	4.31 FT	DOWNFLOODING ANGLE	67.91 DEGS

ANGLE	RA: 0.00	RA: 15.69	HA
0	0.000	0.000	.152
5	1.732	.365	.151
10	3.439	.715	.150
15	5.123	1.063	.147
20	6.715	1.350	.143
25	7.999	1.370	.138
30	9.010	1.167	.132
35	9.847	.850	.124
40	10.553	.470	.116
50	11.513	-.503	.098
60	11.943	-1.641	.076

AREA "A" = 15.11 FT-DEGS FROM 2.06 DEGREES UP TO 23.06 DEGREES.

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 5 DISPLACEMENT 1137.50 LT

DRAFT	11.00 FT	HEEL MOMENT	150. FT-LTS
KMT	19.25 FT	HEEL ARM	.13 FT
KG-MAX	14.57 FT	EQUILIBRIUM ANGLE	1.61 DEGS
GM-REQD	4.68 FT	DOWNFLOODING ANGLE	66.77 DEGS

ANGLE	RA: 0.00	RA: 14.57	HA
0	0.000	0.000	.132
5	1.673	.403	.131
10	3.319	.788	.130
15	4.913	1.141	.127
20	6.247	1.262	.124
25	7.412	1.252	.120
30	8.409	1.122	.114
35	9.261	.901	.108
40	9.967	.599	.101
50	10.941	-.224	.085
60	11.429	-1.193	.066

AREA "A" = 15.15 FT-DEGS FROM 1.61 DEGREES UP TO 22.28 DEGREES.

179'-6" X 36' X 15' "GYRE" HALTER MARINE HULL NO. 375 FILE 2042

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 6 DISPLACEMENT 1289.00 LT

DRAFT	12.00 FT	HEEL MOMENT	150. FT-LTS
KMT	18.43 FT	HEEL ARM	.12 FT
KG-MAX	12.79 FT	EQUILIBRIUM ANGLE	1.18 DEGS
GM-REQD	5.64 FT	DOWNFLOODING ANGLE	65.51 DEGS

ANGLE	RA: 0.00	RA: 12.79	HA
0	0.000	-.000	.116
5	1.611	.496	.116
10	3.216	.994	.115
15	4.575	1.264	.112
20	5.714	1.338	.109
25	6.750	1.343	.105
30	7.730	1.333	.101
35	8.596	1.258	.095
40	9.310	1.086	.089
50	10.328	.527	.075
60	10.907	-.173	.058

AREA "A" = 20.74 FT-DEGS FROM 1.18 DEGREES UP TO 25.60 DEGREES.

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 7		DISPLACEMENT	1441.60 LT
DRAFT	13.00 FT	HEEL MOMENT	150. FT-LTS
KMT	17.89 FT	HEEL ARM	.10 FT
KG-MAX	11.80 FT	EQUILIBRIUM ANGLE	.89 DEGS
GM-REQD	6.09 FT	DOWNFLOODING ANGLE	64.11 DEGS

ANGLE	RA: 0.00	RA: 11.80	HA
0	0.000	0.000	.104
5	1.563	.535	.104
10	2.988	.939	.102
15	4.114	1.061	.101
20	5.128	1.093	.098
25	6.086	1.100	.094
30	7.008	1.109	.090
35	7.860	1.093	.085
40	8.591	1.008	.080
50	9.684	.647	.067
60	10.375	.158	.052

AREA "A" = 24.36 FT-DEGS FROM .89 DEGREES UP TO 31.69 DEGREES.

DYNAMIC STABILITY
WITH CRANE MOMENT

CONDITION 8 DISPLACEMENT 1595.10 LT

DRAFT	14.00 FT	HEEL MOMENT	150. FT-LTS
KMT	17.55 FT	HEEL ARM	.09 FT
KG-MAX	10.98 FT	EQUILIBRIUM ANGLE	.71 DEGS
GM-REQD	6.57 FT	DOWNFLOODING ANGLE	62.56 DEGS

ANGLE	RA: 0.00	RA: 10.98	HA
0	0.000	.000	.094
5	1.469	.512	.094
10	2.566	.659	.093
15	3.553	.711	.091
20	4.498	.742	.088
25	5.417	.776	.085
30	6.294	.803	.081
35	7.100	.801	.077
40	7.827	.768	.072
50	9.000	.588	.060
60	9.816	.306	.047

AREA "A" = 18.04 FT-DEGS FROM .71 DEGREES UP TO 32.90 DEGREES.

179'-6" x 36' x 15' RESEARCH VESSEL "GYRE"

HALTER MARINE HULL NO. 375

schuller & allan, inc. date _____ by SINGH file 2042

HEELING MOMENT FROM WINCH CABLES & CRANE

NO.

1 - BREAKING STRENGTH OF 1/4" CABLE = 3.40 ST
1 - BREAKING STRENGTH OF 1/2" CABLE = 13.30 ST
1 - BREAKING STRENGTH OF 5/16" CABLE = 5.27 ST

21.97 ST = 19.62 LT

MAXIMUM MOMENT OCCURS WHEN ALL THE CABLES ARE USED AT 16' ABOVE MAIN DECK, PLUS CRANE MOMENT OF 150 FT-LT MAX.

DRAFT (FT)	FORCE (LT)	HEELING ARM FROM CENTER OF UNDERWATER AREA (FT)	HEELING MOM'T (FT-LT)	TOTAL HEELING MOM'T (FT-LT)
7.00	19.62	27.50	540	690
8.00	↓	27.00	530	680
9.00		26.50	520	670
10.00		26.00	510	660
11.00		25.50	500	650
12.00		25.00	491	641
13.00		24.50	481	631
14.00		24.00	471	621

TOTAL HEELING MOMENTS CALCULATED ABOVE ARE APPLIED TO THE RIGHTING ENERGY, AND THE RESIDUAL ENERGY IS FOUND AT THE ABOVE DRAFTS, WHICH IS MORE THAN 2 FT-DEG. AT EACH DRAFT.

DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 1 DISPLACEMENT 583.20 LT

DRAFT	7.00 FT	HEEL MOMENT	690. FT-LTS
KMT	23.58 FT	HEEL ARM	1.18 FT
KG-MAX	18.10 FT	EQUILIBRIUM ANGLE	11.79 DEGS
GM-REQD	5.48 FT	DOWNFLOODING ANGLE	36.03 DEGS

ANGLE	RA: 0.00	RA: 18.10	HA
0	0.000	0.000	1.183
5	2.061	.484	1.179
10	4.118	.976	1.165
15	6.075	1.392	1.143
20	7.696	1.507	1.112
25	9.060	1.413	1.072
30	10.210	1.162	1.025
35	11.106	.727	.969
40	11.804	.173	.906
50	12.813	-1.049	.760
60	13.286	-2.385	.592

AREA "A" = 2.01 FT-DEGS FROM 11.79 DEGREES UP TO 20.64 DEGREES.

DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 2		DISPLACEMENT	711.20 LT
DRAFT	8.00 FT	HEEL MOMENT	680. FT-LTS
KMT	21.83 FT	HEEL ARM	.96 FT
KG-MAX	18.01 FT	EQUILIBRIUM ANGLE	13.47 DEGS
GM-REQD	3.82 FT	DOWNFLOODING ANGLE	33.69 DEGS

ANGLE	RA: 0.00	RA: 18.01	HA
0	0.000	0.000	.956
5	1.901	.331	.952
10	3.790	.663	.942
15	5.685	1.024	.924
20	7.379	1.219	.898
25	8.794	1.183	.867
30	9.897	.892	.828
35	10.755	.425	.783
40	11.441	-.135	.732
50	12.440	-1.356	.615
60	12.875	-2.722	.478

AREA "A" = 2.01 FT-DEGS FROM 13.47 DEGREES UP TO 22.41 DEGREES.

DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 3		DISPLACEMENT	845.50 LT
DRAFT	9.00 FT	HEEL MOMENT	670. FT-LTS
KMT	20.51 FT	HEEL ARM	.79 FT
KG-MAX	17.34 FT	EQUILIBRIUM ANGLE	13.31 DEGS
GM-REQD	3.17 FT	DOWNFLOODING ANGLE	31.22 DEGS

ANGLE	RA: 0.00	RA: 17.34	HA
0	0.000	0.000	.792
5	1.795	.284	.789
10	3.586	.575	.780
15	5.358	.870	.765
20	7.081	1.150	.745
25	8.455	1.126	.718
30	9.503	.832	.686
35	10.340	.393	.649
40	11.034	-.113	.607
50	12.011	-1.274	.509
60	12.426	-2.593	.396

AREA "A" = 2.02 FT-DEGS FROM 13.31 DEGREES UP TO 22.55 DEGREES.

DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 4		DISPLACEMENT	987.80 LT
DRAFT	10.00 FT	HEEL MOMENT	660. FT-LTS
KMT	20.00 FT	HEEL ARM	.67 FT
KG-MAX	16.63 FT	EQUILIBRIUM ANGLE	11.81 DEGS
GM-REQD	3.37 FT	DOWNFLOODING ANGLE	28.61 DEGS

ANGLE	RA: 0.00	RA: 16.63	HA
0	0.000	0.000	.668
5	1.732	.282	.666
10	3.439	.551	.658
15	5.123	.818	.645
20	6.715	1.026	.628
25	7.999	.969	.606
30	9.010	.693	.579
35	9.847	.306	.547
40	10.553	-.139	.512
50	11.513	-1.230	.429
60	11.943	-2.463	.334

AREA "A" = 2.01 FT-DEGS FROM 11.81 DEGREES UP TO 21.70 DEGREES.

DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 5		DISPLACEMENT	1137.50 LT
DRAFT	11.00 FT	HEEL MOMENT	650. FT-LTS
KMT	19.25 FT	HEEL ARM	.57 FT
KG-MAX	15.72 FT	EQUILIBRIUM ANGLE	9.54 DEGS
GM-REQD	3.53 FT	DOWNFLOODING ANGLE	25.87 DEGS

ANGLE	RA: 0.00	RA: 15.72	HA
0	0.000	0.000	.571
5	1.673	.303	.569
10	3.319	.589	.563
15	4.913	.845	.552
20	6.247	.871	.537
25	7.412	.769	.518
30	8.409	.550	.495
35	9.261	.245	.468
40	9.967	-.137	.438
50	10.941	-1.100	.367
60	11.429	-2.184	.286

AREA "A" = 2.01 FT-DEGS FROM 9.54 DEGREES UP TO 18.42 DEGREES.

DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 6		DISPLACEMENT	1289.00 LT
DRAFT	12.00 FT	HEEL MOMENT	641. FT-LTS
KMT	18.43 FT	HEEL ARM	.50 FT
KG-MAX	14.51 FT	EQUILIBRIUM ANGLE	7.11 DEGS
GM-REQD	3.92 FT	DOWNFLOODING ANGLE	22.99 DEGS

ANGLE	RA: 0.00	RA: 14.51	HA
0	0.000	0.000	.497
5	1.611	.346	.495
10	3.216	.696	.490
15	4.575	.819	.480
20	5.714	.751	.467
25	6.750	.617	.451
30	7.730	.474	.431
35	8.596	.272	.407
40	9.310	-.018	.381
50	10.328	-.789	.320
60	10.907	-1.661	.249

AREA "A" = 2.08 FT-DEGS FROM 7.11 DEGREES UP TO 16.03 DEGREES.

DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 7		DISPLACEMENT	1441.60 LT
DRAFT	13.00 FT	HEEL MOMENT	631. FT-LTS
KMT	17.89 FT	HEEL ARM	.44 FT
KG-MAX	13.02 FT	EQUILIBRIUM ANGLE	5.11 DEGS
GM-REQD	4.87 FT	DOWNFLOODING ANGLE	19.98 DEGS

ANGLE	RA: 0.00	RA: 13.02	HA
0	0.000	0.000	.438
5	1.563	.428	.436
10	2.988	.728	.431
15	4.114	.745	.423
20	5.128	.676	.411
25	6.086	.585	.397
30	7.008	.499	.379
35	7.860	.394	.359
40	8.591	.224	.335
50	9.684	-.288	.281
60	10.375	-.898	.219

AREA "A" = 2.04 FT-DEGS FROM 5.11 DEGREES UP TO 14.04 DEGREES.

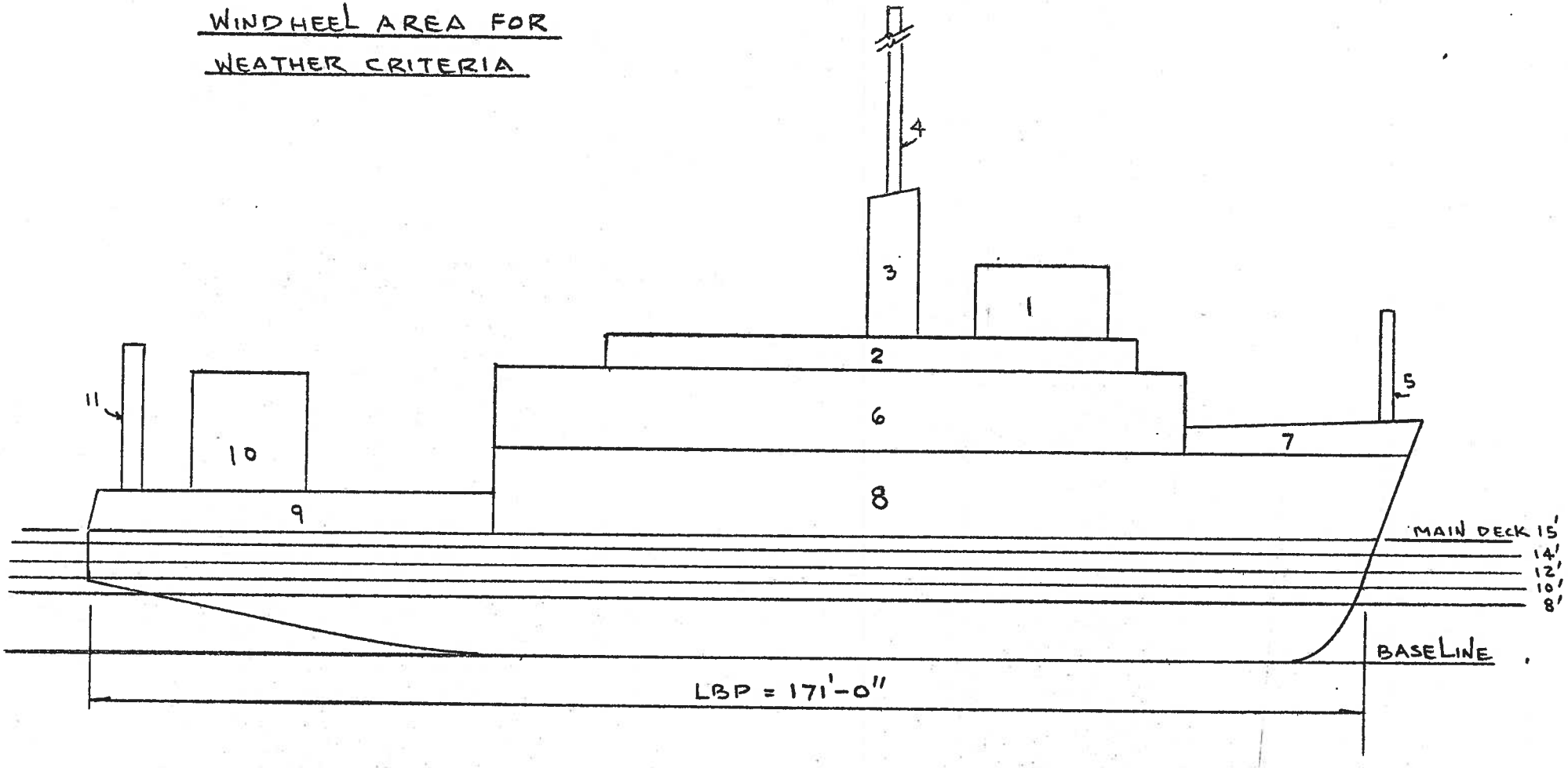
DYNAMIC STABILITY
WITH MAX. HEELING MOMENT

CONDITION 8		DISPLACEMENT	1595.10 LT
DRAFT	14.00 FT	HEEL MOMENT	621. FT-LTS
KMT	17.55 FT	HEEL ARM	.39 FT
KG-MAX	11.06 FT	EQUILIBRIUM ANGLE	3.48 DEGS
GM-REQD	6.49 FT	DOWNFLOODING ANGLE	16.86 DEGS

ANGLE	RA: 0.00	RA: 11.06	HA
0	0.000	0.000	.389
5	1.469	.505	.388
10	2.566	.646	.383
15	3.553	.692	.376
20	4.498	.717	.366
25	5.417	.745	.353
30	6.294	.766	.337
35	7.100	.759	.319
40	7.827	.720	.298
50	9.000	.531	.250
60	9.816	.241	.195

AREA "A" = 2.96 FT-DEGS FROM 3.48 DEGREES UP TO 16.86 DEGREES.

WINDHEEL AREA FOR
WEATHER CRITERIA



179'-6" x 36' x 15' RESEARCH VESSEL "GYRE"

HALTER MARINE HULL 375

179'-6" x 36' x 15' "GYRE"

HALTER MARINE HULL No. 375

schuller & allan, inc. date _____ by SINGH file 2042

WEATHER CRITERIA

PROJECTED AREA ABOVE WATERLINE

1. DRAFT = 14.00 FT Δ = 1595.10 LT

ITEM	DIMENSIONS FT x FT	AREA FT^2	Y FT	MOMENT FT^3
1	17.50 x 8.00	140.00	38.00	5320
2	77.50 x 3.00	232.50	32.50	7556
3	6.00 x 16.25	97.50	42.13	4108
4	0.75 x 23.50	17.63	62.00	1093
5	0.75 x 24.00	18.00	41.00	738
6	98.00 x 8.00	784.00	27.00	21168
7	31.00 x 6.00	186.00	26.00	4836
8	124.00 x 8.00	992.00	19.00	18848
9	52.00 x 5.00	260.00	17.50	4550
10	10.50 x 11.00	115.50	25.50	2945
11	2.00 x 14.00	28.00	27.00	756
12	173.50 x 1.00	173.50	14.50	2516
		3044.63	24.45	74434

$$GM_{REQ'D} = PAh / \Delta \tan\theta$$

$$P = 0.005 + \left(\frac{171.00}{14200}\right)^2$$

$$= 0.00515$$

$$h = 24.45 - 14/2$$

$$= 17.45 \text{ FT}$$

179'-6" x 36' x 15' "GYRE"

HALTER MARINE HULL NO. 375

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$$\text{TAN } \theta = 0.50/18$$

$$GM_R = \frac{0.00515 * 3044.63 * 17.45}{1595.10 * 0.50/18}$$

$$= 6.17 \text{ FT}$$

2. DRAFT = 12.00 FT $\quad \Delta = 1289.00$ LT

ITEM	DIMENSIONS FT x FT	AREA FT^2	Y FT	MOMENT FT^3
1-12		3044.63		74434
13	172.50 x 2.00	345.00	13.00	4485
		3389.63	23.28	78919

$$h = 23.28 - 12/2$$

$$= 17.28 \text{ FT}$$

$$\text{TAN}\theta = 1.5/18$$

$$GM_R = \frac{0.00515 * 3389.63 * 17.28}{1289.00 * 1.5/18}$$

$$= 2.81 \text{ FT}$$

3. DRAFT = 10.00 FT $\quad \Delta = 987.80$ LT

ITEM	DIMENSIONS FT x FT	AREA FT^2	Y FT	MOMENT FT^3
1-13		3389.63		78919
14	171.75 x 2.00	343.50	11.00	3778
		3733.13	22.15	82697

179'-6" x 36' x 15' "GYRE"

HALTER MARINE HULL NO. 375

schuller & allan, inc. date _____ by SINGH file 2042

$h = 22.15 - 10/2$

$= 17.15$ FT

$TAN\,\theta = 2.50/18$

$GM_R = \dfrac{0.00515 * 3733.13 * 17.15}{987.80 * 2.5/18}$

$= 2.40$ FT

4. DRAFT = 8.00 $\Delta = 711.20$ LT

ITEM	DIMENSIONS FT x FT	AREA FT^2	Y FT	MOMENT FT^3
1-14		3733.13		82697
15	165.00 x 2.00	330.00	9.00	2970
		4063.13	21.08	85667

$h = 21.08 - 8/2$

$= 17.08$ FT

$TAN\,\theta = 3.50/18$

$GM_R = \dfrac{0.00515 * 4063.13 * 17.08}{711.20 * 3.50/18}$

$= 2.58$ FT

CONDITION-1 (LIGHTSHIP, STORES, CREW & EFFECTS)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DEADWEIGHT		0.	2.50	19.60	49.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		0.	767.62	14.30	10975.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	21.14
KG	14.30
FScorr	0.00
KGcorr	14.30
GMcorr	6.84
GMreqd	4.28
MARGIN	2.56

DRAFT @ LCF 8.43

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

179'-6" X 36' X 15' R/V "GYRE" TEXAS A & M UNIVERSITY, GAL FILE 2042

COND-2(NO DECK CARGO, 445.58 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	22.2		38.07	9.22	351.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	293.32	10.38	3045.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DEADWEIGHT		679.	448.08	10.53	4717.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	12.89	15643.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	12.89
FScorr	.56
KGcorr	13.45
GMcorr	5.35
GMreqd	5.10
MARGIN	.25

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-3(32 LT DK CARGO, 413.58 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	3.5		6.07	9.22	56.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			32.00	18.00	576.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	261.32	10.52	2750.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DECK CARGO			32.00	18.00	576.
DEADWEIGHT		679.	448.08	11.15	4998.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	13.13	15924.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	13.13
FScorr	.56
KGcorr	13.69
GMcorr	5.11
GMreqd	5.10
MARGIN	.01

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-3A(28.50 LT DK CARGO, 417.08 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	5.6		9.57	9.22	88.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			28.50	19.00	542.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	264.82	10.51	2782.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DECK CARGO			28.50	19.00	542.
DEADWEIGHT		679.	448.08	11.15	4996.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	13.12	15921.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	13.12
FScorr	.56
KGcorr	13.68
GMcorr	5.12
GMreqd	5.10
MARGIN	.02

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-3B(25.00 LT DK CARGO, 420.58 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	7.6		13.07	9.22	121.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			25.00	20.00	500.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	268.32	10.49	2815.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DECK CARGO			25.00	20.00	500.
DEADWEIGHT		679.	448.08	11.13	4986.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	13.12	15912.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	13.12
FScorr	.56
KGcorr	13.68
GMcorr	5.12
GMreqd	5.10
MARGIN	.02

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-3c(19.25 LT DK CARGO, 426.33 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	11.0		18.82	9.22	174.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			19.25	22.00	424.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	274.07	10.46	2868.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DECK CARGO			19.25	22.00	424.
DEADWEIGHT		679.	448.08	11.08	4963.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	13.10	15889.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	13.10
FScorr	.56
KGcorr	13.66
GMcorr	5.14
GMreqd	5.10
MARGIN	.04

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

179'-6" X 36' X 15' R/V "GYRE" TEXAS A & M UNIVERSITY, GAL FILE 2042

COND-3▽(14.75 LT DK CARGO, 430.83 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	13.6		23.32	9.22	215.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			14.75	26.00	384.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	278.57	10.44	2909.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DECK CARGO			14.75	26.00	384.
DEADWEIGHT		679.	448.08	11.08	4964.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	13.10	15890.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	13.10
FScorr	.56
KGcorr	13.66
GMcorr	5.14
GMreqd	5.10
MARGIN	.04

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-3E(12 LT DK CARGO, 433.58 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	15.2		26.07	9.22	240.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			12.00	30.00	360.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	281.32	10.43	2934.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DECK CARGO			12.00	30.00	360.
DEADWEIGHT		679.	448.08	11.08	4966.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	13.10	15892.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	13.10
FScorr	.56
KGcorr	13.66
GMcorr	5.14
GMreqd	5.10
MARGIN	.04

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-3F(10 LT DK CARGO, 435.58 LT BELOW DK TONNAGE, MAXIMUM DRAFT=11.50')

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
FP BAL CTR	100.0		13.35	10.59	141.
1 BAL CTR	100.0		31.23	9.70	303.
2 BAL WING P/S	100.0		15.58	11.02	172.
3 BAL P/S	0.0	145.	0.00	9.03	0.
4 BAL WING P/S	100.0		127.58	10.51	1341.
4 BAL CTR	100.0		48.38	10.50	508.
5 BAL P/S	16.3		28.07	9.22	259.
AP BAL P/S	100.0		19.13	11.98	229.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
4 F.O. W P/S	98.0		105.25	10.21	1075.
5 F.O. W STBD	98.0		9.57	11.96	114.
5 F.O. W PORT	98.0		5.39	12.09	65.
POT WATER CTR	100.0	56.	32.05	11.50	369.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			10.00	34.00	340.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
FUEL OIL	41.60	359.	120.21	10.43	1254.
BALLAST WATER	35.00	145.	283.32	10.42	2953.
POTABLE WATER	35.96	56.	32.05	11.50	369.
CREW			2.50	19.60	49.
DECK CARGO			10.00	34.00	340.
DEADWEIGHT		679.	448.08	11.08	4965.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	1213.20	13.10	15891.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	18.80
KG	13.10
FScorr	.56
KGcorr	13.66
GMcorr	5.14
GMreqd	5.10
MARGIN	.04

DRAFT @ LCF 11.50

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-4(185 LT DK CARGO AT 3.00' ABOVE MAIN DECK, NO BELOW DK TONNAGE)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
3 BAL P/S	0.0	145.	0.00	9.03	0.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
POT WATER CTR	0.0	56.	0.00	11.50	0.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			185.00	18.00	3330.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DECK CARGO			185.00	18.00	3330.
DEADWEIGHT		679.	187.50	18.02	3379.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	952.62	15.02	14305.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	19.99
KG	15.02
FScorr	.71
KGcorr	15.73
GMcorr	4.26
GMreqd	4.25
MARGIN	.01

DRAFT @ LCF 9.76

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-4A(160.0 LT DECK CARGO 19.00' ABOVE BASELINE, NO BELOW DK TONNAGE)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
3 BAL P/S	0.0	145.	0.00	9.03	0.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
POT WATER CTR	0.0	56.	0.00	11.50	0.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			160.00	19.00	3040.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DECK CARGO			160.00	19.00	3040.
DEADWEIGHT		679.	162.50	19.01	3089.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	927.62	15.11	14015.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	20.05
KG	15.11
FScorr	.73
KGcorr	15.84
GMcorr	4.21
GMreqd	4.19
MARGIN	.02

DRAFT @ LCF 9.58

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-48(140.0 LT DECK CARGO 20.00' ABOVE BASELINE, NO BELOW DK TONNAGE)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
3 BAL P/S	0.0	145.	0.00	9.03	0.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
POT WATER CTR	0.0	56.	0.00	11.50	0.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			140.00	20.00	2800.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DECK CARGO			140.00	20.00	2800.
DEADWEIGHT		679.	142.50	19.99	2849.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	907.62	15.18	13775.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	20.12
KG	15.18
FScorr	.75
KGcorr	15.93
GMcorr	4.19
GMreqd	4.17
MARGIN	.02

DRAFT @ LCF 9.44

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

179'-6" X 36' X 15' R/V "GYRE" TEXAS A & M UNIVERSITY, GAL FILE 2042

COND-4c(110.0 LT DECK CARGO 22.00' ABOVE BASELINE, NO BELOW DK TONNAGE)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
3 BAL P/S	0.0	145.	0.00	9.03	0.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
POT WATER CTR	0.0	56.	0.00	11.50	0.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			110.00	22.00	2420.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DECK CARGO			110.00	22.00	2420.
DEADWEIGHT		679.	112.50	21.95	2469.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	877.62	15.26	13395.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	20.28
KG	15.26
FScorr	.77
KGcorr	16.04
GMcorr	4.24
GMreqd	4.15
MARGIN	.09

DRAFT @ LCF 9.23

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-4▷(85.00 LT DECK CARGO 26.00' ABOVE BASELINE, NO BELOW DK TONNAGE)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
3 BAL P/S	0.0	145.	0.00	9.03	0.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
POT WATER CTR	0.0	56.	0.00	11.50	0.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			85.00	26.00	2210.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DECK CARGO			85.00	26.00	2210.
DEADWEIGHT		679.	87.50	25.82	2259.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	852.62	15.46	13185.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	20.45
KG	15.46
FScorr	.80
KGcorr	16.26
GMcorr	4.19
GMreqd	4.13
MARGIN	.06

DRAFT @ LCF 9.05

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

179'-6" X 36' X 15' R/V "GYRE" TEXAS A & M UNIVERSITY, GAL FILE 2042

COND-4E(70.00 LT DECK CARGO 30.00' ABOVE BASELINE, NO BELOW DK TONNAGE)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
3 BAL P/S	0.0	145.	0.00	9.03	0.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
POT WATER CTR	0.0	56.	0.00	11.50	0.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			70.00	30.00	2100.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DECK CARGO			70.00	30.00	2100.
DEADWEIGHT		679.	72.50	29.64	2149.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	837.62	15.61	13075.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	20.58
KG	15.61
FScorr	.81
KGcorr	16.42
GMcorr	4.16
GMreqd	4.13
MARGIN	.03

DRAFT @ LCF 8.94

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP

COND-4F(50 LT DK CARGO AT 3.00' ABOVE AFT DECK HOUSE, NO BELOW DK TONNAGE)

ITEM	PCT	FS	WEIGHT	VCG	V-MOMENT
3 BAL P/S	0.0	145.	0.00	9.03	0.
2 F.O. DB P/S	0.0	355.	0.00	3.61	0.
F.O.D. W P/S	0.0	4.	0.00	9.00	0.
POT WATER CTR	0.0	56.	0.00	11.50	0.
SEWAGE DB /S	0.0	79.	0.00	3.57	0.
SEWAGE DB P/	0.0	37.	0.00	3.43	0.
SEW SAMPLE P/	0.0	1.	0.00	4.31	0.
DIRTY L.O. /S	0.0	0.	0.00	8.81	0.
L.O. W PORT	0.0	1.	0.00	8.81	0.
L.O. W P/S	0.0	1.	0.00	8.81	0.
CREW			2.50	19.60	49.
DECK CARGO			50.00	34.00	1700.

SUMMARY

CARGO DESC.	CF/T	FS	WEIGHT	VCG	V-MOMENT
CREW			2.50	19.60	49.
DECK CARGO			50.00	34.00	1700.
DEADWEIGHT		679.	52.50	33.31	1749.
LIGHTSHIP			765.12	14.28	10926.
TOTALS		679.	817.62	15.50	12675.

FROM HYDROSTATICS FOR ABOVE DISPLACEMENT:

KMT	20.73
KG	15.50
FScorr	.83
KGcorr	16.33
GMcorr	4.40
GMreqd	4.15
MARGIN	.25

DRAFT @ LCF 8.80

NOTES: (1) VCG MEASURED FROM BASELINE IN FEET
(2) LCG MEASURED FROM AMIDSHIP IN FEET (6" FWD OF FR. NO. 47)
(3) WEIGHT MEASUREMENTS IN TONS OF 2240.00 POUNDS
(4) LENGTH BETWEEN PERPENDICULARS 171.00 FEET
(5) CREW EFFECTS, STORES & SPARE PARTS INCLUDED IN LIGHTSHIP