

APPENDIX P

NAVAL ARCHITECTURE DATA

SUMMARY

This appendix (P) contains the data calculated by GHS for developing the charts in the Naval Architecture section of this design report. All of the charts were generated by GHS, with the exception of the Floodable Length Curve which was generated using Microsoft Excel v5.0.

95-11-21 18:56:14
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Page 1

HYDROSTATIC PROPERTIES

Trim: Fwd 0.53 deg., No Heel, VCG = 20.21

LCF	Displacement	Buoyancy-Ctr.		Weight/	Moment/			
Draft	Weight (LT)	LCB	VCB	Inch	LCF	Deg trim	KML	KMT
2.000	122.52	133.89a	1.30	8.06	150.57a	4871.36	2298.0	23.36
4.000	403.64	151.72a	2.54	13.59	165.33a	9843.80	1417.3	28.74
6.000	801.76	161.05a	3.79	18.04	174.71a	15255	1110.2	29.58
8.000	1,300.48	168.02a	5.03	21.80	183.29a	21435	964.4	28.75
10.000	1,880.38	173.83a	6.26	24.98	190.39a	28010	873.6	27.62
12.000	2,539.82	179.11a	7.50	28.10	197.98a	36206	836.9	26.90
14.000	3,271.11	184.08a	8.74	30.94	205.07a	45324	814.0	26.33
16.000	4,076.32	189.02a	9.98	33.84	212.49a	57080	822.4	25.95
18.000	4,914.28	193.21a	11.18	35.43	213.40a	63191	756.9	25.60
20.000	5,773.68	196.12a	12.34	36.65	212.09a	67414	689.1	25.55
22.000	6,662.25	198.15a	13.50	37.96	210.50a	72092	640.1	25.84
24.000	7,581.86	199.54a	14.65	39.32	208.73a	77142	603.1	26.35
26.000	8,533.83	200.48a	15.81	40.66	207.02a	81946	570.3	27.00
28.000	9,516.36	201.05a	16.97	42.00	204.98a	87154	544.9	27.73
30.000	10,472.61	201.27a	18.06	32.37	194.51a	89239	508.4	25.36

Distances in FEET.-----Specific Gravity = 1.025.-----Moment in Ft-LT.
Draft is from Baseline.

95-11-21 18:56:14
GHS 6.38D

CPCX

Page 5

CURVES OF FORM
HULL.C Component of Part HULL

Trim: zero Heel: zero

Ref Pt	Volume	Block	Displ/	WaterPl	MaxSect	PrismaticCoefs	
Depth	(Cu Ft)	Coef	Length	Coef	Coef	Long	Vert
2.00	4510	0.351	8.0	0.590	0.634	0.559	0.595
4.00	14368	0.358	18.7	0.604	0.656	0.549	0.593
6.00	28338	0.370	29.7	0.623	0.678	0.549	0.595
8.00	45795	0.389	40.0	0.649	0.708	0.551	0.600
10.00	66164	0.405	49.0	0.668	0.737	0.553	0.606
12.00	89265	0.418	56.3	0.687	0.759	0.555	0.609
14.00	115006	0.428	61.7	0.709	0.780	0.554	0.604
16.00	143062	0.456	74.2	0.733	0.796	0.576	0.622
18.00	172210	0.481	88.2	0.746	0.811	0.596	0.645
20.00	202311	0.501	102.3	0.760	0.821	0.613	0.660
22.00	233438	0.518	116.6	0.775	0.830	0.627	0.669
24.00	265644	0.534	131.0	0.791	0.836	0.640	0.675
26.00	298960	0.547	145.6	0.807	0.841	0.652	0.678
28.00	333366	0.559	160.3	0.823	0.845	0.664	0.681
30.00	364957	0.565	173.4	0.449	0.844	0.671	1.259

Distances in FEET.-----Length is true waterline.-----

HULL Reference Point: Long.= 0.00 Trans.= 0.00 Vert.= 0.00

95-11-21 18:56:14
GHS 6.38D

CPCX

Page 3

CROSS CURVES OF STABILITY
Showing righting arms in heel at VCG = 0.00

Trim: zero at zero heel (trim righting arm held at zero)

Displacement LONG TONS	Heel Angles in Degrees					
	10.00s	20.00s	30.00s	40.00s	50.00s	60.00s
128.83	5.10s	10.13s	13.75s	16.12s	17.76s	19.43s
410.42	5.31s	9.82s	13.30s	15.88s	18.04s	21.20s
809.51	5.22s	9.59s	13.03s	15.81s	18.48s	21.77s
1,308.16	5.06s	9.39s	12.91s	15.95s	19.06s	21.73s
1,890.03	4.89s	9.23s	12.91s	16.22s	19.39s	21.47s
2,549.92	4.75s	9.12s	12.99s	16.59s	19.45s	21.14s
3,285.22	4.65s	9.05s	13.13s	16.81s	19.33s	20.75s
4,086.67	4.57s	9.02s	13.31s	16.77s	19.01s	20.26s
4,919.31	4.50s	9.02s	13.31s	16.47s	18.53s	19.70s
5,779.16	4.48s	9.05s	13.09s	15.98s	17.94s	19.12s
6,668.31	4.52s	9.03s	12.66s	15.35s	17.28s	18.51s
7,588.33	4.60s	8.82s	12.08s	14.64s	16.57s	17.90s
8,540.00	4.65s	8.39s	11.39s	13.87s	15.84s	17.29s
9,522.85	4.36s	7.70s	10.59s	13.06s	15.11s	16.70s
10,425.27	3.62s	6.81s	9.71s	12.27s	14.43s	16.14s

Distances in FEET.--Specific Gravity = 1.025.-----

Free surface ignored.

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Page 4
 C:\GHS\TS

FLOODABLE LENGTHS

Initial Origin Depth = 15.50 Initial Trim = 0.00 Degrees
 Vertical C.G. = 19.74 Permeability = 0.700

ORIGIN	F L O O D E D					
DEPTH	Deg TRIM	CENTER	LENGTH	MARGIN	GMT	
37.02	-4.24	81.00	205.87	0.25	8.10	
37.04	-4.21	90.00	192.84	0.25	8.19	
37.07	-4.11	99.00	189.40	0.25	8.41	
37.12	-3.99	108.00	190.75	0.25	8.66	
37.17	-3.84	117.00	195.15	0.25	8.95	
37.22	-3.67	126.00	201.96	0.25	9.26	
37.24	-3.49	135.00	211.02	0.25	9.59	
37.21	-3.28	144.00	221.57	0.25	9.82	
37.10	-3.04	153.00	233.55	0.25	9.88	
36.87	-2.75	162.00	247.24	0.25	9.90	
36.46	-2.42	171.00	261.27	0.25	9.88	
35.80	-2.03	180.00	274.32	0.25	9.78	
34.77	-1.58	189.00	284.52	0.25	9.59	
33.26	-1.06	198.00	289.66	0.25	9.25	
31.20	-0.49	207.00	287.37	0.25	8.78	
28.66	0.08	216.00	278.23	0.25	8.15	
25.89	0.62	225.00	263.78	0.25	7.47	
23.09	1.10	234.00	246.88	0.25	6.79	
20.41	1.52	243.00	229.32	0.25	6.18	
18.02	1.88	252.00	213.23	0.25	5.72	
15.93	2.20	261.00	199.40	0.25	5.39	
14.09	2.47	270.00	187.51	0.25	5.16	
12.49	2.71	279.00	177.60	0.25	4.99	
11.08	2.92	288.00	169.00	0.25	4.89	
9.84	3.11	297.00	161.58	0.25	4.82	
9.39	3.18	306.00	170.07	0.25	4.80	

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Page 1
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FLOODABLE LENGTHS

Initial Origin Depth = 15.50 Initial Trim = 0.00 Degrees
Vertical C.G. = 19.74 Permeability = 0.950

ORIGIN	F L O O D E D				
DEPTH	Deg TRIM	CENTER	LENGTH	MARGIN	Gmt
36.85	-4.72	45.00	160.95	0.25	7.20
36.85	-4.72	54.00	142.97	0.25	7.20
36.86	-4.69	63.00	130.37	0.25	7.32
36.88	-4.61	72.00	124.30	0.25	7.51
36.92	-4.52	81.00	121.30	0.25	7.71
36.96	-4.41	90.00	120.69	0.25	7.93
37.01	-4.28	99.00	121.56	0.25	8.16
37.06	-4.14	108.00	123.84	0.25	8.44
37.12	-3.98	117.00	127.48	0.25	8.75
37.18	-3.81	126.00	132.30	0.25	9.12
37.24	-3.61	135.00	138.29	0.25	9.54
37.24	-3.40	144.00	145.09	0.25	9.95
37.17	-3.16	153.00	152.86	0.25	10.27
36.97	-2.86	162.00	161.31	0.25	10.51
36.59	-2.51	171.00	169.98	0.25	10.72
35.92	-2.09	180.00	178.22	0.25	10.83
34.84	-1.61	189.00	184.70	0.25	10.75
33.23	-1.05	198.00	188.30	0.25	10.40
31.04	-0.45	207.00	187.84	0.25	9.79
28.37	0.14	216.00	183.42	0.25	8.97
25.45	0.70	225.00	175.72	0.25	8.09
22.53	1.19	234.00	165.89	0.25	7.24
19.82	1.61	243.00	155.43	0.25	6.51
17.43	1.97	252.00	145.86	0.25	5.96
15.36	2.28	261.00	137.56	0.25	5.56
13.58	2.55	270.00	130.42	0.25	5.25
12.02	2.78	279.00	124.32	0.25	5.03
10.67	2.99	288.00	119.10	0.25	4.87
9.47	3.17	297.00	114.49	0.25	4.75
8.43	3.32	306.00	110.74	0.25	4.67
7.49	3.46	315.00	107.53	0.25	4.63
6.66	3.59	324.00	104.90	0.25	4.61
6.31	3.64	333.00	113.72	0.25	4.62

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Page 7

RIGHTING ARMS vs HEEL ANGLE

Fixed CG: LCG = 187.01a TCG = 0.00 VCG = 20.21

Origin Depth	Degrees of Trim	of Heel	Displacement Weight(LT)	Righting Arms in Trim	in Heel
17.790	0.53f	0.00	4,001.58	0.02f	0.000
17.737	0.54f	5.00s	4,001.09	0.00	0.674s
17.581	0.58f	10.00s	4,001.98	0.02f	1.350s
17.273	0.62f	15.00s	4,001.34	0.00	2.022s
16.818	0.69f	20.00s	4,001.31	0.00	2.696s
16.189	0.76f	25.00s	4,001.34	0.00	3.379s
15.356	0.84f	30.00s	4,001.35	0.00	4.079s
14.362	0.92f	35.00s	4,001.32	0.00	4.663s
13.270	1.00f	40.00s	4,001.32	0.00	5.007s
12.090	1.08f	45.00s	4,001.34	0.00	5.135s
11.809	1.09f	46.10s	4,001.35	0.04a	5.140s
10.819	1.14f	50.00s	4,001.35	0.00	5.087s
9.464	1.19f	55.00s	4,001.35	0.00	4.892s
8.043	1.23f	60.00s	4,001.36	0.00	4.579s

Distances in FEET.--Specific Gravity = 1.025.-----

Note: The Center of Gravity shown above is for the Fixed Weight of 3439.07 LT. As the tank load centers shift with heel and trim, the total Center of Gravity varies. The righting arms shown above include the effect of the C.G. variation.

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WAVE DESCRIPTION

Wave type: TROCHOID
Phase of crest relative to origin: 0.0 degrees (0.00 Ft)
Wave length: 380.00 Ft Crest-to-trough height: 21.44 Ft

LONGITUDINAL STRENGTH

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft-----
18.36f	0.00			
18.36f	0.01		-0.0	0
18.00f	0.03		-0.0	1
18.00f	0.07		-0.0	1
15.12f	0.17	0.00	-0.4	5
9.18f	0.39	0.95	0.8	15
0.00	0.88	3.84	17.0	-37
0.00	0.93	3.84	17.0	-37
6.50a	1.71	5.68	39.3	-207
6.50a	2.04	5.68	39.3	-207
13.00a	2.81	7.35	65.9	-536
15.00a		7.80	75.4	-674
15.00a	24.09*	7.80	51.3	-674
18.80a	2.95	8.64	71.5	-901
18.80a	2.18	8.64	71.5	-901
22.57a	2.13	9.48	97.5	-1,213
25.00a		9.91	115.7	-1,469
25.00a	5.05*	9.91	110.7	-1,469
27.02a	2.37	10.27	126.4	-1,704
32.13a	2.62	11.18	168.5	-2,450
41.69a	3.06	12.44	254.2	-4,450
42.50a	3.10	12.51	261.8	-4,657
42.50a	3.16	12.51	261.8	-4,657
50.08a	3.55	13.21	333.9	-6,902
51.25a	3.60	13.32	345.2	-7,298
54.00a		13.48	372.0	-8,280
54.00a	9.80*	13.48	362.2	-8,280
55.00a		13.54	372.0	-8,646
55.00a	26.39*	13.54	345.6	-8,646
60.81a	4.03	13.87	402.5	-10,810
65.50a	4.21	13.98	448.5	-12,799
65.50a	4.37	13.98	448.5	-12,800
68.00a	4.50	14.04	472.4	-13,947
68.00a	12.35	14.04	472.4	-13,947
70.38a	12.47	14.10	476.4	-15,073
73.40a	12.62	14.10	481.1	-16,514
79.94a	12.90	14.10	489.8	-19,681
88.00a	14.08	13.93	494.1	-23,641
88.00a	6.23	13.93	494.1	-23,642
88.50a	6.31	13.92	497.9	-23,889

95-11-22 12:05:36
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Page 8

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft
88.50a	5.78	13.92	497.9	-23,889
89.50a	5.94	13.89	505.9	-24,389
90.00a	5.98	13.87	509.9	-24,642
90.00a	6.85	13.87	509.9	-24,643
91.00a	6.94	13.83	516.9	-25,154
91.00a	8.37	13.83	516.9	-25,154
92.00a		13.79	522.3	-25,672
92.00a	2.00*	13.79	520.3	-25,673
95.00a		13.67	535.6	-27,252
95.00a	6.10*	13.67	529.6	-27,252
98.46a	9.04	13.53	545.8	-29,106
98.50a	9.05	13.53	546.0	-29,130
98.50a	9.74	13.53	546.0	-29,130
99.07a	9.79	13.50	548.1	-29,438
99.07a	9.79	13.50	548.2	-29,441
103.00a		13.29	560.1	-31,615
103.00a	8.10*	13.29	552.0	-31,615
106.00a		13.13	557.6	-33,276
106.00a	5.00*	13.13	552.6	-33,276
108.00a	12.36	13.02	554.6	-34,380
108.00a	11.60	13.02	544.4	-34,380
108.00a		13.02	544.4	-34,380
108.00a	10.20*	13.02	544.4	-34,380
108.63a	11.78	12.99	545.2	-34,722
112.10a	11.88	12.75	548.8	-36,616
112.10a	12.01	12.75	548.8	-36,616
113.00a	12.05	12.68	549.4	-37,109
113.00a	11.45	12.68	549.4	-37,109
114.00a		12.61	550.6	-37,657
114.00a	0.70*	12.61	549.9	-37,658
115.00a	11.54	12.55	551.0	-38,206
115.00a	12.74	12.55	548.9	-38,207
115.00a		12.55	548.9	-38,207
115.00a	2.10*	12.55	548.9	-38,207
117.00a	12.83	12.41	548.3	-39,301
117.00a	13.02	12.41	548.3	-39,301
117.35a	13.03	12.38	548.0	-39,493
118.19a	13.06	12.33	547.5	-39,951
120.00a		12.19	546.0	-40,938
120.00a	3.15*	12.19	542.8	-40,938
123.00a		11.97	539.6	-42,557
123.00a	4.30*	11.97	533.0	-42,558
123.00a		11.97	539.6	-42,557
123.00a	2.30*	11.97	533.0	-42,558
126.00a		11.74	528.8	-44,146
126.00a	4.00*	11.74	524.8	-44,146
127.08a	13.33	11.66	523.0	-44,712
127.75a	13.34	11.61	521.9	-45,059
130.00a	13.38	11.43	517.8	-46,226

95-11-22 12:05:36
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LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft-----
130.00a	12.18	11.43	517.8	-46,226
135.70a	12.29	10.96	511.8	-49,153
135.70a	12.56	10.96	511.8	-49,153
136.45a	12.59	10.90	510.6	-49,536
136.45a	18.97	10.90	510.6	-49,536
136.50a	18.97	10.90	510.2	-49,561
136.50a	18.76	10.90	510.2	-49,561
137.00a		10.86	506.2	-49,814
137.00a	10.00*	10.86	496.2	-49,815
137.32a	18.79	10.83	493.7	-49,970
146.88a	19.13	10.06	412.3	-54,298
147.03a	19.13	10.04	410.9	-54,359
152.00a		9.66	364.6	-56,280
152.00a	15.54*	9.66	349.1	-56,280
153.00a		9.58	339.5	-56,623
153.00a	1.00*	9.58	338.5	-56,623
156.33a	19.28	9.32	305.8	-57,691
156.44a	19.28	9.32	304.7	-57,725
166.00a	19.29	8.65	206.2	-60,158
170.24a	18.79	8.40	161.6	-60,932
170.24a	19.21	8.40	161.6	-60,932
171.97a	19.05	8.29	143.0	-61,193
171.97a	12.67	8.29	143.0	-61,193
172.00a	12.67	8.29	142.8	-61,197
172.00a	12.92	8.29	142.8	-61,197
175.00a	12.64	8.11	129.1	-61,600
175.00a	13.10	8.11	129.1	-61,600
175.57a	13.04	8.08	126.3	-61,672
175.57a	13.04	8.08	126.3	-61,672
177.77a	12.97	7.98	115.3	-61,935
180.00a		7.88	104.2	-62,176
180.00a	4.10*	7.88	100.1	-62,176
184.83a	12.64	7.66	76.0	-62,595
185.13a	12.63	7.65	74.5	-62,617
191.00a		7.47	45.9	-62,961
191.00a	45.78*	7.47	0.1	-62,961
194.69a	12.02	7.36	-17.3	-62,924
195.00a		7.36	-18.7	-62,918
195.00a	3.30*	7.36	-22.0	-62,918
198.00a		7.32	-35.9	-62,827
198.00a	1.90*	7.32	-37.8	-62,827
199.40a	11.88	7.30	-44.2	-62,768
199.40a	12.12	7.30	-44.2	-62,768
200.00a		7.29	-47.1	-62,739
200.00a	4.30*	7.29	-51.4	-62,739
201.00a	12.11	7.27	-56.3	-62,684
201.00a	11.75	7.27	-56.3	-62,684
202.00a	11.74	7.26	-60.7	-62,624
202.00a	12.19	7.26	-60.7	-62,624

95-11-22 12:05:36
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Page 10

CPCX

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft-----
204.25a	12.17	7.23	-71.9	-62,472
205.00a	12.09	7.23	-75.5	-62,415
205.00a	11.63	7.23	-75.5	-62,415
207.48a	11.37	7.22	-86.1	-62,211
212.00a		7.22	-103.6	-61,775
212.00a	3.15*	7.22	-106.8	-61,775
213.90a	10.60	7.22	-113.4	-61,562
215.00a	10.46	7.22	-117.1	-61,434
215.00a	11.36	7.22	-119.6	-61,434
215.00a		7.22	-119.6	-61,434
215.00a	2.50*	7.22	-119.6	-61,434
215.24a	11.33	7.22	-120.5	-61,406
215.24a	11.33	7.22	-120.6	-61,405
216.00a		7.23	-123.7	-61,311
216.00a	4.10*	7.23	-127.8	-61,311
222.00a		7.32	-151.0	-60,465
222.00a	29.99*	7.32	-181.0	-60,465
225.00a		7.36	-191.9	-59,901
225.00a	3.20*	7.36	-195.1	-59,901
226.22a	10.83	7.38	-199.3	-59,659
228.90a	10.76	7.45	-208.4	-59,109
228.90a	11.28	7.45	-208.4	-59,108
230.00a	11.27	7.47	-212.6	-58,875
230.00a	9.91	7.47	-212.6	-58,875
230.50a	9.91	7.49	-213.8	-58,768
230.50a	16.28	7.49	-213.8	-58,768
237.21a	16.23	7.65	-272.0	-57,129
241.00a		7.80	-304.2	-56,030
241.00a	36.49*	7.80	-340.7	-56,029
244.37a	16.12	7.93	-368.6	-54,829
247.63a	16.02	8.05	-394.9	-53,580
248.00a		8.07	-397.9	-53,433
248.00a	15.54*	8.07	-413.4	-53,433
248.19a	16.00	8.07	-414.9	-53,354
250.00a		8.16	-429.0	-52,587
250.00a	4.10*	8.16	-433.1	-52,587
259.17a	14.47	8.58	-494.9	-48,307
259.17a	14.47	8.59	-494.9	-48,304
264.32a	14.86	8.88	-525.5	-45,672
264.32a	14.22	8.88	-525.5	-45,672
266.00a	14.44	8.97	-534.6	-44,779
266.00a	8.06	8.97	-534.6	-44,779
266.32a	8.10	8.99	-534.3	-44,608
266.32a	12.90	8.99	-534.3	-44,608
268.89a	13.01	9.14	-544.3	-43,219
270.00a	13.04	9.20	-548.6	-42,610
270.00a	13.50	9.20	-553.6	-42,610
270.00a		9.20	-553.6	-42,610
270.00a	5.00*	9.20	-553.6	-42,610

95-11-22 12:05:36
GHS 6.38D

CPCX

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft-----
270.16a	13.50	9.21	-554.2	-42,521
275.00a		9.51	-572.8	-39,785
275.00a	9.60*	9.51	-582.4	-39,785
277.70a	12.57	9.68	-590.9	-38,198
281.14a	12.11	9.89	-599.7	-36,143
281.14a	12.11	9.89	-599.7	-36,140
288.00a		10.35	-606.7	-31,986
288.00a	6.10*	10.35	-612.8	-31,986
291.07a	9.28	10.56	-610.5	-30,102
292.13a	9.01	10.63	-609.0	-29,455
294.50a	8.50	10.78	-604.4	-28,013
294.50a	9.55	10.78	-604.4	-28,013
297.00a	9.02	10.94	-600.4	-26,503
297.00a	8.11	10.94	-600.4	-26,503
300.00a		11.14	-590.7	-24,712
300.00a	5.00*	11.14	-595.7	-24,711
300.77a	7.32	11.19	-592.8	-24,255
303.11a	6.79	11.34	-582.9	-22,874
314.09a	5.80	11.99	-524.0	-16,764
323.00a	5.04	12.38	-463.8	-12,342
323.00a	4.89	12.38	-463.8	-12,342
323.30a	4.87	12.40	-461.5	-12,203
323.30a	3.56	12.40	-461.5	-12,203
324.00a	3.54	12.43	-455.3	-11,881
324.00a	3.36	12.43	-455.3	-11,881
325.08a	3.33	12.48	-445.5	-11,395
336.06a	3.11	12.76	-342.3	-7,047
347.05a	2.89	12.69	-235.5	-3,856
358.03a	2.68	12.23	-129.2	-1,839
360.00a		12.07	-110.5	-1,600
360.00a	56.78*	12.07	-167.3	-1,600
369.02a	2.49	11.32	-85.1	-453
378.00a		10.16	-10.3	-18
378.00a	5.05*	10.16	-15.4	-18
380.00a	2.32	9.90	-0.0	-0
380.00a	0.00			

* Point weight in LONG TONS-----

S U M M A R Y

Largest Shear: -612.8 LT at 288.00a
 Largest Bending Moment: -62,961 LT-Ft at 191.00a (Sagging)

95-11-22 12:05:36
GHS 6.38D

CPCX

Page 1

WAVE DESCRIPTION

Wave type: TROCHOID
Phase of crest relative to origin: 180.0 degrees (190.00 Ft)
Wave length: 380.00 Ft Crest-to-trough height: 21.44 Ft

LONGITUDINAL STRENGTH

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft	LT/Ft	LT/Ft	LT	LT-Ft
18.36f	0.00			
18.36f	0.01		-0.0	0
18.00f	0.03		-0.0	0
18.00f	0.07		-0.0	0
9.18f	0.39		-2.0	9
0.00	0.88		-7.9	54
0.00	0.93		-7.9	54
6.50a	1.71		-16.5	132
6.50a	2.04		-16.5	132
8.72a	2.30	0.00	-21.3	175
13.00a	2.81	0.09	-32.0	289
15.00a		0.12	-37.4	359
15.00a	24.10*	0.12	-61.5	359
18.80a	2.96	0.16	-72.1	614
18.80a	2.18	0.16	-72.1	614
22.57a	2.12	0.20	-79.5	900
25.00a		0.24	-84.3	1,100
25.00a	5.05*	0.24	-89.3	1,100
32.13a	2.62	0.36	-104.6	1,793
41.69a	3.09	0.57	-127.4	2,902
42.50a	3.13	0.60	-129.5	3,007
42.50a	3.14	0.60	-129.5	3,007
51.25a	3.58	0.94	-152.1	4,240
54.00a		1.10	-159.4	4,670
54.00a	9.80*	1.10	-169.2	4,670
55.00a		1.16	-171.8	4,840
55.00a	26.40*	1.16	-198.2	4,840
60.81a	4.06	1.51	-213.1	6,037
65.50a	4.27	1.92	-224.6	7,065
65.50a	4.35	1.92	-224.6	7,065
68.00a	4.47	2.13	-230.6	7,635
68.00a	12.32	2.13	-230.6	7,635
70.38a	12.43	2.34	-254.7	8,213
79.94a	12.91	3.54	-347.7	11,101
88.00a	14.17	4.90	-422.8	14,209
88.00a	6.32	4.90	-422.8	14,209
88.50a	6.40	4.99	-423.5	14,421
88.50a	5.76	4.99	-423.5	14,421
89.50a	5.92	5.15	-424.3	14,845
90.00a	5.96	5.26	-424.7	15,057

95-11-22 12:05:36
GHS 6.38D

Page 2

CPCX

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft-----
90.00a	6.84	5.26	-424.7	15,057
91.00a	6.92	5.47	-426.2	15,483
91.00a	8.35	5.47	-426.2	15,483
92.00a		5.69	-429.0	15,911
92.00a	2.00*	5.69	-431.0	15,911
95.00a		6.33	-438.7	17,217
95.00a	6.10*	6.33	-444.8	17,217
98.50a	9.02	7.07	-452.4	18,788
98.50a	9.69	7.07	-452.4	18,788
99.07a	9.74	7.20	-453.8	19,044
99.07a	9.74	7.20	-453.8	19,047
103.00a		8.22	-464.1	20,851
103.00a	8.10*	8.22	-472.2	20,851
106.00a		8.99	-480.5	22,281
106.00a	5.00*	8.99	-485.5	22,281
108.00a	12.41	9.51	-491.2	23,258
108.00a	11.65	9.51	-501.4	23,258
108.00a		9.51	-501.4	23,258
108.00a	10.20*	9.51	-501.4	23,258
108.63a	11.84	9.68	-502.8	23,575
112.10a	11.98	10.69	-508.8	25,332
112.10a	11.95	10.69	-508.8	25,332
113.00a	11.99	10.95	-509.8	25,790
113.00a	11.39	10.95	-509.8	25,791
114.00a		11.24	-510.2	26,301
114.00a	0.70*	11.24	-510.9	26,301
115.00a	11.48	11.53	-510.9	26,812
115.00a	12.68	11.53	-513.0	26,812
115.00a		11.53	-513.0	26,812
115.00a	2.10*	11.53	-513.0	26,812
117.00a	12.76	12.12	-514.8	27,841
117.00a	12.95	12.12	-514.8	27,841
118.19a	13.00	12.47	-515.6	28,454
120.00a		13.04	-516.1	29,388
120.00a	3.15*	13.04	-519.3	29,388
123.00a		14.00	-518.1	30,946
123.00a	4.30*	14.00	-524.7	30,946
123.00a		14.00	-518.1	30,946
123.00a	2.30*	14.00	-524.7	30,946
126.00a		14.96	-521.0	32,516
126.00a	4.00*	14.96	-525.0	32,516
127.75a	13.37	15.52	-521.6	33,432
130.00a	13.45	16.26	-516.1	34,600
130.00a	12.25	16.26	-516.0	34,600
135.70a	12.44	18.12	-488.4	37,469
135.70a	12.50	18.12	-488.4	37,469
136.45a	12.53	18.37	-484.1	37,834
136.45a	18.91	18.37	-484.1	37,834
136.50a	18.91	18.38	-484.2	37,858

95-11-22 12:05:36
GHS 6.38D

CPCX

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft
136.50a	18.70	18.38	-484.2	37,858
137.00a		18.55	-484.3	38,101
137.00a	10.00*	18.55	-494.3	38,101
137.32a	18.73	18.65	-494.3	38,256
146.88a	19.04	21.71	-481.9	42,949
152.00a		23.21	-464.7	45,376
152.00a	15.55*	23.21	-480.3	45,377
153.00a		23.50	-476.1	45,855
153.00a	1.00*	23.50	-477.1	45,855
156.44a	19.27	24.50	-460.7	47,470
166.00a	19.45	26.85	-400.3	51,604
170.24a	19.03	27.62	-366.4	53,233
170.24a	19.13	27.62	-366.4	53,233
171.97a	18.97	27.93	-351.3	53,854
171.97a	12.59	27.93	-351.3	53,854
172.00a	12.58	27.94	-350.9	53,865
172.00a	12.83	27.94	-350.9	53,865
175.00a	12.54	28.48	-304.3	54,849
175.00a	13.00	28.48	-304.3	54,849
175.57a	12.95	28.59	-295.5	55,018
175.57a	12.95	28.59	-295.4	55,020
180.00a		29.06	-224.7	56,174
180.00a	4.10*	29.06	-228.8	56,174
185.13a	12.59	29.61	-143.4	57,132
191.00a		29.75	-42.3	57,680
191.00a	45.80*	29.75	-88.1	57,680
194.69a	12.16	29.83	-23.3	57,887
195.00a		29.82	-17.9	57,893
195.00a	3.30*	29.82	-21.2	57,893
198.00a		29.63	31.6	57,878
198.00a	1.90*	29.63	29.7	57,878
199.40a	12.12	29.55	54.1	57,820
199.40a	12.05	29.55	54.1	57,820
200.00a		29.51	64.6	57,784
200.00a	4.30*	29.51	60.3	57,784
201.00a	12.03	29.45	77.8	57,716
201.00a	11.67	29.45	77.8	57,716
202.00a	11.67	29.39	95.5	57,629
202.00a	12.11	29.39	95.5	57,629
204.25a	12.09	29.26	134.3	57,371
205.00a	12.00	29.15	147.2	57,266
205.00a	11.54	29.15	147.2	57,266
212.00a		28.12	269.5	55,808
212.00a	3.15*	28.12	266.4	55,808
215.00a	10.43	27.68	318.3	54,932
215.00a	11.33	27.68	315.8	54,932
215.00a		27.68	315.8	54,932
215.00a	2.50*	27.68	315.8	54,932
215.24a	11.31	27.65	319.6	54,858

95-11-22 12:05:36
GHS 6.38D

Page 4

CPCX

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft	LT/Ft	LT/Ft	LT	LT-Ft
215.24a	11.31	27.65	319.7	54,856
216.00a		27.48	332.1	54,609
216.00a	4.10*	27.48	328.0	54,609
222.00a		26.13	421.6	52,358
222.00a	30.00*	26.13	391.6	52,358
225.00a		25.46	435.7	51,118
225.00a	3.20*	25.46	432.5	51,117
226.22a	10.99	25.18	450.0	50,579
228.90a	10.97	24.40	487.0	49,324
228.90a	11.25	24.40	487.0	49,324
229.44a	11.24	24.25	494.1	49,057
230.00a	11.24	24.08	501.3	48,781
230.00a	9.88	24.08	501.3	48,781
230.50a	9.87	23.94	508.4	48,529
230.50a	16.25	23.94	508.4	48,529
237.21a	16.17	21.99	553.7	44,963
241.00a		20.74	573.5	42,824
241.00a	36.50*	20.74	537.0	42,824
248.00a		18.42	561.8	38,971
248.00a	15.55*	18.42	546.2	38,971
248.19a	15.97	18.36	546.7	38,867
250.00a		17.71	550.6	37,875
250.00a	4.10*	17.71	546.5	37,874
259.17a	14.59	14.43	554.8	32,812
259.17a	14.59	14.43	554.8	32,810
264.32a	15.04	12.57	548.1	29,969
264.32a	14.22	12.57	548.1	29,969
266.00a	14.44	11.96	544.6	29,051
266.00a	8.06	11.96	544.6	29,051
266.32a	8.10	11.84	545.8	28,877
266.32a	12.76	11.84	545.8	28,877
270.00a	12.90	10.51	539.7	26,879
270.00a	13.36	10.51	534.7	26,879
270.00a		10.51	534.7	26,879
270.00a	5.00*	10.51	534.7	26,879
270.16a	13.36	10.46	534.3	26,793
275.00a		8.78	517.5	24,247
275.00a	9.60*	8.78	507.9	24,247
281.14a	12.13	6.64	478.6	21,216
281.14a	12.13	6.64	478.5	21,214
288.00a		4.55	440.1	18,066
288.00a	6.10*	4.55	434.0	18,066
292.13a	9.16	3.29	410.1	16,324
293.36a	8.89	3.01	402.8	15,823
294.50a	8.66	2.75	396.1	15,369
294.50a	9.46	2.75	396.1	15,369
297.00a	8.93	2.18	379.3	14,401
297.00a	8.01	2.18	379.3	14,401
300.00a		1.50	361.7	13,290

95-11-22 12:05:36
GHS 6.38D

CPCX

Page 5

LOCATION	WEIGHT	BUOYANCY	SHEAR	MOMENT
Ft-----	LT/Ft-----	LT/Ft-----	LT-----	LT-Ft-----
300.00a	5.00*	1.50	356.7	13,290
303.11a	6.72	0.79	338.4	12,210
311.26a	6.08	0.00	289.4	9,654
314.09a	5.86		272.5	8,859
323.00a	5.19		223.3	6,657
323.00a	5.04		223.3	6,657
323.30a	5.02		221.8	6,590
323.30a	3.56		221.8	6,590
324.00a	3.54		219.3	6,436
324.00a	3.36		219.3	6,436
325.08a	3.34		215.7	6,202
336.06a	3.11		180.3	4,033
347.05a	2.89		147.3	2,239
358.03a	2.68		116.7	795
360.00a			111.4	570
360.00a	56.80*		54.6	570
369.02a	2.49		31.5	186
378.00a			9.7	4
378.00a	5.05*		4.7	4
380.00a	2.32		-0.0	0
380.00a	0.00			

* Point weight in LONG TONS-----

S U M M A R Y

Largest Shear: 573.5 LT at 241.00a
 Largest Bending Moment: 57,893 LT-Ft at 195.00a (Hogging)