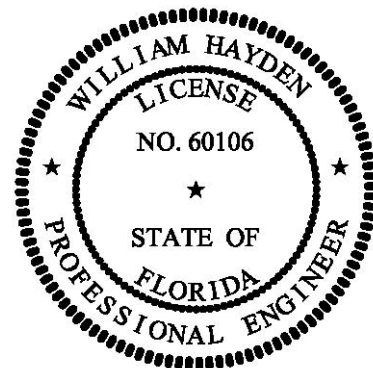


Vessel: Owner: Condition: 4 Passengers and Crew Date: D & L Job #:		NCDOT 71' Towboat Departure Condition Partially Protected Waters August 8, 2018 17-1372							Per Person Weight for Calculations: 275 pounds # of Crew: 4														
				Rev. P	By: MJC																		
Item	Weight	VCG	LCG	TCG	VM	LM	TM																
	(lt)	(ft, abl)	(-aft/+ fwd)	(+s/-p)																			
<u>Lightship from Weight Estimate:</u>	160.21	8.32	38.59	0.00	1,332.90	6,182.46	0.00																
4 Crew + Affects:	0.49	30.50	26.50	0.00	14.98	13.01	0																
Galley Stores:	1.00	14.00	21.00	0.00	0.00	0.00	0																
ER Spares and Outfit	1.50	6.00	35.00	0.00	14.00	21.00	0																
98% Ships FO Tanks P&S (2750 gal per)	17.64	6.00	22.71	0.00	0.00	0.00	0																
98% Cargo FO Tanks P&S (2050 gal per)	13.33	5.86	30.00	0.00	9.00	52.50	0																
100% FW Tanks P&S (2000 gal per)	17.62	6.00	13.50	0.00	0.00	0.00	0																
11% Fwd Ballast Tank (7150 gal)	3.01	4.67	7.90	0.00	105.84	400.60	0																
Total	214.80	7.80	34.13	0.00	78.10	399.84	0																
					105.72	237.87	0																
					14.08	23.81	0																
					1,674.61	7,331.10	0																
Trim & Draft Calculations																							
34.13	LCG from FP (ft, +a/-f)	<table border="1"> <tr> <th colspan="2">Stability</th> </tr> <tr> <td>KM(t), ft</td> <td>18.74</td> </tr> <tr> <td>KG, ft</td> <td>7.80</td> </tr> <tr> <td>GM</td> <td>10.94</td> </tr> <tr> <td>FSM, ft-t</td> <td>123.640</td> </tr> <tr> <td>FS Corr, ft</td> <td>0.580</td> </tr> <tr> <td>GM corr, ft</td> <td>10.36</td> </tr> </table>								Stability		KM(t), ft	18.74	KG, ft	7.80	GM	10.94	FSM, ft-t	123.640	FS Corr, ft	0.580	GM corr, ft	10.36
Stability																							
KM(t), ft	18.74																						
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FSM, ft-t	123.640																						
FS Corr, ft	0.580																						
GM corr, ft	10.36																						
34.12	LCB from FP (ft, +a/-f)																						
0.01	Trim Lever, ft	<table border="1"> <tr> <th colspan="2">VCG w/ FSC</th> </tr> <tr> <td></td> <td>8.38 ft</td> </tr> </table>								VCG w/ FSC			8.38 ft										
VCG w/ FSC																							
	8.38 ft																						
21.15	Moment to Trim 1"																						
0.01	Trim (ft, + stern trim/- bow trim)	<p>LCG Reference is FP @ frame 0</p>																					
38.43	LCF from FP (ft, +f/-a)																						
70.50	Length Between Perpendiculars, ft																						
0.00	Difference Btw LCF & Midships Draft																						
5.56	Draft at LCF, ft																						
5.56	Draft Amidships																						
5.55	Draft at Fr 0																						
5.56	Draft at Fr 30																						
5.554	Draft at Fwd Draft Mark @ fr 5:																						
5.558	Draft at Aft Draft Mark @ fr 43																						
(Ft-Lt)	Free Surface Moments	Calculation Data, Fresh Water:																					
2.80	Ships FO Tanks P & S (2750 gal per)																						
3.60	Cargo FO Tanks P&S (2050 gal per)																						
13.24	FW Tanks P&S (2000 gal per)																						
104.00	Fwd Ballast Tank (7150 gal)																						
		Draft	Displ (lt)	TPI	Lcb (ft)	Lcf (ft)	MT1"	KM(t), ft															
		5.25	199.20	4.25	33.79	38.22	20.53	19.42															
		5.56	214.80		34.12	38.43	21.15	18.74															
		5.50	212.05	4.29	34.07	38.39	21.04	18.86															
		diff	12.846		0.277	0.177	0.510	-0.560															
123.64	Total Free Surface Moment	slope			0.022	0.014	0.040	-0.044															

NCDOT 71' Towboat
Departure Condition
46 CFR 173.097 Towline Pull Criteria

N	2
P	600
D	3.67
S	1
h	15
K	38
Disp	214.80
f (freeboard)	5.44
B beam	30

GM Rq'd: **3.43 ft**
GM Actual: **10.36 ft**



Vessel: Owner: Condition: 4 Passengers and Crew Date: D & L Job #:		NCDOT 71' Towboat Arrival Condition Partially Protected Waters October 24, 2017 16-1356 Rev. P By: MJC																																																	
		Per Person Weight for Calculations: 275 pounds # of Crew: 4																																																	
Item	Weight (lt)	VCG (ft, abl)	LCG (-aft/+ fwd)	TCG (+s/-p)	VM	LM	TM																																												
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Galley Stores:	1.00	14.00	21.00	0.00	14.00	21.00	0																																												
ER Spares and Outfit	1.50	6.00	35.00	0.00	9.00	52.50	0																																												
10% Ships FO Tanks P & S (2750 gal per)	1.80	6.00	22.71	0.00	10.80	40.88	0																																												
10% Cargo FO Tanks P&S (2050 gal per)	1.36	5.86	30.00	0.00	7.97	40.80	0																																												
10% FW Tanks P&S (2000 gal per)	1.76	6.00	13.50	0.00	10.57	23.79	0																																												
99% Fwd Ballast Tank (7150 gal)	27.13	4.67	7.90	0.00	126.68	214.30	0																																												
Total	195.24	7.82	33.75	0.00	1,526.90	6,588.74	0																																												
Trim & Draft Calculations		<table border="1"> <tr><th colspan="2">Stability</th></tr> <tr><td>KM(t), ft</td><td>19.30</td></tr> <tr><td>KG, ft</td><td>7.82</td></tr> <tr><td>GM</td><td>11.48</td></tr> <tr><td>FSM, ft-t</td><td>123.640</td></tr> <tr><td>FS Corr, ft</td><td>0.630</td></tr> <tr><td>GM corr, ft</td><td>10.85</td></tr> </table>						Stability		KM(t), ft	19.30	KG, ft	7.82	GM	11.48	FSM, ft-t	123.640	FS Corr, ft	0.630	GM corr, ft	10.85																														
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KM(t), ft	19.30																																																		
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33.75	LCG from FP (ft, +a/-f)	<table border="1"> <tr><th colspan="2">Calculation Data, Fresh Water</th></tr> <tr> <th>Draft</th> <th>Displ (lt)</th> <th>TPI</th> <th>Lcb (ft)</th> <th>Lcf (ft)</th> <th>MT1"</th> <th>KM(t), ft</th> </tr> <tr> <td>5.00</td> <td>186.77</td> <td>4.01</td> <td>33.54</td> <td>36.57</td> <td>17.49</td> <td>19.05</td> </tr> <tr> <td>5.18</td> <td>195.24</td> <td></td> <td>33.71</td> <td>37.69</td> <td>19.56</td> <td>19.30</td> </tr> <tr> <td>5.25</td> <td>199.20</td> <td>4.25</td> <td>33.79</td> <td>38.22</td> <td>20.53</td> <td>19.42</td> </tr> <tr> <td>diff</td> <td>12.430</td> <td></td> <td>0.245</td> <td>1.649</td> <td>3.040</td> <td>0.373</td> </tr> <tr> <td>slope</td> <td></td> <td></td> <td>0.020</td> <td>0.133</td> <td>0.245</td> <td>0.030</td> </tr> </table>						Calculation Data, Fresh Water		Draft	Displ (lt)	TPI	Lcb (ft)	Lcf (ft)	MT1"	KM(t), ft	5.00	186.77	4.01	33.54	36.57	17.49	19.05	5.18	195.24		33.71	37.69	19.56	19.30	5.25	199.20	4.25	33.79	38.22	20.53	19.42	diff	12.430		0.245	1.649	3.040	0.373	slope			0.020	0.133	0.245	0.030
Calculation Data, Fresh Water																																																			
Draft	Displ (lt)							TPI	Lcb (ft)	Lcf (ft)	MT1"	KM(t), ft																																							
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37.69	LCF from FP (ft, +f/-a)																																																		
70.50	Length Between Perpendiculars, ft																																																		
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5.16	Draft at Fr 0																																																		
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5.164	Draft at Fwd Draft Mark @ fr 4:																																																		
5.188	Draft at Aft Draft Mark @ fr 33																																																		
(Ft-Lt)	Free Surface Moments																																																		
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NCDOT 71' Towboat
 Arrival Condition
 46 CFR 173.097 Towline Pull Criteria

N	2
P	600
D	3.67
S	1
h	15
K	38
Disp	195.24
f (freeboard)	5.82
B beam	30

GM Rq'd: **3.52 ft**
 GM Actual: **10.85 ft**

D&L#17-1372 70.5' NCDOT TUGBOAT EXPOSED WATERS STABILITY ANALYSIS

-DEPARTURE CONDITION-

PRELIMINARY

MJC

LCG reference is Frame 0

Hydrostatic Properties

Draft is from Baseline.

No Trim, No heel, VCG = 8.38

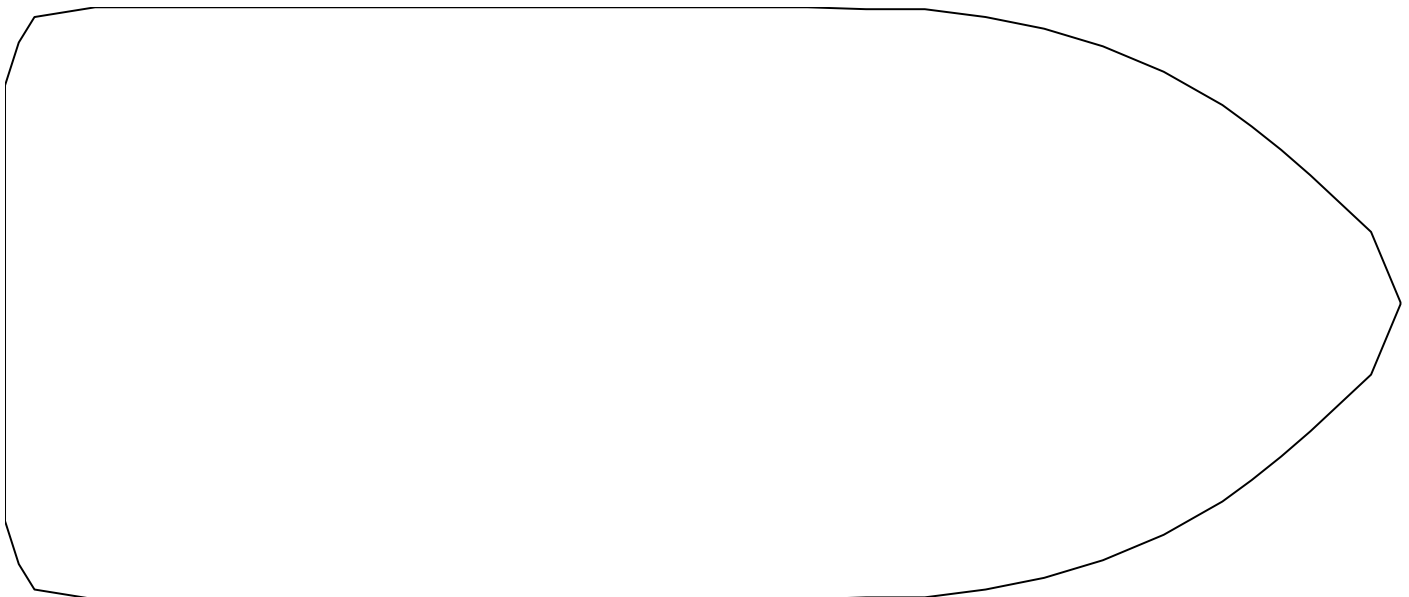
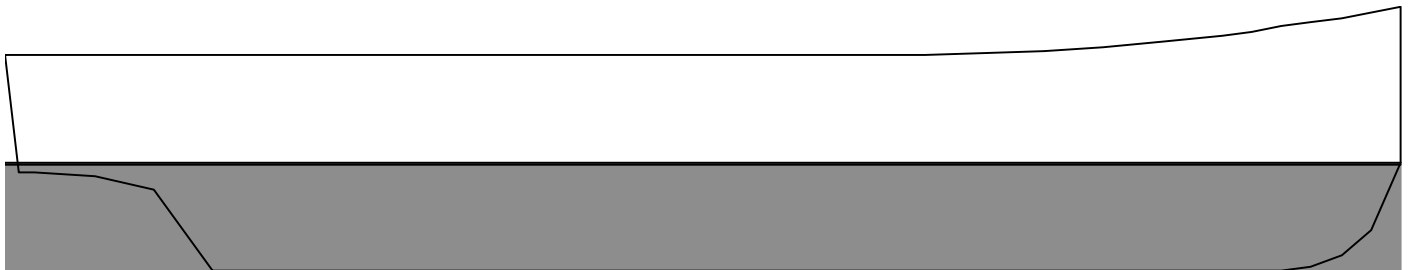
LCF Draft (ft)	Displ (LT)	LCB (ft)	VCB (ft)	LCF (ft)	TPI (LT/inch)	MTI (LT-ft /inch)	GML (ft)	GM(Solid) (ft)
5.552	214.799	34.130a	3.160	38.422a	4.29	18.87	74.331	10.318

Water Specific Gravity = 1.025.

Trim is per 70.50ft

Floating Status

Draft FP	5.552 ft	Heel	zero	GM(Solid)	10.318 ft
Draft MS	5.552 ft	Equil	No	F/S Corr.	0.000 ft
Draft AP	5.552 ft	Wind	0.0 kn	GM(Fluid)	10.318 ft
Trim	zero	Wave	No	KMT	18.698 ft
LCG	34.130a ft	VCG	8.380 ft	TPIIn	4.29



D&L#17-1372 70.5' NCDOT TUGBOAT EXPOSED WATERS STABILITY ANALYSIS

-DEPARTURE CONDITION-

PRELIMINARY

MJC

Intact Stability Criteria CFR 170.173 (c)

Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (ft)	Righting Arm (ft)	Area (ft-Deg)	Flood Pt Height (ft)
0.00	0.00	5.55	0.00	0.000	24.45 (1)
5.00s	0.07f	5.56	0.88	2.212	23.85 (1)
10.00s	0.26f	5.58	1.71	8.721	23.11 (1)
15.00s	0.56f	5.59	2.51	19.286	22.23 (1)
20.00s	0.99f	5.59	3.27	33.765	21.24 (1)
25.00s	1.53f	5.55	3.73	51.390	20.17 (1)
28.82s	1.94f	5.49	3.81	65.877	19.26 (1)
30.00s	2.06f	5.46	3.81	70.377	18.96 (1)
35.00s	2.55f	5.30	3.65	89.131	17.61 (1)
40.00s	3.01f	5.10	3.34	106.670	16.13 (1)
45.00s	3.43f	4.85	2.95	122.441	14.52 (1)
50.00s	3.80f	4.55	2.49	136.050	12.78 (1)
55.00s	4.12f	4.22	1.98	147.222	10.95 (1)
60.00s	4.41f	3.85	1.43	155.743	9.04 (1)

Unprotected Flood Point

Name	L,T,V (ft)	Height (ft)
(1) Engine Room Stacks	40.500a, 6.000s, 30.000	24.448

CFR 170.173 (C) CRITERIA EXPOSED WATERS

Limit	Min/Max	Actual	Margin	Pass
(1) GM at Equilibrium	>0.49 ft	10.32	9.83	Yes
(2) Area at MaxRA	>12.480 ft-D	65.877	53.397	Yes
(3) Absolute Angle at MaxRA	>15.00 deg	28.82	13.82	Yes
(4) Area from 0.00 deg to 40.00 or Flood	>16.900 ft-D	106.670	89.770	Yes
(5) Area from 30.00 deg to 40.00 or Flood	>5.600 ft-D	36.294	30.694	Yes

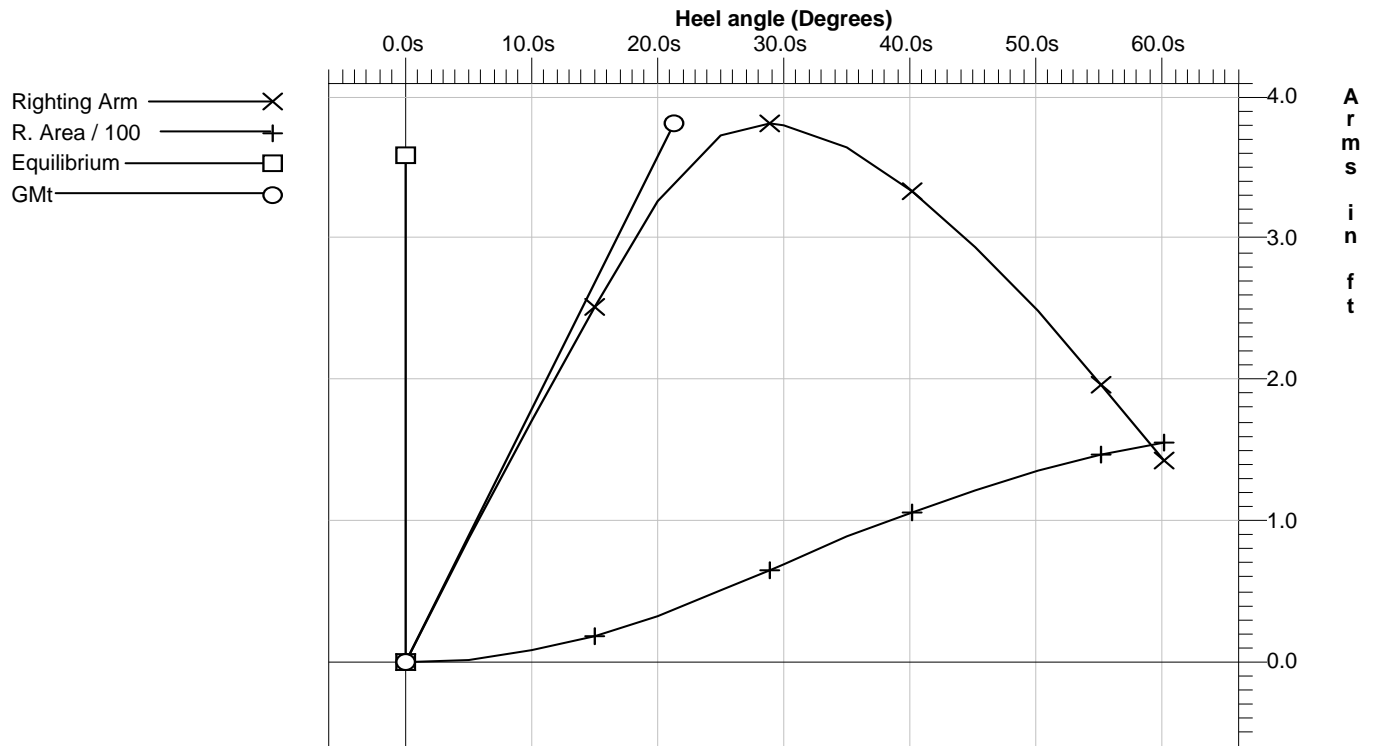
D&L#17-1372 70.5' NCDOT TUGBOAT EXPOSED WATERS STABILITY ANALYSIS

-DEPARTURE CONDITION-

PRELIMINARY

MJC

Righting Arms vs. Heel



D&L#17-1372 70.5' NCDOT TUGBOAT EXPOSED WATERS STABILITY ANALYSIS

-ARRIVAL CONDITION-

PRELIMINARY

MJC

LCG reference is Frame 0

Hydrostatic Properties

Draft is from Baseline.

Trim: 0.03/70.50, No heel, VCG = 8.45

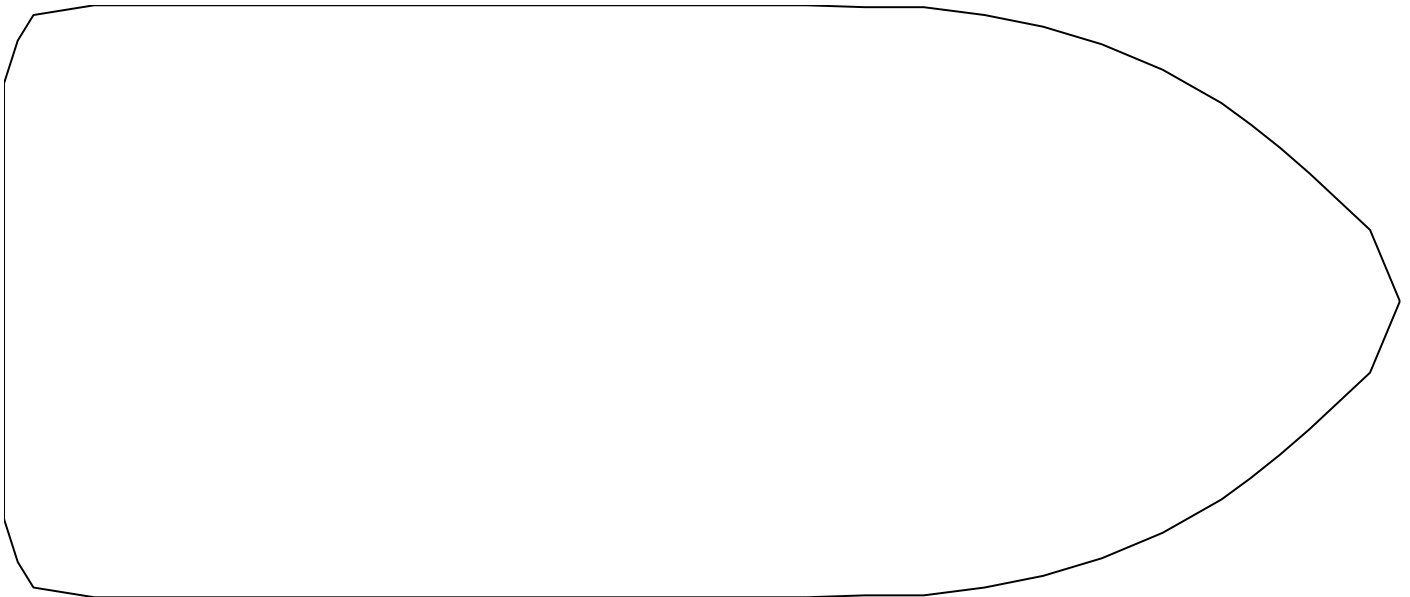
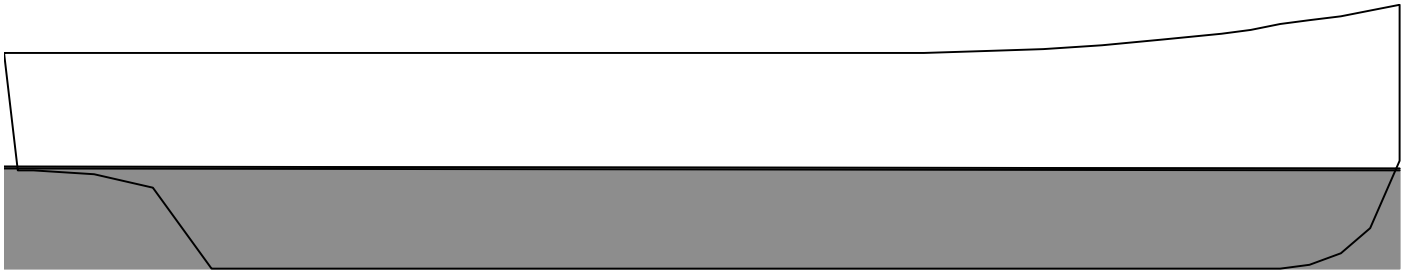
LCF Draft (ft)	Displ (LT)	LCB (ft)	VCB (ft)	LCF (ft)	TPI (LT/inch)	MTI (LT-ft /inch)	GML (ft)	GM(Solid) (ft)
5.171	195.240	33.753a	2.939	37.915a	4.21	17.99	77.971	10.861

Water Specific Gravity = 1.025.

Trim is per 70.50ft

Floating Status

Draft FP	5.118 ft	Heel	zero	GM(Solid)	10.861 ft
Draft MS	5.135 ft	Equil	No	F/S Corr.	0.000 ft
Draft AP	5.152 ft	Wind	0.0 kn	GM(Fluid)	10.861 ft
Trim	0.03/70.50	Wave	No	KMT	19.311 ft
LCG	33.750a ft	VCG	8.450 ft	TPIIn	4.21



D&L#17-1372 70.5' NCDOT TUGBOAT EXPOSED WATERS STABILITY ANALYSIS

-ARRIVAL CONDITION-

PRELIMINARY

MJC

Intact Stability Criteria CFR 170.173 (c)

Righting Arms vs Heel Angle

Heel Angle (deg)	Trim Angle (deg)	Origin Depth (ft)	Righting Arm (ft)	Area (ft-Deg)	Flood Pt Height (ft)
0.00	0.03a	5.15	0.00	0.000	24.83 (1)
5.00s	0.11f	5.20	0.95	2.375	24.25 (1)
10.00s	0.36f	5.24	1.84	9.378	23.52 (1)
15.00s	0.72f	5.28	2.70	20.756	22.65 (1)
20.00s	1.21f	5.31	3.45	36.190	21.68 (1)
25.00s	1.78f	5.25	3.90	54.680	20.66 (1)
29.23s	2.30f	5.15	4.00	71.484	19.71 (1)
30.00s	2.40f	5.13	4.00	74.549	19.53 (1)
35.00s	2.97f	4.96	3.85	94.279	18.25 (1)
40.00s	3.48f	4.73	3.55	112.839	16.82 (1)
45.00s	3.95f	4.45	3.15	129.619	15.27 (1)
50.00s	4.39f	4.15	2.67	144.192	13.60 (1)
55.00s	4.80f	3.81	2.13	156.223	11.83 (1)
60.00s	5.20f	3.46	1.55	165.457	9.98 (1)

Unprotected Flood Point

Name	L,T,V (ft)	Height (ft)
(1) Engine Room Stacks	40.500a, 6.000s, 30.000	24.828

CFR 170.173 (C) CRITERIA EXPOSED WATERS

Limit	Min/Max	Actual	Margin	Pass
(1) GM at Equilibrium	>0.49 ft	10.86	10.37	Yes
(2) Area at MaxRA	>12.480 ft-D	71.484	59.004	Yes
(3) Absolute Angle at MaxRA	>15.00 deg	29.23	14.23	Yes
(4) Area from 0.00 deg to 40.00 or Flood	>16.900 ft-D	112.839	95.939	Yes
(5) Area from 30.00 deg to 40.00 or Flood	>5.600 ft-D	38.290	32.690	Yes

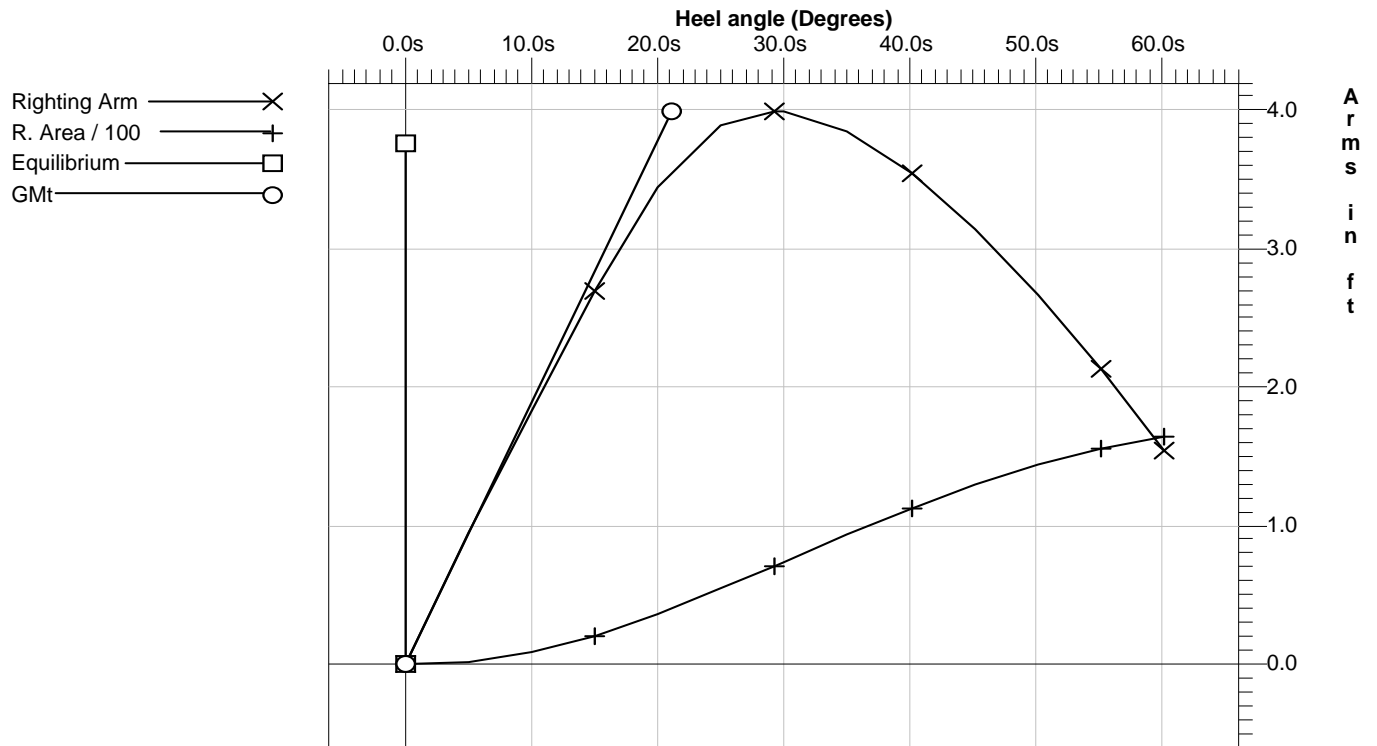
D&L#17-1372 70.5' NCDOT TUGBOAT EXPOSED WATERS STABILITY ANALYSIS

-ARRIVAL CONDITION-

PRELIMINARY

MJC

Righting Arms vs. Heel



D&L#17-1372 70.5' NCDOT TUGBOAT SALTWATER HYDROSTATICS

Hydrostatic Properties

Draft is from Baseline.

No Trim, No heel, VCG = 0.00

LCF Draft (ft)	Displ (LT)	LCB (ft)	VCB (ft)	LCF (ft)	TPI (LT/inch)	MTI (LT-ft /inch)	KML (ft)	KMT (ft)
1.000	20.775	30.897a	0.630	31.294a	2.73	5.78	235.472	92.533
1.250	29.195	31.054a	0.774	31.585a	2.88	6.69	193.725	70.929
1.500	38.017	31.194a	0.913	31.853a	3.00	7.48	166.561	57.145
1.750	47.215	31.372a	1.053	32.377a	3.13	8.45	151.401	48.690
2.000	56.756	31.556a	1.191	32.451a	3.20	8.99	133.977	42.326
2.250	66.436	31.693a	1.327	32.729a	3.28	9.64	122.795	36.982
2.500	76.453	31.873a	1.466	33.361a	3.40	10.68	118.152	33.910
2.750	86.757	32.070a	1.604	33.507a	3.45	11.12	108.417	30.981
3.000	97.125	32.222a	1.740	33.438a	3.46	11.29	98.332	28.098
3.250	107.615	32.361a	1.876	33.945a	3.55	12.17	95.705	26.086
3.500	118.428	32.537a	2.015	35.159a	3.74	14.05	100.394	25.937
3.750	129.465	32.720a	2.154	35.284a	3.77	14.42	94.258	24.417
4.000	140.568	32.880a	2.291	35.330a	3.79	14.70	88.459	22.948
4.250	151.720	33.017a	2.427	34.834a	3.74	14.20	79.183	20.899
4.500	163.113	33.170a	2.563	35.820a	3.89	15.89	82.401	20.651
4.750	174.893	33.364a	2.703	36.510a	4.00	17.19	83.143	20.382
5.000	186.838	33.555a	2.842	36.566a	4.01	17.50	79.219	19.039
5.250	199.268	33.800a	2.985	38.214a	4.25	20.53	87.174	19.412
5.500	212.115	34.076a	3.130	38.392a	4.29	21.04	83.917	18.853
5.750	224.983	34.325a	3.273	38.417a	4.29	21.12	79.424	18.151
6.000	237.875	34.546a	3.414	38.411a	4.30	21.28	75.683	17.538
6.250	250.790	34.745a	3.554	38.406a	4.31	21.44	72.338	17.001
6.500	263.729	34.925a	3.692	38.402a	4.32	21.61	69.333	16.527
6.750	276.693	35.088a	3.830	38.399a	4.33	21.79	66.621	16.110
7.000	289.681	35.236a	3.966	38.397a	4.33	21.97	64.164	15.741
7.250	302.695	35.372a	4.102	38.396a	4.34	22.16	61.929	15.413
7.500	315.733	35.497a	4.238	38.396a	4.35	22.35	59.890	15.123
7.750	328.798	35.612a	4.372	38.398a	4.36	22.55	58.025	14.866
8.000	341.889	35.719a	4.507	38.400a	4.37	22.76	56.313	14.639

Water Specific Gravity = 1.025.

Trim is per 70.50ft

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

Tank Soundings for BALLAST-FWD containing SEA WATER (1.025)

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	0.00	0.00	0.000	0.000	0.000	0.00	8.00
0.08	0.67	0.02	9.896a	0.000	0.075	0.08	7.92
0.17	1.28	0.04	9.765a	0.000	0.113	0.18	7.83
0.25	2.29	0.07	9.649a	0.000	0.161	0.39	7.75
0.33	4.07	0.12	9.535a	0.000	0.225	0.85	7.67
0.42	5.83	0.17	9.467a	0.000	0.275	1.40	7.58
0.50	8.02	0.23	9.415a	0.000	0.327	2.19	7.50
0.58	10.64	0.30	9.369a	0.000	0.382	3.27	7.42
0.67	13.69	0.39	9.326a	0.000	0.437	4.68	7.33
0.75	17.18	0.49	9.286a	0.000	0.492	6.47	7.25
0.83	21.37	0.61	9.248a	0.000	0.552	8.84	7.17
0.92	25.58	0.73	9.221a	0.000	0.607	11.44	7.08
1.00	30.23	0.86	9.195a	0.000	0.661	14.56	7.00
1.08	35.33	1.01	9.171a	0.000	0.717	18.22	6.92
1.17	40.85	1.17	9.148a	0.000	0.772	22.47	6.83
1.25	46.81	1.34	9.127a	0.000	0.828	27.35	6.75
1.33	53.20	1.52	9.106a	0.000	0.884	32.89	6.67
1.42	60.37	1.72	9.085a	0.000	0.943	38.28	6.58
1.50	67.43	1.93	9.065a	0.000	0.998	43.43	6.50
1.58	74.92	2.14	9.044a	0.000	1.053	48.50	6.42
1.67	82.76	2.36	9.022a	0.000	1.107	52.21	6.33
1.75	90.88	2.60	9.001a	0.000	1.161	56.26	6.25
1.83	99.30	2.84	8.978a	0.000	1.215	59.19	6.17
1.92	107.97	3.08	8.954a	0.000	1.269	61.96	6.08
2.00	116.88	3.34	8.930a	0.000	1.321	64.51	6.00
2.08	126.00	3.60	8.904a	0.000	1.374	66.28	5.92
2.17	135.30	3.86	8.878a	0.000	1.426	68.17	5.83
2.25	144.78	4.14	8.852a	0.000	1.477	70.19	5.75
2.33	154.44	4.41	8.826a	0.000	1.528	71.44	5.67
2.42	164.24	4.69	8.800a	0.000	1.579	72.70	5.58
2.50	174.56	4.99	8.773a	0.000	1.631	74.08	5.50
2.58	184.57	5.27	8.747a	0.000	1.681	75.32	5.42
2.67	194.72	5.56	8.722a	0.000	1.731	76.16	5.33
2.75	204.99	5.86	8.696a	0.000	1.780	77.04	5.25
2.83	215.38	6.15	8.672a	0.000	1.829	77.96	5.17
2.92	225.90	6.45	8.647a	0.000	1.878	78.84	5.08
3.00	236.53	6.76	8.623a	0.000	1.927	79.46	5.00
3.08	247.25	7.06	8.599a	0.000	1.976	80.09	4.92
3.17	258.07	7.37	8.576a	0.000	2.024	80.74	4.83
3.25	268.94	7.68	8.554a	0.000	2.072	81.40	4.75
3.33	279.88	8.00	8.533a	0.000	2.120	81.97	4.67
3.42	290.89	8.31	8.512a	0.000	2.168	82.45	4.58
3.50	301.97	8.63	8.492a	0.000	2.216	82.94	4.50
3.58	313.11	8.94	8.473a	0.000	2.263	83.44	4.42
3.67	324.59	9.27	8.453a	0.000	2.312	83.96	4.33
3.75	335.75	9.59	8.435a	0.000	2.358	84.47	4.25
3.83	347.01	9.91	8.417a	0.000	2.405	84.94	4.17
3.92	358.39	10.24	8.399a	0.000	2.452	85.36	4.08

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.00	369.80	10.56	8.381a	0.000	2.499	85.78	4.00
4.08	381.27	10.89	8.364a	0.000	2.545	86.20	3.92
4.17	392.94	11.22	8.347a	0.000	2.593	86.64	3.83
4.25	404.64	11.56	8.331a	0.000	2.640	87.08	3.75
4.33	416.43	11.90	8.315a	0.000	2.687	87.52	3.67
4.42	427.88	12.22	8.299a	0.000	2.732	87.96	3.58
4.50	439.66	12.56	8.284a	0.000	2.778	88.35	3.50
4.58	451.48	12.90	8.269a	0.000	2.825	88.75	3.42
4.67	463.34	13.24	8.254a	0.000	2.871	89.15	3.33
4.75	475.25	13.58	8.239a	0.000	2.917	89.53	3.25
4.83	487.20	13.92	8.225a	0.000	2.964	89.91	3.17
4.92	499.18	14.26	8.211a	0.000	3.010	90.29	3.08
5.00	511.19	14.60	8.198a	0.000	3.056	90.67	3.00
5.08	523.25	14.95	8.185a	0.000	3.102	91.05	2.92
5.17	535.34	15.29	8.172a	0.000	3.148	91.42	2.83
5.25	547.45	15.64	8.160a	0.000	3.193	91.80	2.75
5.33	559.60	15.99	8.148a	0.000	3.239	92.17	2.67
5.42	571.77	16.33	8.136a	0.000	3.285	92.55	2.58
5.50	584.00	16.68	8.124a	0.000	3.331	92.93	2.50
5.58	596.16	17.03	8.114a	0.000	3.376	93.30	2.42
5.67	608.34	17.38	8.104a	0.000	3.421	93.68	2.33
5.75	620.53	17.73	8.095a	0.000	3.466	94.07	2.25
5.83	632.75	18.08	8.086a	0.000	3.511	94.45	2.17
5.92	644.99	18.42	8.077a	0.000	3.556	94.83	2.08
6.00	657.25	18.77	8.068a	0.000	3.601	95.22	2.00
6.08	669.53	19.13	8.060a	0.000	3.646	95.60	1.92
6.17	681.84	19.48	8.052a	0.000	3.691	95.99	1.83
6.25	694.16	19.83	8.044a	0.000	3.736	96.38	1.75
6.33	706.50	20.18	8.037a	0.000	3.781	96.77	1.67
6.42	718.86	20.53	8.029a	0.000	3.826	97.16	1.58
6.50	731.24	20.89	8.022a	0.000	3.870	97.55	1.50
6.58	743.65	21.24	8.015a	0.000	3.915	97.94	1.42
6.67	756.07	21.60	8.008a	0.000	3.960	98.34	1.33
6.75	768.51	21.95	8.001a	0.000	4.004	98.73	1.25
6.83	780.98	22.31	7.995a	0.000	4.049	99.13	1.17
6.92	793.46	22.67	7.989a	0.000	4.094	99.53	1.08
7.00	805.97	23.02	7.982a	0.000	4.138	99.93	1.00
7.08	818.49	23.38	7.976a	0.000	4.183	100.32	0.92
7.17	831.04	23.74	7.971a	0.000	4.227	100.73	0.83
7.25	843.60	24.10	7.965a	0.000	4.272	101.13	0.75
7.33	856.19	24.46	7.959a	0.000	4.316	101.53	0.67
7.42	868.79	24.82	7.954a	0.000	4.361	101.94	0.58
7.50	881.42	25.18	7.948a	0.000	4.405	102.34	0.50
7.58	894.07	25.54	7.943a	0.000	4.450	102.75	0.42
7.67	906.73	25.90	7.938a	0.000	4.494	103.16	0.33
7.75	919.42	26.26	7.933a	0.000	4.539	103.56	0.25
7.83	932.52	26.64	7.928a	0.000	4.584	103.99	0.17
7.92	945.30	27.00	7.923a	0.000	4.629	104.40	0.08
FULL	958.00	27.37	7.918a	0.000	4.673	0.00	0.00

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

Tank Soundings for FW TANK.P containing FRESH WATER (1.000)

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	0.00	0.00	0.000	0.000	0.000	0.00	11.72
0.08	0.32	0.01	13.586a	0.629p	0.051	0.03	11.63
0.17	0.85	0.02	13.592a	0.886p	0.108	0.10	11.55
0.25	1.42	0.04	13.595a	1.094p	0.154	0.21	11.47
0.33	2.19	0.06	13.597a	1.323p	0.205	0.39	11.38
0.42	3.16	0.09	13.599a	1.563p	0.258	0.66	11.30
0.50	4.39	0.12	13.601a	1.824p	0.315	1.07	11.22
0.58	5.68	0.16	13.602a	2.062p	0.368	1.56	11.13
0.67	7.17	0.20	13.602a	2.306p	0.422	2.20	11.05
0.75	8.86	0.25	13.603a	2.554p	0.477	3.02	10.97
0.83	10.82	0.30	13.604a	2.815p	0.534	3.99	10.88
0.92	12.77	0.36	13.602a	3.043p	0.587	4.76	10.80
1.00	14.89	0.42	13.598a	3.262p	0.640	5.47	10.72
1.08	17.21	0.48	13.592a	3.462p	0.695	5.96	10.63
1.17	19.47	0.54	13.584a	3.628p	0.745	6.32	10.55
1.25	21.79	0.61	13.577a	3.769p	0.794	6.49	10.47
1.33	24.15	0.67	13.570a	3.889p	0.843	6.62	10.38
1.42	26.53	0.74	13.563a	3.990p	0.891	6.62	10.30
1.50	28.90	0.81	13.558a	4.073p	0.938	6.62	10.22
1.58	31.28	0.87	13.554a	4.144p	0.983	6.62	10.13
1.67	33.65	0.94	13.550a	4.205p	1.029	6.62	10.05
1.75	36.03	1.00	13.547a	4.257p	1.074	6.62	9.97
1.83	38.40	1.07	13.544a	4.303p	1.118	6.62	9.88
1.92	40.78	1.14	13.541a	4.344p	1.162	6.62	9.80
2.00	43.15	1.20	13.539a	4.380p	1.206	6.62	9.72
2.08	45.53	1.27	13.537a	4.413p	1.250	6.62	9.63
2.17	47.90	1.34	13.535a	4.442p	1.293	6.62	9.55
2.25	50.28	1.40	13.533a	4.468p	1.336	6.62	9.47
2.33	52.65	1.47	13.532a	4.492p	1.379	6.62	9.38
2.42	55.03	1.53	13.531a	4.514p	1.422	6.62	9.30
2.50	57.40	1.60	13.529a	4.535p	1.465	6.62	9.22
2.58	59.78	1.67	13.528a	4.553p	1.508	6.62	9.13
2.67	62.15	1.73	13.527a	4.570p	1.551	6.62	9.05
2.75	64.53	1.80	13.526a	4.586p	1.593	6.62	8.97
2.83	66.90	1.86	13.525a	4.601p	1.636	6.62	8.88
2.92	69.28	1.93	13.524a	4.615p	1.678	6.62	8.80
3.00	71.65	2.00	13.523a	4.627p	1.721	6.62	8.72
3.08	74.03	2.06	13.523a	4.639p	1.763	6.62	8.63
3.17	76.40	2.13	13.522a	4.651p	1.805	6.62	8.55
3.25	78.78	2.20	13.521a	4.661p	1.848	6.62	8.47
3.33	81.15	2.26	13.521a	4.671p	1.890	6.62	8.38
3.42	83.53	2.33	13.520a	4.680p	1.932	6.62	8.30
3.50	85.90	2.39	13.520a	4.689p	1.974	6.62	8.22
3.58	88.28	2.46	13.519a	4.698p	2.017	6.62	8.13
3.67	90.65	2.53	13.519a	4.706p	2.059	6.62	8.05
3.75	93.03	2.59	13.518a	4.713p	2.101	6.62	7.97
3.83	95.40	2.66	13.518a	4.720p	2.143	6.62	7.88
3.92	97.78	2.73	13.517a	4.727p	2.185	6.62	7.80
4.00	100.15	2.79	13.517a	4.733p	2.227	6.62	7.72
4.08	102.53	2.86	13.516a	4.740p	2.269	6.62	7.63

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.17	104.90	2.92	13.516a	4.746p	2.311	6.62	7.55
4.25	107.28	2.99	13.516a	4.751p	2.353	6.62	7.47
4.33	109.65	3.06	13.515a	4.757p	2.395	6.62	7.38
4.42	112.03	3.12	13.515a	4.762p	2.437	6.62	7.30
4.50	114.40	3.19	13.515a	4.767p	2.479	6.62	7.22
4.58	116.78	3.25	13.514a	4.771p	2.521	6.62	7.13
4.67	119.15	3.32	13.514a	4.776p	2.563	6.62	7.05
4.75	121.53	3.39	13.514a	4.780p	2.605	6.62	6.97
4.83	123.90	3.45	13.514a	4.785p	2.647	6.62	6.88
4.92	126.28	3.52	13.513a	4.789p	2.689	6.62	6.80
5.00	128.65	3.59	13.513a	4.793p	2.731	6.62	6.72
5.08	131.03	3.65	13.513a	4.796p	2.772	6.62	6.63
5.17	133.40	3.72	13.513a	4.800p	2.814	6.62	6.55
5.25	135.78	3.78	13.512a	4.803p	2.856	6.62	6.47
5.33	138.15	3.85	13.512a	4.807p	2.898	6.62	6.38
5.42	140.53	3.92	13.512a	4.810p	2.940	6.62	6.30
5.50	142.90	3.98	13.512a	4.813p	2.982	6.62	6.22
5.58	145.28	4.05	13.512a	4.816p	3.024	6.62	6.13
5.67	147.65	4.11	13.511a	4.819p	3.065	6.62	6.05
5.75	150.07	4.18	13.511a	4.822p	3.108	6.62	5.97
5.83	152.53	4.25	13.511a	4.825p	3.151	6.62	5.88
5.92	154.76	4.31	13.511a	4.828p	3.191	6.62	5.80
6.00	157.15	4.38	13.511a	4.830p	3.233	6.62	5.72
6.08	159.53	4.45	13.511a	4.833p	3.275	6.62	5.63
6.17	161.90	4.51	13.510a	4.835p	3.316	6.62	5.55
6.25	164.28	4.58	13.510a	4.838p	3.358	6.62	5.47
6.33	166.65	4.64	13.510a	4.840p	3.400	6.62	5.38
6.42	169.03	4.71	13.510a	4.842p	3.442	6.62	5.30
6.50	171.40	4.78	13.510a	4.844p	3.484	6.62	5.22
6.58	173.78	4.84	13.510a	4.846p	3.525	6.62	5.13
6.67	176.15	4.91	13.510a	4.849p	3.567	6.62	5.05
6.75	178.53	4.98	13.509a	4.851p	3.609	6.62	4.97
6.83	180.90	5.04	13.509a	4.853p	3.651	6.62	4.88
6.92	183.28	5.11	13.509a	4.854p	3.693	6.62	4.80
7.00	185.65	5.17	13.509a	4.856p	3.734	6.62	4.72
7.08	188.03	5.24	13.509a	4.858p	3.776	6.62	4.63
7.17	190.40	5.31	13.509a	4.860p	3.818	6.62	4.55
7.25	192.78	5.37	13.509a	4.862p	3.860	6.62	4.47
7.33	195.15	5.44	13.509a	4.863p	3.901	6.62	4.38
7.42	197.53	5.50	13.509a	4.865p	3.943	6.62	4.30
7.50	199.90	5.57	13.508a	4.867p	3.985	6.62	4.22
7.58	202.28	5.64	13.508a	4.868p	4.027	6.62	4.13
7.67	204.65	5.70	13.508a	4.870p	4.068	6.62	4.05
7.75	207.03	5.77	13.508a	4.871p	4.110	6.62	3.97
7.83	209.40	5.84	13.508a	4.873p	4.152	6.62	3.88
7.92	211.78	5.90	13.508a	4.874p	4.194	6.62	3.80
8.00	214.15	5.97	13.508a	4.875p	4.235	6.62	3.72
8.08	216.53	6.03	13.508a	4.877p	4.277	6.62	3.63
8.17	218.90	6.10	13.508a	4.878p	4.319	6.62	3.55
8.25	221.28	6.17	13.508a	4.879p	4.361	6.62	3.47
8.33	223.65	6.23	13.508a	4.881p	4.402	6.62	3.38
8.42	226.03	6.30	13.507a	4.882p	4.444	6.62	3.30
8.50	228.40	6.37	13.507a	4.883p	4.486	6.62	3.22
8.58	230.78	6.43	13.507a	4.884p	4.528	6.62	3.13
8.67	233.15	6.50	13.507a	4.886p	4.569	6.62	3.05

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

8.75	235.53	6.56	13.507a	4.887p	4.611	6.62	2.97
8.83	237.90	6.63	13.507a	4.888p	4.653	6.62	2.88
8.92	240.28	6.70	13.507a	4.889p	4.695	6.62	2.80
9.00	242.65	6.76	13.507a	4.890p	4.736	6.62	2.72
9.08	245.03	6.83	13.507a	4.891p	4.778	6.62	2.63
9.17	247.40	6.89	13.507a	4.892p	4.820	6.62	2.55
9.25	249.78	6.96	13.507a	4.893p	4.862	6.62	2.47
9.33	252.15	7.03	13.507a	4.894p	4.903	6.62	2.38
9.42	254.53	7.09	13.507a	4.895p	4.945	6.62	2.30
9.50	256.90	7.16	13.507a	4.896p	4.987	6.62	2.22
9.58	259.28	7.23	13.506a	4.897p	5.028	6.62	2.13
9.67	261.65	7.29	13.506a	4.898p	5.070	6.62	2.05
9.75	264.03	7.36	13.506a	4.899p	5.112	6.62	1.97
9.83	266.40	7.42	13.506a	4.900p	5.154	6.62	1.88
9.92	268.78	7.49	13.506a	4.901p	5.195	6.62	1.80
10.00	271.15	7.56	13.506a	4.902p	5.237	6.62	1.72
10.08	273.53	7.62	13.506a	4.902p	5.279	6.62	1.63
10.17	275.90	7.69	13.506a	4.903p	5.320	6.62	1.55
10.25	278.28	7.76	13.506a	4.904p	5.362	6.62	1.47
10.33	280.65	7.82	13.506a	4.905p	5.404	6.62	1.38
10.42	283.03	7.89	13.506a	4.906p	5.446	6.62	1.30
10.50	285.40	7.95	13.506a	4.907p	5.487	6.62	1.22
10.58	287.78	8.02	13.506a	4.907p	5.529	6.62	1.13
10.67	290.15	8.09	13.506a	4.908p	5.571	6.62	1.05
10.75	292.53	8.15	13.506a	4.909p	5.612	6.62	0.97
10.83	294.90	8.22	13.506a	4.910p	5.654	6.62	0.88
10.92	297.28	8.28	13.506a	4.910p	5.696	6.62	0.80
11.00	299.65	8.35	13.506a	4.911p	5.738	6.62	0.72
11.08	302.03	8.42	13.506a	4.912p	5.779	6.62	0.63
11.17	304.40	8.48	13.506a	4.912p	5.821	6.62	0.55
11.25	306.78	8.55	13.505a	4.913p	5.863	6.62	0.47
11.33	309.15	8.62	13.505a	4.914p	5.904	6.62	0.38
11.42	311.53	8.68	13.505a	4.914p	5.946	6.62	0.30
11.50	313.70	8.74	13.505a	4.915p	5.984	5.23	0.22
11.58	315.17	8.78	13.502a	4.915p	6.010	3.31	0.13
FULL	316.06	8.81	13.500a	4.916p	6.026	0.00	-0.03

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

Tank Soundings for SHIPS FUEL.P containing DIESEL OIL (0.870)

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	1.31	0.03	23.907a	10.933p	0.535	0.40	10.92
0.08	3.40	0.08	23.510a	11.381p	0.591	0.86	10.84
0.17	5.93	0.14	23.233a	11.575p	0.640	0.90	10.75
0.25	8.55	0.21	23.087a	11.662p	0.686	0.91	10.67
0.33	11.17	0.27	23.009a	11.709p	0.729	0.92	10.59
0.42	13.80	0.33	22.960a	11.738p	0.772	0.92	10.50
0.50	16.44	0.40	22.926a	11.759p	0.815	0.93	10.42
0.58	19.08	0.46	22.902a	11.775p	0.857	0.93	10.34
0.67	21.73	0.53	22.883a	11.787p	0.900	0.94	10.25
0.75	24.38	0.59	22.869a	11.797p	0.942	0.94	10.17
0.83	27.03	0.66	22.857a	11.806p	0.984	0.95	10.09
0.92	29.69	0.72	22.847a	11.813p	1.026	0.95	10.00
1.00	32.36	0.78	22.839a	11.819p	1.069	0.96	9.92
1.08	35.18	0.85	22.831a	11.825p	1.113	0.97	9.84
1.17	37.85	0.92	22.825a	11.830p	1.155	0.97	9.75
1.25	40.52	0.98	22.820a	11.835p	1.197	0.98	9.67
1.33	43.20	1.05	22.815a	11.839p	1.239	0.98	9.59
1.42	45.89	1.11	22.811a	11.843p	1.281	0.99	9.50
1.50	48.58	1.18	22.807a	11.847p	1.324	0.99	9.42
1.58	51.28	1.24	22.803a	11.851p	1.366	1.00	9.34
1.67	53.98	1.31	22.800a	11.854p	1.408	1.00	9.25
1.75	56.69	1.37	22.797a	11.858p	1.450	1.01	9.17
1.83	59.40	1.44	22.794a	11.861p	1.492	1.02	9.09
1.92	62.12	1.51	22.792a	11.864p	1.535	1.02	9.00
2.00	64.85	1.57	22.789a	11.867p	1.577	1.03	8.92
2.08	67.58	1.64	22.787a	11.870p	1.619	1.03	8.84
2.17	70.32	1.70	22.785a	11.872p	1.662	1.04	8.75
2.25	73.06	1.77	22.783a	11.875p	1.704	1.04	8.67
2.33	75.81	1.84	22.781a	11.878p	1.746	1.05	8.59
2.42	78.56	1.90	22.780a	11.880p	1.789	1.05	8.50
2.50	81.32	1.97	22.778a	11.883p	1.831	1.06	8.42
2.58	84.09	2.04	22.776a	11.885p	1.874	1.07	8.34
2.67	86.86	2.11	22.775a	11.888p	1.916	1.07	8.25
2.75	89.63	2.17	22.773a	11.890p	1.959	1.08	8.17
2.83	92.41	2.24	22.772a	11.893p	2.001	1.08	8.09
2.92	95.20	2.31	22.771a	11.895p	2.044	1.09	8.00
3.00	97.99	2.38	22.769a	11.898p	2.086	1.10	7.92
3.08	100.79	2.44	22.768a	11.900p	2.129	1.10	7.84
3.17	103.59	2.51	22.767a	11.902p	2.172	1.11	7.75
3.25	106.40	2.58	22.766a	11.904p	2.214	1.11	7.67
3.33	109.22	2.65	22.765a	11.907p	2.257	1.12	7.59
3.42	112.04	2.72	22.764a	11.909p	2.300	1.13	7.50
3.50	114.86	2.78	22.763a	11.911p	2.343	1.13	7.42
3.58	117.69	2.85	22.762a	11.913p	2.385	1.14	7.34
3.67	120.53	2.92	22.761a	11.916p	2.428	1.14	7.25
3.75	123.37	2.99	22.760a	11.918p	2.471	1.15	7.17
3.83	126.22	3.06	22.759a	11.920p	2.514	1.16	7.09
3.92	129.07	3.13	22.758a	11.922p	2.557	1.16	7.00
4.00	131.93	3.20	22.757a	11.924p	2.600	1.17	6.92
4.08	134.79	3.27	22.756a	11.926p	2.643	1.17	6.84

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.17	137.66	3.34	22.755a	11.929p	2.686	1.18	6.75
4.25	140.54	3.41	22.754a	11.931p	2.729	1.19	6.67
4.33	143.42	3.48	22.754a	11.933p	2.772	1.19	6.59
4.42	146.30	3.55	22.753a	11.935p	2.815	1.20	6.50
4.50	149.34	3.62	22.752a	11.937p	2.860	1.21	6.42
4.58	152.20	3.69	22.751a	11.939p	2.903	1.21	6.34
4.67	155.08	3.76	22.750a	11.941p	2.946	1.22	6.25
4.75	157.96	3.83	22.750a	11.943p	2.988	1.23	6.17
4.83	160.86	3.90	22.749a	11.945p	3.031	1.23	6.09
4.92	163.76	3.97	22.748a	11.948p	3.074	1.24	6.00
5.00	166.67	4.04	22.747a	11.950p	3.117	1.24	5.92
5.08	169.59	4.11	22.747a	11.952p	3.160	1.25	5.84
5.17	172.55	4.18	22.746a	11.954p	3.204	1.26	5.75
5.25	175.47	4.25	22.745a	11.956p	3.247	1.26	5.67
5.33	178.36	4.32	22.745a	11.958p	3.290	1.27	5.59
5.42	181.35	4.40	22.744a	11.960p	3.334	1.28	5.50
5.50	184.32	4.47	22.743a	11.962p	3.377	1.28	5.42
5.58	187.29	4.54	22.743a	11.964p	3.421	1.29	5.34
5.67	190.27	4.61	22.742a	11.966p	3.464	1.30	5.25
5.75	193.26	4.69	22.741a	11.968p	3.508	1.30	5.17
5.83	196.26	4.76	22.741a	11.970p	3.552	1.31	5.09
5.92	199.27	4.83	22.740a	11.972p	3.596	1.32	5.00
6.00	202.29	4.90	22.740a	11.974p	3.640	1.32	4.92
6.08	205.13	4.97	22.739a	11.976p	3.681	1.33	4.84
6.17	208.13	5.05	22.738a	11.978p	3.725	1.34	4.75
6.25	211.13	5.12	22.738a	11.980p	3.768	1.34	4.67
6.33	214.14	5.19	22.737a	11.982p	3.812	1.35	4.59
6.42	217.15	5.27	22.737a	11.984p	3.855	1.36	4.50
6.50	220.17	5.34	22.736a	11.986p	3.899	1.36	4.42
6.58	223.20	5.41	22.736a	11.988p	3.943	1.37	4.34
6.67	226.22	5.49	22.735a	11.990p	3.986	1.38	4.25
6.75	229.26	5.56	22.734a	11.992p	4.030	1.39	4.17
6.83	232.30	5.63	22.734a	11.994p	4.074	1.39	4.09
6.92	235.34	5.71	22.733a	11.996p	4.118	1.40	4.00
7.00	238.39	5.78	22.733a	11.998p	4.161	1.41	3.92
7.08	241.45	5.85	22.732a	12.000p	4.205	1.41	3.84
7.17	244.51	5.93	22.732a	12.002p	4.249	1.42	3.75
7.25	247.57	6.00	22.731a	12.004p	4.293	1.43	3.67
7.33	250.64	6.08	22.731a	12.006p	4.337	1.43	3.59
7.42	253.72	6.15	22.730a	12.008p	4.380	1.44	3.50
7.50	256.80	6.23	22.730a	12.011p	4.424	1.45	3.42
7.58	259.88	6.30	22.729a	12.013p	4.468	1.46	3.34
7.67	262.97	6.38	22.729a	12.015p	4.512	1.46	3.25
7.75	266.07	6.45	22.728a	12.017p	4.556	1.47	3.17
7.83	269.17	6.53	22.728a	12.019p	4.600	1.48	3.09
7.92	272.28	6.60	22.727a	12.021p	4.644	1.49	3.00
8.00	275.39	6.68	22.727a	12.023p	4.688	1.49	2.92
8.08	278.51	6.75	22.726a	12.025p	4.732	1.50	2.84
8.17	281.63	6.83	22.726a	12.027p	4.776	1.51	2.75
8.25	284.75	6.90	22.725a	12.029p	4.820	1.51	2.67
8.33	287.89	6.98	22.725a	12.031p	4.864	1.52	2.59
8.42	291.02	7.06	22.724a	12.033p	4.908	1.53	2.50
8.50	294.16	7.13	22.724a	12.035p	4.952	1.54	2.42
8.58	297.31	7.21	22.723a	12.037p	4.996	1.54	2.34
8.67	300.46	7.29	22.723a	12.039p	5.041	1.55	2.25

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

8.75	303.62	7.36	22.722a	12.041p	5.085	1.56	2.17
8.83	306.78	7.44	22.722a	12.043p	5.129	1.57	2.09
8.92	309.95	7.52	22.721a	12.045p	5.173	1.58	2.00
9.00	313.22	7.59	22.721a	12.047p	5.219	1.58	1.92
9.08	316.41	7.67	22.720a	12.049p	5.263	1.59	1.84
9.17	319.60	7.75	22.720a	12.051p	5.307	1.60	1.75
9.25	322.79	7.83	22.719a	12.053p	5.352	1.61	1.67
9.33	325.99	7.90	22.719a	12.055p	5.396	1.61	1.59
9.42	329.20	7.98	22.719a	12.057p	5.440	1.62	1.50
9.50	332.41	8.06	22.718a	12.059p	5.485	1.63	1.42
9.58	335.62	8.14	22.718a	12.061p	5.529	1.64	1.34
9.67	338.85	8.22	22.717a	12.063p	5.574	1.64	1.25
9.75	342.07	8.29	22.717a	12.065p	5.618	1.65	1.17
9.83	345.31	8.37	22.716a	12.067p	5.663	1.66	1.09
9.92	348.54	8.45	22.716a	12.069p	5.707	1.67	1.00
10.00	351.79	8.53	22.715a	12.071p	5.752	1.68	0.92
10.08	355.03	8.61	22.715a	12.073p	5.796	1.68	0.84
10.17	358.29	8.69	22.715a	12.075p	5.841	1.69	0.75
10.25	361.55	8.77	22.714a	12.077p	5.886	1.70	0.67
10.33	364.81	8.85	22.714a	12.079p	5.930	1.71	0.59
10.42	368.12	8.93	22.713a	12.081p	5.975	1.72	0.50
10.50	370.12	8.97	22.705a	12.082p	6.003	0.49	0.42
FULL	371.04	9.00	22.696a	12.082p	6.016	0.00	0.00

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE**Tank Soundings for CARGO FUEL.P containing DIESEL OIL (0.870)**

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	0.07	0.00	30.452a	10.243p	0.439	0.00	11.07
0.08	0.62	0.02	30.168a	10.714p	0.485	0.11	10.98
0.17	2.08	0.05	30.101a	11.305p	0.542	0.69	10.90
0.25	4.08	0.10	30.079a	11.718p	0.593	0.95	10.82
0.33	6.14	0.15	30.071a	11.872p	0.638	0.96	10.73
0.42	8.20	0.20	30.067a	11.950p	0.681	0.96	10.65
0.50	10.27	0.25	30.064a	11.996p	0.724	0.96	10.57
0.58	12.34	0.30	30.063a	12.028p	0.767	0.97	10.48
0.67	14.41	0.35	30.061a	12.051p	0.809	0.97	10.40
0.75	16.49	0.40	30.060a	12.068p	0.851	0.97	10.32
0.83	18.57	0.45	30.059a	12.082p	0.893	0.97	10.23
0.92	20.65	0.50	30.059a	12.093p	0.935	0.98	10.15
1.00	22.73	0.55	30.058a	12.103p	0.977	0.98	10.07
1.08	24.81	0.60	30.058a	12.111p	1.019	0.98	9.98
1.17	26.90	0.65	30.057a	12.118p	1.061	0.99	9.90
1.25	28.99	0.70	30.057a	12.124p	1.103	0.99	9.82
1.33	31.08	0.75	30.056a	12.130p	1.145	0.99	9.73
1.42	33.18	0.80	30.056a	12.135p	1.187	1.00	9.65
1.50	35.27	0.86	30.055a	12.139p	1.229	1.00	9.57
1.58	37.37	0.91	30.055a	12.144p	1.271	1.00	9.48
1.67	39.48	0.96	30.055a	12.148p	1.313	1.01	9.40
1.75	41.58	1.01	30.054a	12.151p	1.355	1.01	9.32
1.83	43.69	1.06	30.054a	12.155p	1.397	1.01	9.23
1.92	45.80	1.11	30.054a	12.158p	1.439	1.02	9.15
2.00	47.91	1.16	30.054a	12.161p	1.481	1.02	9.07
2.08	50.03	1.21	30.053a	12.164p	1.523	1.02	8.98
2.17	52.14	1.26	30.053a	12.167p	1.565	1.03	8.90
2.25	54.26	1.32	30.053a	12.169p	1.607	1.03	8.82
2.33	56.38	1.37	30.052a	12.172p	1.649	1.03	8.73
2.42	58.51	1.42	30.052a	12.174p	1.691	1.04	8.65
2.50	60.64	1.47	30.052a	12.177p	1.733	1.04	8.57
2.58	62.77	1.52	30.052a	12.179p	1.775	1.05	8.48
2.67	64.90	1.57	30.051a	12.181p	1.817	1.05	8.40
2.75	67.03	1.63	30.051a	12.183p	1.860	1.05	8.32
2.83	69.17	1.68	30.051a	12.185p	1.902	1.06	8.23
2.92	71.31	1.73	30.051a	12.187p	1.944	1.06	8.15
3.00	73.45	1.78	30.051a	12.189p	1.986	1.06	8.07
3.08	75.59	1.83	30.050a	12.191p	2.028	1.07	7.98
3.17	77.74	1.88	30.050a	12.193p	2.071	1.07	7.90
3.25	79.89	1.94	30.050a	12.195p	2.113	1.07	7.82
3.33	82.04	1.99	30.050a	12.197p	2.155	1.08	7.73
3.42	84.19	2.04	30.049a	12.199p	2.198	1.08	7.65
3.50	86.35	2.09	30.049a	12.201p	2.240	1.08	7.57
3.58	88.51	2.15	30.049a	12.203p	2.282	1.09	7.48
3.67	90.67	2.20	30.049a	12.204p	2.324	1.09	7.40
3.75	92.83	2.25	30.049a	12.206p	2.367	1.09	7.32
3.83	95.00	2.30	30.048a	12.208p	2.409	1.10	7.23
3.92	97.17	2.36	30.048a	12.209p	2.452	1.10	7.15
4.00	99.34	2.41	30.048a	12.211p	2.494	1.10	7.07
4.08	101.51	2.46	30.048a	12.213p	2.536	1.11	6.98

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.17	103.69	2.51	30.048a	12.214p	2.579	1.11	6.90
4.25	105.86	2.57	30.047a	12.216p	2.621	1.12	6.82
4.33	108.15	2.62	30.047a	12.218p	2.666	1.12	6.73
4.42	110.32	2.67	30.047a	12.219p	2.708	1.12	6.65
4.50	112.49	2.73	30.047a	12.221p	2.750	1.13	6.57
4.58	114.66	2.78	30.046a	12.223p	2.792	1.13	6.48
4.67	116.84	2.83	30.046a	12.224p	2.834	1.13	6.40
4.75	119.02	2.89	30.046a	12.226p	2.877	1.14	6.32
4.83	121.20	2.94	30.046a	12.227p	2.919	1.14	6.23
4.92	123.39	2.99	30.046a	12.229p	2.962	1.14	6.15
5.00	125.59	3.04	30.045a	12.230p	3.004	1.15	6.07
5.08	127.78	3.10	30.045a	12.232p	3.046	1.15	5.98
5.17	129.98	3.15	30.045a	12.233p	3.089	1.16	5.90
5.25	132.26	3.21	30.045a	12.235p	3.133	1.16	5.82
5.33	134.32	3.26	30.045a	12.236p	3.173	1.16	5.73
5.42	136.61	3.31	30.044a	12.238p	3.217	1.17	5.65
5.50	138.83	3.37	30.044a	12.239p	3.260	1.17	5.57
5.58	141.05	3.42	30.044a	12.241p	3.302	1.17	5.48
5.67	143.28	3.47	30.044a	12.242p	3.345	1.18	5.40
5.75	145.51	3.53	30.044a	12.244p	3.388	1.18	5.32
5.83	147.74	3.58	30.044a	12.245p	3.431	1.19	5.23
5.92	149.98	3.64	30.043a	12.247p	3.474	1.19	5.15
6.00	152.22	3.69	30.043a	12.248p	3.517	1.19	5.07
6.08	154.47	3.75	30.043a	12.250p	3.560	1.20	4.98
6.17	156.72	3.80	30.043a	12.251p	3.603	1.20	4.90
6.25	158.86	3.85	30.043a	12.253p	3.644	1.20	4.82
6.33	161.10	3.91	30.042a	12.254p	3.687	1.21	4.73
6.42	163.34	3.96	30.042a	12.255p	3.730	1.21	4.65
6.50	165.58	4.01	30.042a	12.257p	3.772	1.22	4.57
6.58	167.82	4.07	30.042a	12.258p	3.815	1.22	4.48
6.67	170.07	4.12	30.042a	12.260p	3.858	1.22	4.40
6.75	172.32	4.18	30.041a	12.261p	3.901	1.23	4.32
6.83	174.57	4.23	30.041a	12.263p	3.944	1.23	4.23
6.92	176.83	4.29	30.041a	12.264p	3.987	1.24	4.15
7.00	179.08	4.34	30.041a	12.265p	4.030	1.24	4.07
7.08	181.34	4.40	30.041a	12.267p	4.073	1.24	3.98
7.17	183.60	4.45	30.040a	12.268p	4.116	1.25	3.90
7.25	185.87	4.51	30.040a	12.270p	4.158	1.25	3.82
7.33	188.13	4.56	30.040a	12.271p	4.201	1.25	3.73
7.42	190.40	4.62	30.040a	12.272p	4.244	1.26	3.65
7.50	192.67	4.67	30.040a	12.274p	4.287	1.26	3.57
7.58	194.94	4.73	30.040a	12.275p	4.330	1.27	3.48
7.67	197.22	4.78	30.039a	12.277p	4.373	1.27	3.40
7.75	199.50	4.84	30.039a	12.278p	4.416	1.27	3.32
7.83	201.78	4.89	30.039a	12.279p	4.459	1.28	3.23
7.92	204.06	4.95	30.039a	12.281p	4.502	1.28	3.15
8.00	206.35	5.00	30.039a	12.282p	4.545	1.29	3.07
8.08	208.63	5.06	30.038a	12.284p	4.589	1.29	2.98
8.17	210.92	5.11	30.038a	12.285p	4.632	1.29	2.90
8.25	213.21	5.17	30.038a	12.286p	4.675	1.30	2.82
8.33	215.51	5.23	30.038a	12.288p	4.718	1.30	2.73
8.42	217.80	5.28	30.038a	12.289p	4.761	1.31	2.65
8.50	220.10	5.34	30.038a	12.291p	4.804	1.31	2.57
8.58	222.40	5.39	30.037a	12.292p	4.847	1.31	2.48
8.67	224.71	5.45	30.037a	12.293p	4.890	1.32	2.40

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

8.75	227.01	5.50	30.037a	12.295p	4.934	1.32	2.32
8.83	229.32	5.56	30.037a	12.296p	4.977	1.33	2.23
8.92	231.63	5.62	30.037a	12.297p	5.020	1.33	2.15
9.00	233.94	5.67	30.036a	12.299p	5.063	1.34	2.07
9.08	236.26	5.73	30.036a	12.300p	5.106	1.34	1.98
9.17	238.58	5.78	30.036a	12.302p	5.150	1.34	1.90
9.25	240.90	5.84	30.036a	12.303p	5.193	1.35	1.82
9.33	243.22	5.90	30.036a	12.304p	5.236	1.35	1.73
9.42	245.54	5.95	30.036a	12.306p	5.279	1.36	1.65
9.50	247.87	6.01	30.035a	12.307p	5.323	1.36	1.57
9.58	250.20	6.07	30.035a	12.308p	5.366	1.36	1.48
9.67	252.53	6.12	30.035a	12.310p	5.409	1.37	1.40
9.75	254.86	6.18	30.035a	12.311p	5.453	1.37	1.32
9.83	257.20	6.24	30.035a	12.313p	5.496	1.38	1.23
9.92	259.53	6.29	30.034a	12.314p	5.539	1.38	1.15
10.00	261.87	6.35	30.034a	12.315p	5.583	1.38	1.07
10.08	264.27	6.41	30.034a	12.317p	5.627	1.39	0.98
10.17	266.62	6.46	30.034a	12.318p	5.670	1.39	0.90
10.25	268.97	6.52	30.034a	12.319p	5.714	1.40	0.82
10.33	271.33	6.58	30.034a	12.321p	5.757	1.40	0.73
10.42	273.68	6.64	30.033a	12.322p	5.801	1.41	0.65
10.50	276.04	6.69	30.033a	12.323p	5.844	1.41	0.57
FULL	278.04	6.74	30.032a	12.325p	5.881	0.00	-0.02

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

Tank Soundings for WVOID1.P containing SEA WATER (1.025)

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	0.00	0.00	0.000	0.000	0.000	0.00	11.08
0.08	0.71	0.02	37.171a	10.634p	0.476	0.14	11.00
0.17	2.59	0.07	37.347a	11.205p	0.530	0.96	10.92
0.25	5.66	0.16	37.419a	11.717p	0.583	1.86	10.83
0.33	8.86	0.25	37.448a	11.911p	0.630	1.86	10.75
0.42	12.07	0.34	37.462a	12.002p	0.673	1.87	10.67
0.50	15.28	0.44	37.470a	12.056p	0.716	1.87	10.58
0.58	18.50	0.53	37.475a	12.091p	0.759	1.88	10.50
0.67	21.72	0.62	37.479a	12.116p	0.801	1.88	10.42
0.75	24.94	0.71	37.482a	12.135p	0.843	1.89	10.33
0.83	28.16	0.80	37.484a	12.150p	0.885	1.89	10.25
0.92	31.39	0.90	37.486a	12.162p	0.927	1.90	10.17
1.00	34.62	0.99	37.487a	12.172p	0.969	1.90	10.08
1.08	37.86	1.08	37.488a	12.180p	1.011	1.91	10.00
1.17	41.09	1.17	37.489a	12.187p	1.053	1.91	9.92
1.25	44.33	1.27	37.490a	12.194p	1.095	1.92	9.83
1.33	47.57	1.36	37.491a	12.199p	1.137	1.92	9.75
1.42	50.82	1.45	37.491a	12.204p	1.179	1.93	9.67
1.50	54.07	1.54	37.492a	12.209p	1.221	1.93	9.58
1.58	57.32	1.64	37.492a	12.213p	1.263	1.94	9.50
1.67	60.57	1.73	37.493a	12.217p	1.305	1.94	9.42
1.75	63.83	1.82	37.493a	12.220p	1.347	1.95	9.33
1.83	67.09	1.92	37.493a	12.224p	1.389	1.95	9.25
1.92	70.35	2.01	37.494a	12.227p	1.431	1.96	9.17
2.00	73.61	2.10	37.494a	12.230p	1.473	1.96	9.08
2.08	76.88	2.20	37.494a	12.232p	1.515	1.97	9.00
2.17	80.15	2.29	37.494a	12.235p	1.557	1.97	8.92
2.25	83.43	2.38	37.495a	12.238p	1.599	1.98	8.83
2.33	86.70	2.48	37.495a	12.240p	1.641	1.98	8.75
2.42	89.98	2.57	37.495a	12.242p	1.683	1.99	8.67
2.50	93.27	2.66	37.495a	12.244p	1.725	1.99	8.58
2.58	96.55	2.76	37.495a	12.246p	1.767	2.00	8.50
2.67	99.84	2.85	37.496a	12.249p	1.809	2.01	8.42
2.75	103.13	2.95	37.496a	12.250p	1.851	2.01	8.33
2.83	106.43	3.04	37.496a	12.252p	1.893	2.02	8.25
2.92	109.72	3.13	37.496a	12.254p	1.935	2.02	8.17
3.00	113.03	3.23	37.496a	12.256p	1.977	2.03	8.08
3.08	116.33	3.32	37.496a	12.258p	2.019	2.03	8.00
3.17	119.63	3.42	37.496a	12.260p	2.061	2.04	7.92
3.25	122.94	3.51	37.496a	12.261p	2.103	2.04	7.83
3.33	126.26	3.61	37.497a	12.263p	2.145	2.05	7.75
3.42	129.57	3.70	37.497a	12.265p	2.188	2.05	7.67
3.50	132.89	3.80	37.497a	12.266p	2.230	2.06	7.58
3.58	136.21	3.89	37.497a	12.268p	2.272	2.06	7.50
3.67	139.53	3.99	37.497a	12.269p	2.314	2.07	7.42
3.75	142.86	4.08	37.497a	12.271p	2.356	2.07	7.33
3.83	146.19	4.18	37.497a	12.272p	2.399	2.08	7.25
3.92	149.52	4.27	37.497a	12.274p	2.441	2.08	7.17
4.00	152.85	4.37	37.497a	12.275p	2.483	2.09	7.08

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.08	156.19	4.46	37.497a	12.277p	2.525	2.10	7.00
4.17	159.69	4.56	37.497a	12.278p	2.570	2.10	6.92
4.25	163.01	4.66	37.497a	12.280p	2.612	2.11	6.83
4.33	166.34	4.75	37.497a	12.281p	2.654	2.11	6.75
4.42	169.67	4.85	37.497a	12.282p	2.696	2.12	6.67
4.50	173.00	4.94	37.497a	12.284p	2.738	2.12	6.58
4.58	176.34	5.04	37.498a	12.285p	2.780	2.13	6.50
4.67	179.69	5.13	37.498a	12.286p	2.822	2.13	6.42
4.75	183.04	5.23	37.498a	12.288p	2.864	2.14	6.33
4.83	186.39	5.32	37.498a	12.289p	2.906	2.14	6.25
4.92	189.75	5.42	37.498a	12.290p	2.949	2.15	6.17
5.00	193.11	5.52	37.498a	12.292p	2.991	2.16	6.08
5.08	196.48	5.61	37.498a	12.293p	3.033	2.16	6.00
5.17	199.85	5.71	37.498a	12.294p	3.075	2.17	5.92
5.25	203.29	5.81	37.498a	12.295p	3.119	2.17	5.83
5.33	206.54	5.90	37.498a	12.297p	3.159	2.18	5.75
5.42	209.87	6.00	37.498a	12.298p	3.201	2.18	5.67
5.50	213.38	6.10	37.498a	12.299p	3.245	2.19	5.58
5.58	216.78	6.19	37.498a	12.300p	3.288	2.19	5.50
5.67	220.18	6.29	37.498a	12.302p	3.330	2.20	5.42
5.75	223.58	6.39	37.498a	12.303p	3.373	2.21	5.33
5.83	226.99	6.48	37.498a	12.304p	3.415	2.21	5.25
5.92	230.40	6.58	37.498a	12.305p	3.458	2.22	5.17
6.00	233.82	6.68	37.498a	12.307p	3.501	2.22	5.08
6.08	237.24	6.78	37.498a	12.308p	3.544	2.23	5.00
6.17	240.67	6.87	37.498a	12.309p	3.586	2.23	4.92
6.25	244.10	6.97	37.498a	12.310p	3.629	2.24	4.83
6.33	247.54	7.07	37.498a	12.311p	3.672	2.24	4.75
6.42	250.98	7.17	37.498a	12.313p	3.715	2.25	4.67
6.50	254.24	7.26	37.498a	12.314p	3.755	2.26	4.58
6.58	257.66	7.36	37.498a	12.315p	3.798	2.26	4.50
6.67	261.09	7.46	37.498a	12.316p	3.840	2.27	4.42
6.75	264.52	7.56	37.498a	12.317p	3.883	2.27	4.33
6.83	267.95	7.65	37.498a	12.318p	3.926	2.28	4.25
6.92	271.38	7.75	37.498a	12.320p	3.968	2.28	4.17
7.00	274.82	7.85	37.498a	12.321p	4.011	2.29	4.08
7.08	278.26	7.95	37.498a	12.322p	4.053	2.30	4.00
7.17	281.71	8.05	37.498a	12.323p	4.096	2.30	3.92
7.25	285.15	8.15	37.499a	12.324p	4.139	2.31	3.83
7.33	288.60	8.24	37.499a	12.325p	4.181	2.31	3.75
7.42	292.05	8.34	37.499a	12.327p	4.224	2.32	3.67
7.50	295.51	8.44	37.499a	12.328p	4.267	2.32	3.58
7.58	298.97	8.54	37.499a	12.329p	4.310	2.33	3.50
7.67	302.43	8.64	37.499a	12.330p	4.352	2.34	3.42
7.75	305.89	8.74	37.499a	12.331p	4.395	2.34	3.33
7.83	309.36	8.84	37.499a	12.332p	4.438	2.35	3.25
7.92	312.83	8.94	37.499a	12.333p	4.481	2.35	3.17
8.00	316.30	9.04	37.499a	12.335p	4.523	2.36	3.08
8.08	319.77	9.13	37.499a	12.336p	4.566	2.36	3.00
8.17	323.25	9.23	37.499a	12.337p	4.609	2.37	2.92
8.25	326.73	9.33	37.499a	12.338p	4.652	2.38	2.83
8.33	330.21	9.43	37.499a	12.339p	4.694	2.38	2.75
8.42	333.70	9.53	37.499a	12.340p	4.737	2.39	2.67
8.50	337.19	9.63	37.499a	12.341p	4.780	2.39	2.58
8.58	340.68	9.73	37.499a	12.342p	4.823	2.40	2.50

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

8.67	344.17	9.83	37.499a	12.344p	4.866	2.41	2.42
8.75	347.67	9.93	37.499a	12.345p	4.909	2.41	2.33
8.83	351.17	10.03	37.499a	12.346p	4.951	2.42	2.25
8.92	354.67	10.13	37.499a	12.347p	4.994	2.42	2.17
9.00	358.18	10.23	37.499a	12.348p	5.037	2.43	2.08
9.08	361.69	10.33	37.499a	12.349p	5.080	2.44	2.00
9.17	365.20	10.43	37.499a	12.350p	5.123	2.44	1.92
9.25	368.71	10.53	37.499a	12.351p	5.166	2.45	1.83
9.33	372.23	10.63	37.499a	12.352p	5.209	2.45	1.75
9.42	375.75	10.73	37.499a	12.354p	5.252	2.46	1.67
9.50	379.27	10.83	37.499a	12.355p	5.295	2.47	1.58
9.58	382.79	10.93	37.499a	12.356p	5.338	2.47	1.50
9.67	386.32	11.04	37.499a	12.357p	5.381	2.48	1.42
9.75	389.85	11.14	37.499a	12.358p	5.424	2.48	1.33
9.83	393.39	11.24	37.499a	12.359p	5.467	2.49	1.25
9.92	396.92	11.34	37.499a	12.360p	5.510	2.50	1.17
10.00	400.46	11.44	37.499a	12.361p	5.553	2.50	1.08
10.08	404.00	11.54	37.499a	12.362p	5.596	2.51	1.00
10.17	407.55	11.64	37.499a	12.363p	5.639	2.51	0.92
10.25	411.09	11.74	37.499a	12.365p	5.682	2.52	0.83
10.33	414.64	11.84	37.499a	12.366p	5.725	2.53	0.75
10.42	418.20	11.95	37.499a	12.367p	5.768	2.53	0.67
10.50	421.85	12.05	37.499a	12.368p	5.812	2.54	0.58
FULL	425.31	12.15	37.499a	12.369p	5.854	0.00	0.00

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

Tank Soundings for WVOID2.P containing SEA WATER (1.025)

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	0.00	0.00	0.000	0.000	0.000	0.00	11.05
0.08	0.19	0.01	42.886a	10.681p	0.534	0.06	10.97
0.17	0.73	0.02	43.278a	11.128p	0.586	0.34	10.88
0.25	1.68	0.05	43.573a	11.521p	0.636	0.87	10.80
0.33	3.20	0.09	43.908a	11.760p	0.689	0.98	10.72
0.42	5.20	0.15	44.248a	11.890p	0.744	1.21	10.63
0.50	7.43	0.21	44.539a	11.969p	0.795	1.39	10.55
0.58	9.95	0.28	44.799a	12.019p	0.846	1.52	10.47
0.67	12.70	0.36	45.035a	12.058p	0.896	1.67	10.38
0.75	15.80	0.45	45.268a	12.087p	0.949	1.80	10.30
0.83	18.89	0.54	45.453a	12.114p	0.997	1.85	10.22
0.92	22.11	0.63	45.605a	12.139p	1.045	1.90	10.13
1.00	25.34	0.72	45.719a	12.156p	1.092	1.90	10.05
1.08	28.57	0.82	45.807a	12.169p	1.137	1.91	9.97
1.17	31.81	0.91	45.878a	12.180p	1.182	1.91	9.88
1.25	35.05	1.00	45.935a	12.189p	1.226	1.92	9.80
1.33	38.29	1.09	45.983a	12.196p	1.270	1.92	9.72
1.42	41.53	1.19	46.023a	12.203p	1.313	1.93	9.63
1.50	44.78	1.28	46.058a	12.208p	1.357	1.93	9.55
1.58	48.03	1.37	46.088a	12.213p	1.400	1.94	9.47
1.67	51.29	1.47	46.114a	12.218p	1.443	1.94	9.38
1.75	54.54	1.56	46.137a	12.222p	1.486	1.95	9.30
1.83	57.80	1.65	46.158a	12.226p	1.528	1.95	9.22
1.92	61.07	1.74	46.176a	12.229p	1.571	1.96	9.13
2.00	64.33	1.84	46.192a	12.232p	1.613	1.96	9.05
2.08	67.60	1.93	46.207a	12.235p	1.656	1.97	8.97
2.17	70.87	2.02	46.221a	12.238p	1.698	1.97	8.88
2.25	74.15	2.12	46.233a	12.241p	1.741	1.98	8.80
2.33	77.42	2.21	46.244a	12.243p	1.783	1.99	8.72
2.42	80.70	2.31	46.255a	12.246p	1.826	1.99	8.63
2.50	83.99	2.40	46.264a	12.248p	1.868	2.00	8.55
2.58	87.27	2.49	46.273a	12.250p	1.910	2.00	8.47
2.67	90.56	2.59	46.281a	12.252p	1.953	2.01	8.38
2.75	93.85	2.68	46.289a	12.254p	1.995	2.01	8.30
2.83	97.15	2.78	46.296a	12.256p	2.037	2.02	8.22
2.92	100.45	2.87	46.303a	12.258p	2.080	2.02	8.13
3.00	103.75	2.96	46.309a	12.260p	2.122	2.03	8.05
3.08	107.05	3.06	46.315a	12.262p	2.164	2.03	7.97
3.17	110.36	3.15	46.321a	12.264p	2.207	2.04	7.88
3.25	113.67	3.25	46.326a	12.265p	2.249	2.04	7.80
3.33	116.98	3.34	46.331a	12.267p	2.291	2.05	7.72
3.42	120.29	3.44	46.335a	12.269p	2.334	2.05	7.63
3.50	123.61	3.53	46.340a	12.270p	2.376	2.06	7.55
3.58	126.93	3.63	46.344a	12.272p	2.418	2.06	7.47
3.67	130.26	3.72	46.348a	12.274p	2.460	2.07	7.38
3.75	133.58	3.82	46.352a	12.275p	2.503	2.07	7.30
3.83	136.91	3.91	46.355a	12.277p	2.545	2.08	7.22
3.92	140.24	4.01	46.359a	12.278p	2.587	2.09	7.13
4.00	143.58	4.10	46.362a	12.279p	2.630	2.09	7.05
4.08	146.92	4.20	46.365a	12.281p	2.672	2.10	6.97

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.17	150.42	4.30	46.368a	12.282p	2.716	2.10	6.88
4.25	153.74	4.39	46.371a	12.284p	2.758	2.11	6.80
4.33	157.06	4.49	46.374a	12.285p	2.801	2.11	6.72
4.42	160.39	4.58	46.377a	12.287p	2.843	2.12	6.63
4.50	163.73	4.68	46.379a	12.288p	2.885	2.12	6.55
4.58	167.07	4.77	46.382a	12.289p	2.927	2.13	6.47
4.67	170.41	4.87	46.384a	12.291p	2.969	2.13	6.38
4.75	173.76	4.96	46.386a	12.292p	3.011	2.14	6.30
4.83	177.12	5.06	46.388a	12.293p	3.054	2.15	6.22
4.92	180.48	5.16	46.390a	12.294p	3.096	2.15	6.13
5.00	183.84	5.25	46.392a	12.296p	3.138	2.16	6.05
5.08	187.21	5.35	46.394a	12.297p	3.181	2.16	5.97
5.17	190.58	5.44	46.396a	12.298p	3.223	2.17	5.88
5.25	194.01	5.54	46.398a	12.300p	3.266	2.17	5.80
5.33	197.29	5.64	46.400a	12.301p	3.307	2.18	5.72
5.42	200.73	5.73	46.401a	12.302p	3.350	2.18	5.63
5.50	204.12	5.83	46.403a	12.303p	3.393	2.19	5.55
5.58	207.51	5.93	46.405a	12.305p	3.435	2.20	5.47
5.67	210.91	6.02	46.406a	12.306p	3.478	2.20	5.38
5.75	214.32	6.12	46.408a	12.307p	3.521	2.21	5.30
5.83	217.73	6.22	46.409a	12.308p	3.563	2.21	5.22
5.92	221.14	6.32	46.410a	12.309p	3.606	2.22	5.13
6.00	224.56	6.41	46.412a	12.311p	3.649	2.22	5.05
6.08	227.99	6.51	46.413a	12.312p	3.691	2.23	4.97
6.17	231.42	6.61	46.414a	12.313p	3.734	2.23	4.88
6.25	234.85	6.71	46.416a	12.314p	3.777	2.24	4.80
6.33	238.29	6.81	46.417a	12.316p	3.820	2.25	4.72
6.42	241.56	6.90	46.418a	12.317p	3.861	2.25	4.63
6.50	244.98	7.00	46.419a	12.318p	3.903	2.26	4.55
6.58	248.40	7.10	46.420a	12.319p	3.946	2.26	4.47
6.67	251.83	7.19	46.421a	12.320p	3.988	2.27	4.38
6.75	255.26	7.29	46.422a	12.321p	4.031	2.27	4.30
6.83	258.69	7.39	46.423a	12.323p	4.074	2.28	4.22
6.92	262.13	7.49	46.424a	12.324p	4.116	2.29	4.13
7.00	265.57	7.59	46.425a	12.325p	4.159	2.29	4.05
7.08	269.01	7.68	46.426a	12.326p	4.201	2.30	3.97
7.17	272.45	7.78	46.427a	12.327p	4.244	2.30	3.88
7.25	275.90	7.88	46.428a	12.328p	4.287	2.31	3.80
7.33	279.35	7.98	46.429a	12.329p	4.329	2.31	3.72
7.42	282.80	8.08	46.430a	12.331p	4.372	2.32	3.63
7.50	286.26	8.18	46.431a	12.332p	4.415	2.33	3.55
7.58	289.72	8.28	46.432a	12.333p	4.458	2.33	3.47
7.67	293.18	8.37	46.432a	12.334p	4.500	2.34	3.38
7.75	296.64	8.47	46.433a	12.335p	4.543	2.34	3.30
7.83	300.11	8.57	46.434a	12.336p	4.586	2.35	3.22
7.92	303.58	8.67	46.435a	12.337p	4.629	2.35	3.13
8.00	307.05	8.77	46.436a	12.339p	4.671	2.36	3.05
8.08	310.53	8.87	46.436a	12.340p	4.714	2.37	2.97
8.17	314.01	8.97	46.437a	12.341p	4.757	2.37	2.88
8.25	317.49	9.07	46.438a	12.342p	4.800	2.38	2.80
8.33	320.97	9.17	46.438a	12.343p	4.842	2.38	2.72
8.42	324.46	9.27	46.439a	12.344p	4.885	2.39	2.63
8.50	327.95	9.37	46.440a	12.345p	4.928	2.40	2.55
8.58	331.44	9.47	46.440a	12.346p	4.971	2.40	2.47
8.67	334.94	9.57	46.441a	12.348p	5.014	2.41	2.38

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

8.75	338.43	9.67	46.441a	12.349p	5.057	2.41	2.30
8.83	341.93	9.77	46.442a	12.350p	5.099	2.42	2.22
8.92	345.44	9.87	46.443a	12.351p	5.142	2.43	2.13
9.00	348.94	9.97	46.443a	12.352p	5.185	2.43	2.05
9.08	352.45	10.07	46.444a	12.353p	5.228	2.44	1.97
9.17	355.97	10.17	46.444a	12.354p	5.271	2.44	1.88
9.25	359.48	10.27	46.445a	12.355p	5.314	2.45	1.80
9.33	363.00	10.37	46.445a	12.356p	5.357	2.46	1.72
9.42	366.52	10.47	46.446a	12.358p	5.400	2.46	1.63
9.50	370.04	10.57	46.446a	12.359p	5.443	2.47	1.55
9.58	373.57	10.67	46.447a	12.360p	5.485	2.47	1.47
9.67	377.10	10.77	46.447a	12.361p	5.528	2.48	1.38
9.75	380.63	10.87	46.448a	12.362p	5.571	2.49	1.30
9.83	384.16	10.97	46.448a	12.363p	5.614	2.49	1.22
9.92	387.70	11.07	46.449a	12.364p	5.657	2.50	1.13
10.00	391.24	11.18	46.449a	12.365p	5.700	2.50	1.05
10.08	394.78	11.28	46.450a	12.366p	5.743	2.51	0.97
10.17	398.33	11.38	46.450a	12.367p	5.786	2.52	0.88
10.25	401.88	11.48	46.451a	12.369p	5.829	2.52	0.80
10.33	405.43	11.58	46.451a	12.370p	5.872	2.53	0.72
10.42	408.98	11.68	46.452a	12.371p	5.915	2.53	0.63
10.50	412.59	11.79	46.452a	12.372p	5.959	2.54	0.55
FULL	414.69	11.85	46.452a	12.372p	5.984	0.00	-0.03

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE**Tank Soundings for WVOID3.P containing SEA WATER (1.025)**

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	0.00	0.00	0.000	0.000	0.000	0.00	10.29
0.08	0.12	0.00	51.283a	11.986p	1.318	0.02	10.21
0.17	0.25	0.01	51.349a	12.119p	1.360	0.03	10.12
0.25	0.48	0.01	51.474a	12.446p	1.409	0.09	10.04
0.33	0.89	0.03	51.640a	12.552p	1.465	0.12	9.96
0.42	1.29	0.04	51.736a	12.645p	1.510	0.15	9.87
0.50	1.90	0.05	51.903a	12.701p	1.564	0.20	9.79
0.58	2.70	0.08	52.049a	12.742p	1.624	0.23	9.71
0.67	3.50	0.10	52.189a	12.781p	1.675	0.28	9.62
0.75	4.48	0.13	52.332a	12.774p	1.731	0.29	9.54
0.83	5.42	0.15	52.427a	12.797p	1.780	0.31	9.46
0.92	6.51	0.19	52.549a	12.822p	1.832	0.36	9.37
1.00	7.75	0.22	52.676a	12.817p	1.887	0.38	9.29
1.08	8.99	0.26	52.773a	12.831p	1.938	0.40	9.21
1.17	10.46	0.30	52.899a	12.846p	1.995	0.45	9.12
1.25	11.88	0.34	53.014a	12.841p	2.046	0.47	9.04
1.33	13.45	0.38	53.115a	12.852p	2.100	0.49	8.96
1.42	15.07	0.43	53.225a	12.863p	2.153	0.53	8.87
1.50	16.79	0.48	53.333a	12.864p	2.206	0.55	8.79
1.58	18.61	0.53	53.435a	12.861p	2.260	0.56	8.71
1.67	20.40	0.58	53.523a	12.871p	2.311	0.60	8.62
1.75	22.35	0.64	53.624a	12.878p	2.364	0.63	8.54
1.83	24.38	0.70	53.723a	12.878p	2.417	0.65	8.46
1.92	26.44	0.76	53.813a	12.878p	2.470	0.66	8.37
2.00	28.57	0.82	53.901a	12.886p	2.522	0.72	8.29
2.08	30.89	0.88	54.000a	12.890p	2.577	0.73	8.21
2.17	33.20	0.95	54.094a	12.888p	2.630	0.75	8.12
2.25	35.51	1.01	54.177a	12.891p	2.682	0.76	8.04
2.33	37.89	1.08	54.257a	12.899p	2.733	0.79	7.96
2.42	40.30	1.15	54.332a	12.903p	2.784	0.80	7.87
2.50	42.72	1.22	54.398a	12.905p	2.835	0.80	7.79
2.58	45.14	1.29	54.457a	12.908p	2.884	0.80	7.71
2.67	47.56	1.36	54.510a	12.910p	2.932	0.80	7.62
2.75	49.99	1.43	54.558a	12.913p	2.980	0.81	7.54
2.83	52.42	1.50	54.602a	12.915p	3.027	0.81	7.46
2.92	54.86	1.57	54.642a	12.917p	3.074	0.81	7.37
3.00	57.29	1.64	54.678a	12.918p	3.121	0.82	7.29
3.08	59.73	1.71	54.712a	12.920p	3.167	0.82	7.21
3.17	62.17	1.78	54.743a	12.922p	3.213	0.82	7.12
3.25	64.62	1.85	54.771a	12.924p	3.259	0.82	7.04
3.33	67.06	1.92	54.798a	12.925p	3.304	0.83	6.96
3.42	69.52	1.99	54.823a	12.927p	3.349	0.83	6.87
3.50	71.97	2.06	54.846a	12.928p	3.394	0.83	6.79
3.58	74.43	2.13	54.867a	12.930p	3.439	0.84	6.71
3.67	76.88	2.20	54.888a	12.931p	3.484	0.84	6.62
3.75	79.35	2.27	54.906a	12.933p	3.528	0.84	6.54
3.83	81.81	2.34	54.924a	12.934p	3.572	0.84	6.46
3.92	84.28	2.41	54.941a	12.936p	3.617	0.85	6.37
4.00	86.75	2.48	54.957a	12.937p	3.661	0.85	6.29
4.08	89.32	2.55	54.973a	12.938p	3.707	0.85	6.21

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.17	91.77	2.62	54.987a	12.940p	3.750	0.86	6.12
4.25	94.24	2.69	55.000a	12.941p	3.794	0.86	6.04
4.33	96.71	2.76	55.013a	12.942p	3.838	0.86	5.96
4.42	99.18	2.83	55.025a	12.944p	3.881	0.87	5.87
4.50	101.66	2.90	55.037a	12.945p	3.925	0.87	5.79
4.58	104.14	2.97	55.048a	12.946p	3.968	0.87	5.71
4.67	106.63	3.05	55.058a	12.948p	4.012	0.87	5.62
4.75	109.12	3.12	55.068a	12.949p	4.056	0.88	5.54
4.83	111.70	3.19	55.078a	12.950p	4.101	0.88	5.46
4.92	114.05	3.26	55.087a	12.951p	4.141	0.88	5.37
5.00	116.63	3.33	55.096a	12.952p	4.186	0.89	5.29
5.08	119.14	3.40	55.105a	12.954p	4.230	0.89	5.21
5.17	121.66	3.48	55.113a	12.955p	4.273	0.89	5.12
5.25	124.18	3.55	55.121a	12.956p	4.317	0.90	5.04
5.33	126.71	3.62	55.128a	12.957p	4.360	0.90	4.96
5.42	129.24	3.69	55.136a	12.959p	4.404	0.90	4.87
5.50	131.78	3.76	55.143a	12.960p	4.448	0.91	4.79
5.58	134.32	3.84	55.149a	12.961p	4.491	0.91	4.71
5.67	136.86	3.91	55.156a	12.962p	4.535	0.91	4.62
5.75	139.31	3.98	55.162a	12.963p	4.577	0.91	4.54
5.83	141.84	4.05	55.168a	12.964p	4.620	0.92	4.46
5.92	144.38	4.12	55.174a	12.966p	4.663	0.92	4.37
6.00	146.92	4.20	55.179a	12.967p	4.707	0.92	4.29
6.08	149.46	4.27	55.185a	12.968p	4.750	0.93	4.21
6.17	152.01	4.34	55.190a	12.969p	4.793	0.93	4.12
6.25	154.55	4.41	55.195a	12.970p	4.837	0.93	4.04
6.33	157.10	4.49	55.200a	12.971p	4.880	0.94	3.96
6.42	159.66	4.56	55.205a	12.972p	4.923	0.94	3.87
6.50	162.22	4.63	55.210a	12.974p	4.966	0.94	3.79
6.58	164.77	4.71	55.214a	12.975p	5.010	0.95	3.71
6.67	167.34	4.78	55.219a	12.976p	5.053	0.95	3.62
6.75	169.90	4.85	55.223a	12.977p	5.096	0.95	3.54
6.83	172.47	4.93	55.227a	12.978p	5.139	0.96	3.46
6.92	175.04	5.00	55.231a	12.979p	5.183	0.96	3.37
7.00	177.62	5.07	55.235a	12.980p	5.226	0.96	3.29
7.08	180.19	5.15	55.239a	12.981p	5.269	0.96	3.21
7.17	182.77	5.22	55.242a	12.983p	5.312	0.97	3.12
7.25	185.35	5.29	55.246a	12.984p	5.356	0.97	3.04
7.33	187.94	5.37	55.249a	12.985p	5.399	0.97	2.96
7.42	190.53	5.44	55.253a	12.986p	5.442	0.98	2.87
7.50	193.12	5.52	55.256a	12.987p	5.486	0.98	2.79
7.58	195.71	5.59	55.259a	12.988p	5.529	0.98	2.71
7.67	198.31	5.66	55.262a	12.989p	5.572	0.99	2.62
7.75	200.90	5.74	55.266a	12.990p	5.615	0.99	2.54
7.83	203.51	5.81	55.269a	12.991p	5.659	0.99	2.46
7.92	206.11	5.89	55.271a	12.993p	5.702	1.00	2.37
8.00	208.72	5.96	55.274a	12.994p	5.745	1.00	2.29
8.08	211.33	6.04	55.277a	12.995p	5.789	1.00	2.21
8.17	213.94	6.11	55.280a	12.996p	5.832	1.01	2.12
8.25	216.56	6.19	55.282a	12.997p	5.875	1.01	2.04
8.33	219.17	6.26	55.285a	12.998p	5.918	1.01	1.96
8.42	221.80	6.34	55.288a	12.999p	5.962	1.02	1.87
8.50	224.42	6.41	55.290a	13.000p	6.005	1.02	1.79
8.58	227.05	6.49	55.293a	13.001p	6.048	1.02	1.71
8.67	229.68	6.56	55.295a	13.002p	6.092	1.03	1.62

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

8.75	232.31	6.64	55.297a	13.003p	6.135	1.03	1.54
8.83	234.94	6.71	55.300a	13.005p	6.178	1.03	1.46
8.92	237.58	6.79	55.302a	13.006p	6.222	1.04	1.37
9.00	240.22	6.86	55.304a	13.007p	6.265	1.04	1.29
9.08	242.87	6.94	55.306a	13.008p	6.309	1.04	1.21
9.17	245.51	7.01	55.308a	13.009p	6.352	1.05	1.12
9.25	248.16	7.09	55.310a	13.010p	6.395	1.05	1.04
9.33	250.81	7.16	55.312a	13.011p	6.439	1.05	0.96
9.42	253.47	7.24	55.314a	13.012p	6.482	1.06	0.87
9.50	256.12	7.32	55.316a	13.013p	6.526	1.06	0.79
9.58	258.85	7.39	55.318a	13.014p	6.570	1.06	0.71
9.67	261.52	7.47	55.320a	13.016p	6.614	1.07	0.62
9.75	264.16	7.55	55.322a	13.017p	6.657	1.07	0.54
FULL	265.47	7.58	55.323a	13.017p	6.678	0.00	0.04

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

Tank Soundings for WVOID4.P containing SEA WATER (1.025)

No Trim, No Heel

Sounding (ft)	Volume (ft³)	Weight (LT)	LCG (ft)	TCG (ft)	VCG (ft)	FSM (LT-ft)	Ullage (ft)
0.00	0.00	0.00	0.000	0.000	0.000	0.00	8.06
0.08	0.09	0.00	60.166a	12.314p	3.544	0.01	7.98
0.17	0.16	0.00	60.207a	12.278p	3.578	0.01	7.90
0.25	0.32	0.01	60.278a	12.158p	3.634	0.02	7.81
0.33	0.54	0.02	60.340a	12.228p	3.699	0.03	7.73
0.42	0.80	0.02	60.409a	12.650p	3.752	0.11	7.65
0.50	1.12	0.03	60.489a	12.753p	3.799	0.12	7.56
0.58	1.52	0.04	60.569a	12.741p	3.850	0.12	7.48
0.67	2.04	0.06	60.655a	12.678p	3.911	0.44	7.40
0.75	2.48	0.07	60.702a	12.786p	3.957	0.17	7.31
0.83	3.08	0.09	60.787a	12.854p	4.011	0.21	7.23
0.92	3.76	0.11	60.873a	12.854p	4.067	0.22	7.15
1.00	4.50	0.13	60.956a	12.829p	4.122	0.23	7.06
1.08	5.30	0.15	61.024a	12.857p	4.179	0.26	6.98
1.17	6.17	0.18	61.115a	12.889p	4.234	0.31	6.90
1.25	7.19	0.21	61.221a	12.878p	4.293	0.60	6.81
1.33	8.21	0.23	61.311a	12.900p	4.348	0.38	6.73
1.42	9.42	0.27	61.430a	12.908p	4.408	0.41	6.65
1.50	10.72	0.31	61.543a	12.905p	4.468	0.43	6.56
1.58	12.13	0.35	61.661a	12.922p	4.528	0.50	6.48
1.67	13.63	0.39	61.786a	12.921p	4.587	0.52	6.40
1.75	15.26	0.44	61.908a	12.922p	4.647	0.58	6.31
1.83	17.27	0.49	62.117a	12.927p	4.715	0.75	6.23
1.92	19.58	0.56	62.374a	12.928p	4.786	0.78	6.15
2.00	21.96	0.63	62.588a	12.928p	4.852	0.78	6.06
2.08	24.34	0.70	62.762a	12.928p	4.913	0.78	5.98
2.17	26.73	0.76	62.905a	12.928p	4.971	0.79	5.90
2.25	29.12	0.83	63.026a	12.928p	5.026	0.79	5.81
2.33	31.53	0.90	63.130a	12.928p	5.080	0.79	5.73
2.42	33.94	0.97	63.219a	12.928p	5.132	0.80	5.65
2.50	36.35	1.04	63.298a	12.929p	5.183	0.80	5.56
2.58	38.78	1.11	63.367a	12.929p	5.232	0.81	5.48
2.67	41.21	1.18	63.429a	12.930p	5.281	0.81	5.40
2.75	43.65	1.25	63.484a	12.930p	5.330	0.81	5.31
2.83	46.09	1.32	63.534a	12.931p	5.377	0.82	5.23
2.92	48.54	1.39	63.580a	12.931p	5.425	0.82	5.15
3.00	51.00	1.46	63.622a	12.932p	5.472	0.83	5.06
3.08	53.47	1.53	63.660a	12.932p	5.518	0.83	4.98
3.17	55.94	1.60	63.695a	12.933p	5.564	0.83	4.90
3.25	58.43	1.67	63.728a	12.933p	5.611	0.84	4.81
3.33	60.97	1.74	63.759a	12.934p	5.657	0.84	4.73
3.42	63.45	1.81	63.788a	12.934p	5.703	0.85	4.65
3.50	65.93	1.88	63.814a	12.935p	5.748	0.85	4.56
3.58	68.43	1.95	63.839a	12.935p	5.793	0.85	4.48
3.67	70.94	2.03	63.863a	12.936p	5.838	0.86	4.40
3.75	73.50	2.10	63.886a	12.937p	5.884	0.86	4.31
3.83	75.96	2.17	63.906a	12.937p	5.928	0.87	4.23
3.92	78.54	2.24	63.927a	12.938p	5.973	0.87	4.15
4.00	81.09	2.32	63.946a	12.938p	6.018	0.88	4.06
4.08	83.66	2.39	63.965a	12.939p	6.064	0.88	3.98

D&L#17-1372 70.5' NCDOT TUGBOAT TANK SOUNDINGS TABLE

4.17	86.24	2.46	63.982a	12.939p	6.109	0.88	3.90
4.25	88.76	2.54	63.999a	12.940p	6.153	0.89	3.81
4.33	91.33	2.61	64.015a	12.940p	6.197	0.89	3.73
4.42	93.91	2.68	64.030a	12.941p	6.242	0.90	3.65
4.50	96.50	2.76	64.045a	12.941p	6.287	0.90	3.56
4.58	99.10	2.83	64.060a	12.942p	6.331	0.91	3.48
4.67	101.70	2.91	64.073a	12.942p	6.376	0.91	3.40
4.75	104.31	2.98	64.087a	12.943p	6.421	0.91	3.31
4.83	106.93	3.05	64.100a	12.943p	6.465	0.92	3.23
4.92	109.55	3.13	64.112a	12.943p	6.510	0.92	3.15
5.00	112.18	3.20	64.125a	12.944p	6.555	0.93	3.06
5.08	114.82	3.28	64.137a	12.944p	6.599	0.93	2.98
5.17	117.47	3.36	64.148a	12.945p	6.644	0.94	2.90
5.25	120.12	3.43	64.159a	12.945p	6.689	0.94	2.81
5.33	122.78	3.51	64.170a	12.945p	6.734	0.95	2.73
5.42	125.45	3.58	64.181a	12.946p	6.778	0.95	2.65
5.50	128.13	3.66	64.192a	12.946p	6.823	0.96	2.56
5.58	130.81	3.74	64.202a	12.946p	6.868	0.96	2.48
5.67	133.50	3.81	64.212a	12.947p	6.913	0.97	2.40
5.75	136.20	3.89	64.222a	12.947p	6.957	0.97	2.31
5.83	138.90	3.97	64.231a	12.947p	7.002	0.97	2.23
5.92	141.62	4.05	64.241a	12.947p	7.047	0.98	2.15
6.00	144.34	4.12	64.250a	12.948p	7.092	0.98	2.06
6.08	147.06	4.20	64.259a	12.948p	7.137	0.99	1.98
6.17	149.80	4.28	64.268a	12.948p	7.182	0.99	1.90
6.25	152.54	4.36	64.277a	12.948p	7.227	1.00	1.81
6.33	155.29	4.44	64.285a	12.948p	7.271	1.00	1.73
6.42	158.04	4.51	64.294a	12.949p	7.316	1.01	1.65
6.50	160.88	4.60	64.302a	12.949p	7.363	1.01	1.56
6.58	163.66	4.68	64.311a	12.949p	7.408	1.02	1.48
6.67	166.45	4.75	64.319a	12.949p	7.453	1.02	1.40
6.75	169.24	4.83	64.327a	12.949p	7.498	1.03	1.31
6.83	172.04	4.91	64.335a	12.949p	7.543	1.03	1.23
6.92	174.85	4.99	64.342a	12.949p	7.589	1.04	1.15
7.00	177.73	5.08	64.350a	12.949p	7.635	1.04	1.06
7.08	180.47	5.16	64.357a	12.950p	7.679	1.16	0.98
7.17	183.19	5.23	64.361a	12.953p	7.723	1.05	0.90
7.25	185.93	5.31	64.366a	12.955p	7.767	1.06	0.81
7.33	188.68	5.39	64.371a	12.958p	7.811	1.06	0.73
7.42	191.44	5.47	64.375a	12.960p	7.855	1.06	0.65
7.50	194.29	5.55	64.381a	12.963p	7.901	1.07	0.56
FULL	196.36	5.61	64.384a	12.965p	7.933	0.00	-0.02