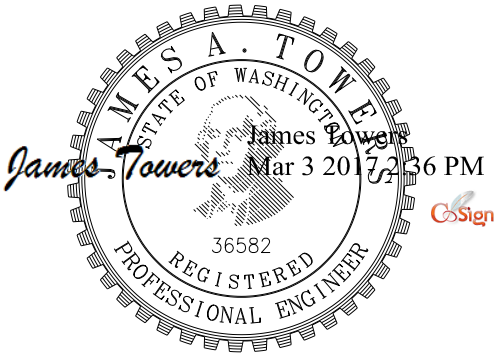

NORTH CAROLINA D.O.T. PEDESTRIAN FERRY

Stability Assessment

Prepared for: NCDOT • Raleigh, NC

Ref: 16109-003-843-5 Rev. - March 3, 2017

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REVISIONS

REV	DESCRIPTION	DATE	APPROVED
-	Initial Release	3/3/17	JAT 36582

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1 PURPOSE

This report details the stability assessment for the North Carolina D.O.T. Pedestrian Ferry. The vessel is a 92 ft long x 26 ft wide x 11.5 ft deep high speed catamaran passenger ferry. The new vessel will be owned and operated by the North Carolina Department of Transportation (NCDOT).

2 PROCEDURE

2.1 General

The vessel is a USCG Subchapter T vessel subject to the applicable intact stability requirements of Subchapter S in Title 46 of the US Code of Federal Regulations [1]. These include a weather criterion, unusual proportion and form criterion, passenger heel criterion, and damage stability.

General HydroStatics (GHS) software version 15.50 and Excel are used to evaluate all applicable intact and damage stability criteria for the vessel. The GHS computer model of the subject vessel [2] includes the hull, tanks, and a sail profile. This model was created from the hull design Rhino model [3] and the Profiles and Arrangements drawing [4].

2.2 Intact Stability Calculation

The following intact stability criteria are applicable to this vessel:

1. 46 CFR 170.173(c), Unusual proportion and form criterion
2. 46 CFR 171.050, Passenger heel criterion
3. 46 CFR 170.170, Weather criterion

GHS is used to evaluate the requirements in Criterion 1 for each loading condition. The results are provided in Section 7.4**Error! Reference source not found.**. An Excel worksheet is used to calculate the required minimum metacentric height (GM) and maximum vertical center of gravity (VCG) over a range of drafts for Criteria 2 and 3. The Excel calculations are provided in Sections 7.5 and 7.6.

2.3 Subdivision

Per 46 CFR 179.212, the vessel must comply with the requirements of 46 CFR 171.070 through 171.073 for Type II Subdivision. As the vessel is less than 150 ft, only a one-compartment standard of flooding is required in all loading conditions. The permeability of the engine room was set at 85% and all other compartments were set at 95% in accordance with 46 CFR 171.072.

The collision bulkhead and all subsequent bulkheads are located in accordance with Type II subdivision and Subchapter T requirements. Bulkhead locations were adjusted to meet both the minimum spacing requirement of 10% of the length between perpendiculars and the floodable length requirements. Bulkhead and frame locations are shown in the table below.

FRAME TABLE

	Frame Number	Feet from GHS Origin		Frame Number	Feet from GHS Origin
	0	0.00		12	-48.00
Stern	1	-4.00		13	-52.00
	2	-8.00		14	-56.00
	3	-12.00		15	-60.00
WT	3.5	-14.00		16	-64.00
	4	-16.00	WT	17	-68.00
	5	-20.00		18	-72.00
	6	-24.00		19	-76.00
	7	-28.00	WT	20	-80.00
	8	-32.00		21	-84.00
WT	9	-36.00		22	-88.00
	10	-40.00	Bow	23	-92.00
	11	-44.00			

Frame Spacing: 48 inches

Minimum Bulkhead Spacing: 8.8 feet

2.4 Damage Stability Calculations

Damage stability calculations were performed for this vessel according to Damage Stability for Type II Subdivision, 46 CFR 171.080 for partially protected waters. The minimum required extent of damage is 10% of the subdivision length or 6 ft (whichever is greater), per 46 CFR Table 171.080(A), exemption 46 CFR 171.070(e)(2). Thus, a one-compartment standard of flooding is required. As the separation between the individual hulls is greater than the beam of a single hull, the voids forward of the collision bulkheads are required to be flooded simultaneously. A one-compartment standard of flooding, both symmetrical and asymmetrical, was considered in this analysis.

The calculations were performed using the loading condition weight as a point load and adding the free surface moment. Minimum righting arms for damage stability for a range of drafts were calculated in accordance with 46 CFR 171.080(f). The calculations are provided in Section 7.7. The greatest minimum required righting arm from these calculations was considered in the GHS calculations. GHS is used to calculate equilibrium GM, margin line status, angle to margin immersion, and various righting arm curve characteristics in each damage condition for all loading conditions. The GHS damage stability output is included in Section 7.8

3 GIVEN AND ASSUMED PARAMETERS

3.1 Vessel Particulars

- Length Overall 92.0 ft
- Length Between Perpendiculars 88.0 ft
- Beam, Molded 26.0 ft

- Depth at Side 11.5 ft
- Design Draft 4.0 ft

3.2 Reference Origin

Longitudinal locations are referenced from Frame 0 (stern), positive aft. Transverse locations are measured from centerline, positive to starboard. Vertical locations are referenced from the baseline, positive up.

3.3 Route

The vessel is assumed to operate on partially protected waters.

3.4 Light Ship Weight

A detailed weight estimate [5] was developed to determine the vessel light ship weight and center of gravity.

The resulting light ship weight characteristics are:

Light ship weight:	67.87	LT
LCG:	37.23	ft fwd Frame 0
VCG:	9.34	ft above baseline

3.5 Passengers and Crew

Per USCG, individual passengers and crew are assumed to weigh an average of 185 lbs. Passenger effects are assumed to weight 25 lbs per passenger and crew member. The vessel carries a maximum of 127 passengers (11.9 LT), with 98 located at the center of the passenger cabin and 29 located on the upper deck. All passengers were conservatively placed on the upper deck at a height of 24 ft above baseline. The vessel is assumed to require 4 crew members and their effects (0.375 LT) located in the Pilothouse at a height of 24 ft above baseline.

3.6 Free Surface Correction

The free surface correction for the vessel is calculated based on the most conservative requirements of 46 CFR 170.285 and 170.290. The free surface correction accounts for the moment of transference of liquid within a tank by artificially raising the vertical center of gravity of the vessel.

The maximum free surface moment for all of the consumable and non-consumable liquid tanks are included in all calculations. The maximum free surface moment for each tank can be found in the table below.

Tank Type	GHS Tank Name	Free Surface Moment (LT-Ft)
Port Fuel Tank	FO.P	2.2
Stbd Fuel Tank	FO.S	2.2
Potable Water Tank	FW.P	0.3
Sewage Tank	SEWAGE.S	0.3
Total		5.0

Further tank details are provided in Section 7.2.

3.7 Downflooding Points

The table below lists the downflooding points used. The superstructure is assumed to provide neither buoyancy nor righting energy in the calculations.

Description	Longitudinal Location (Ft)	Transverse Location (Ft)	Vertical Location (Ft)
Engine Room Intake Louver	29.2 to 31.7	12.9 p/s	14.2
Engine Room Access	26.1	9.4 p/s	12.0
Jet Room Vent	9.0	12.5 p/s	12.5
Void 2 Vent	73.0	2.0 p/s	12.5

3.8 Loading Conditions

Three loading condition types are included to cover the range of ship loading conditions. The loading conditions included are as follows:

Condition 1: Light ship

Condition 2: Full Load – Full Tanks, Full Passengers

Condition 3: Max VCG Load – Light Tanks, Full Passengers

The Loading Condition Summaries are included in Section 7.3.

4 CONCLUSIONS

The subject vessel exhibits satisfactory stability characteristics for its proposed service and route. The vessel will be limited to 127 passengers and 4 crew members. The vessel is shown to meet all required intact and damage stability criteria as shown in the calculations in Section 7.

5 LOADING CONDITION SUMMARY

The following table provides a summary of the results of each loading condition. Trim values are given over 88 ft.

No.	Description	Disp. (LT)	Draft (ft)	VCG (ft)	GMT (ft)	Trim (ft)
1	Light Ship	67.87	3.90	9.41	30.66	1.01a
2	Full Load	88.42	4.10	10.09	23.47	0.15a
3	Max VCG Load	81.61	4.08	11.50	23.89	0.52a

6 REFERENCES

[1] Code of Federal Regulations, Title 46, Office of the Federal Register, 2015.

[2] Elliott Bay Design Group, "GHS Model," 16109.GFT, February 8, 2017.

[3] Elliott Bay Design Group, "Rhino Model," 16109-003-100-3, March 3, 2017.

[4] Elliott Bay Design Group, "Profiles and Arrangements," 16109-003-101-1, Rev. -, March 3, 2017.

[5] Elliott Bay Design Group, "Weight Estimate," 16109-003-833-0, Rev. -, March 3, 2017.

7 CALCULATIONS

7.1 Hydrostatic Properties

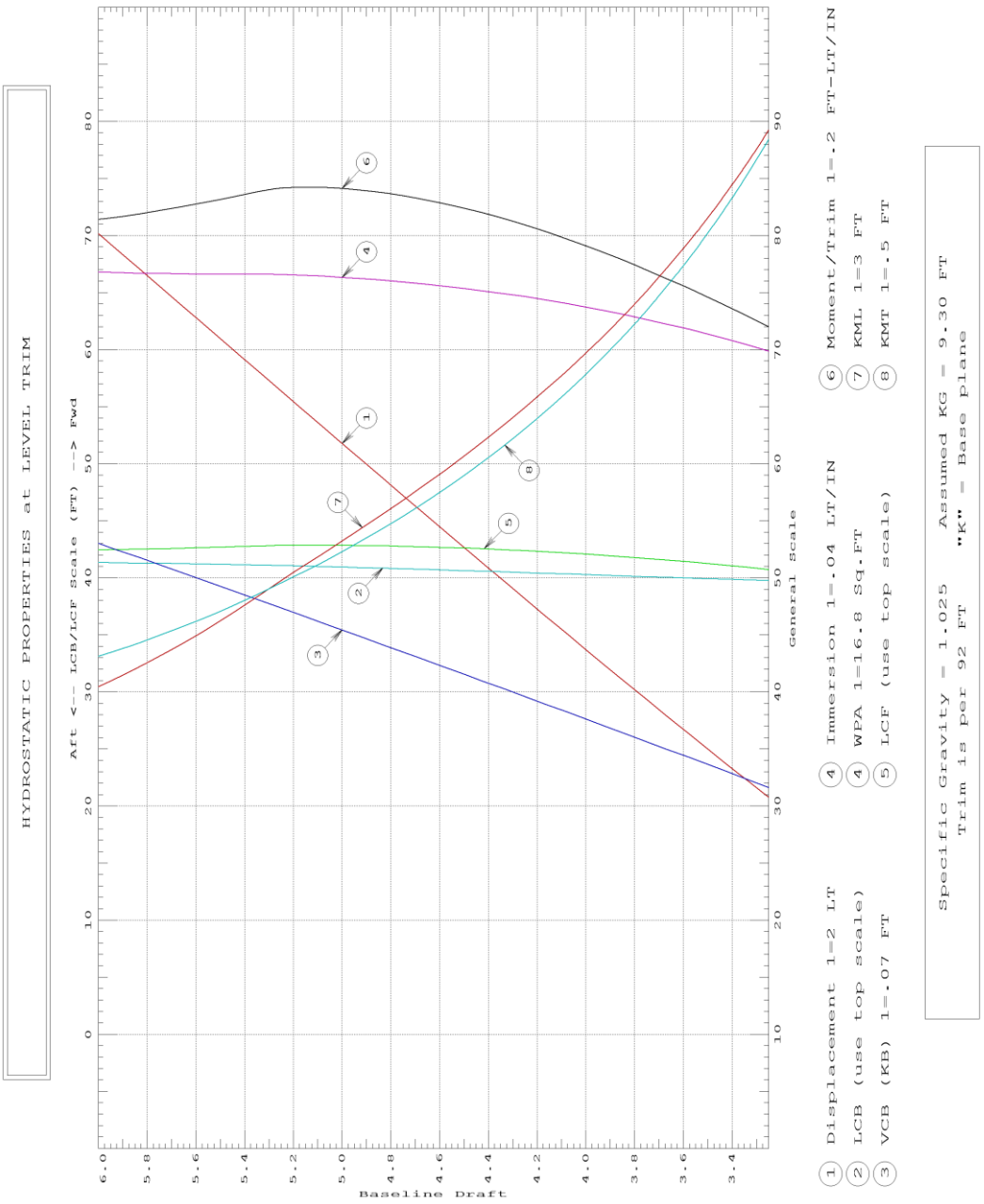
02/05/17 08:06:39 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

HYDROSTATIC PROPERTIES
No Trim, No Heel, Fixed VCG = 0.00

LCF Draft	Displacement Weight(LT)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	In trim	KML	KMT
3.250	61.52	39.80f	2.22	2.80	40.73f	14.92	267.7	44.21
3.333	64.33	39.85f	2.26	2.82	40.92f	15.12	259.5	42.75
3.417	67.16	39.89f	2.31	2.84	41.09f	15.32	251.8	41.37
3.500	70.00	39.95f	2.36	2.85	41.25f	15.51	244.6	40.09
3.583	72.86	40.00f	2.40	2.87	41.42f	15.70	237.9	38.91
3.667	75.75	40.06f	2.45	2.89	41.56f	15.88	231.5	37.78
3.750	78.64	40.12f	2.50	2.91	41.71f	16.06	225.4	36.72
3.833	81.56	40.17f	2.54	2.92	41.84f	16.23	219.7	35.74
3.917	84.49	40.23f	2.59	2.94	41.97f	16.40	214.2	34.80
4.000	87.43	40.29f	2.63	2.95	42.09f	16.56	209.1	33.91
4.083	90.38	40.36f	2.68	2.96	42.20f	16.71	204.1	33.08
4.167	93.35	40.42f	2.73	2.97	42.30f	16.86	199.4	32.28
4.250	96.33	40.48f	2.77	2.99	42.40f	17.00	194.8	31.53
4.333	99.32	40.53f	2.82	3.00	42.48f	17.13	190.4	30.81
4.417	102.33	40.59f	2.86	3.01	42.55f	17.25	186.1	30.13
4.500	105.34	40.65f	2.91	3.01	42.62f	17.37	182.0	29.48
4.583	108.35	40.71f	2.95	3.02	42.68f	17.47	178.0	28.86
4.667	111.38	40.76f	3.00	3.03	42.74f	17.57	174.2	28.27
4.750	114.42	40.81f	3.05	3.04	42.78f	17.66	170.4	27.70
4.833	117.46	40.86f	3.09	3.04	42.82f	17.75	166.8	27.16
4.917	120.50	40.91f	3.14	3.05	42.84f	17.81	163.2	26.65
5.000	123.55	40.96f	3.18	3.05	42.86f	17.87	159.7	26.15
5.083	126.61	41.01f	3.23	3.06	42.87f	17.91	156.2	25.67
5.167	129.67	41.05f	3.27	3.06	42.87f	17.94	152.8	25.22
5.250	132.73	41.09f	3.32	3.06	42.85f	17.95	149.3	24.78
5.333	135.80	41.13f	3.36	3.06	42.81f	17.92	145.7	24.35
5.417	138.86	41.17f	3.40	3.06	42.76f	17.87	142.1	23.93
5.500	141.93	41.20f	3.45	3.07	42.71f	17.83	138.7	23.54
5.583	144.99	41.23f	3.49	3.07	42.66f	17.79	135.4	23.17
5.667	148.06	41.26f	3.54	3.07	42.61f	17.74	132.3	22.81
5.750	151.12	41.29f	3.58	3.07	42.57f	17.71	129.4	22.48
5.833	154.19	41.32f	3.62	3.07	42.53f	17.68	126.6	22.15
5.917	157.26	41.34f	3.67	3.07	42.50f	17.65	123.9	21.85
6.000	160.33	41.36f	3.71	3.07	42.47f	17.64	121.4	21.56

Distances in FEET.-------Specific Gravity = 1.025.----------Moment in Ft-LT.
Trim is per 92.00Ft
Draft is from Baseline.

02/05/17 11:58:40 Elliott Bay Design Group
GHS 15.50 **NORTH CAROLINA DOT PEDESTRIAN FERRY**



7.2 Tank List

02/08/17 09:55:22 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

-------TANK LIST--------
-------Capacities at 100%-------

TANK STATUS
Trim: zero, Heel: zero

Part	Gals.	SpGr	Weight(LT)	LCG	TCG	VCG	FSM
FO.P	1116.3	0.870	3.62	54.00f	8.50p	4.67	2.2*
FO.S	1116.3	0.870	3.62	54.00f	8.50s	4.67	2.2*
FW.P	198.3	1.000	0.74	42.00f	8.50p	4.00	0.3*
SEWAGE.S	198.3	1.000	0.74	42.00f	8.50s	4.00	0.3*
Total Tanks--------->			8.71	51.97f	0.00	4.55	5.0

Distances in FEET.----------Moments in Ft-LT.

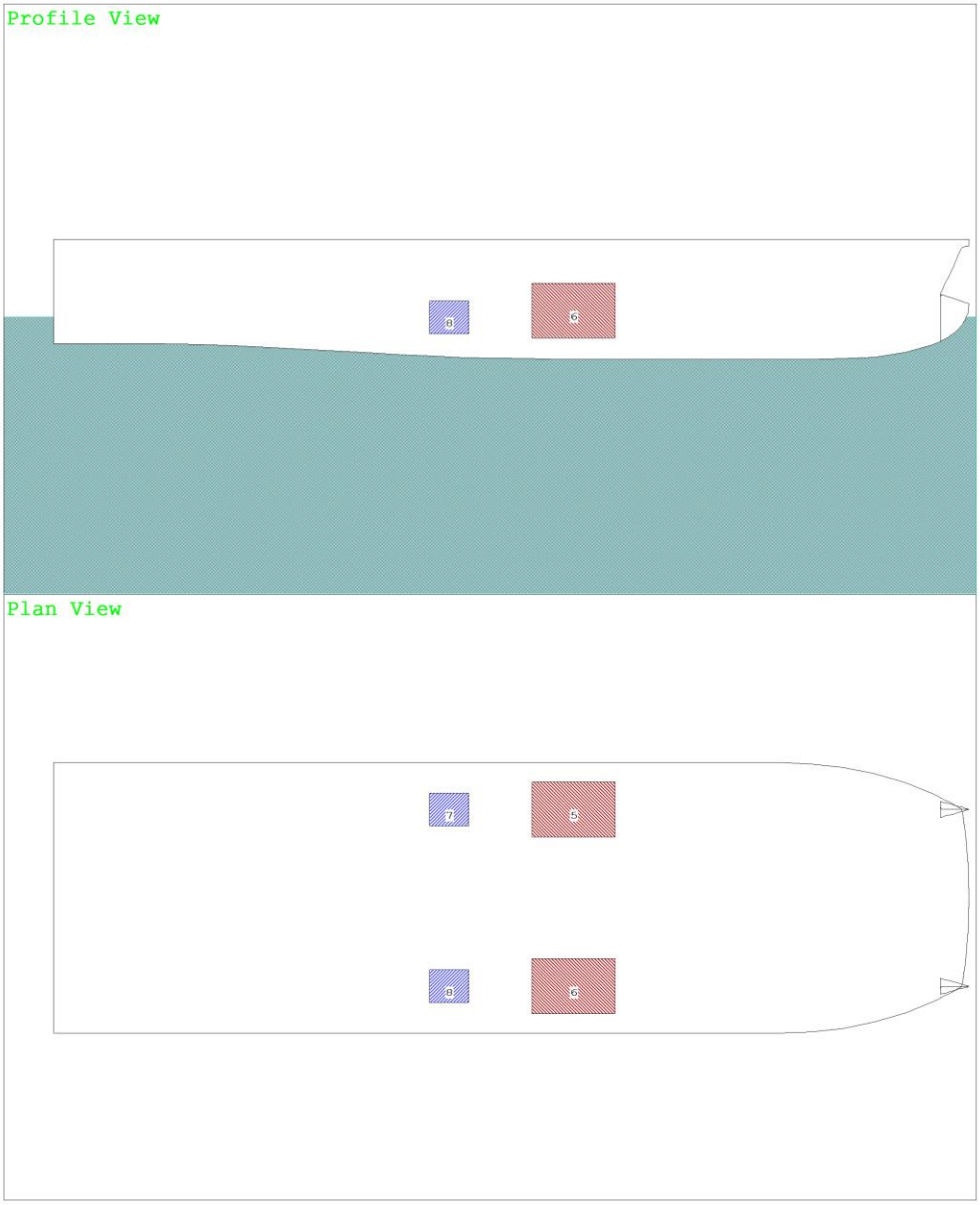
+

Note: FSM values marked with an asterisk (*) are formal values which are not the same as the true values in the present condition.

+

02/08/17 10:25:31 Elliott Bay Design Group
GHS 15.50 **NORTH CAROLINA DOT PEDESTRIAN FERRY**

Condition Graphic - Draft: 4.000 Trim: zero Heel: zero



Tanks 5 FO.P 6 FO.S 7 FW.P 8 SEWAGE.S

Not to scale

7.3 Loading Condition GHS Output

```
03/03/17 13:57:35          Elliott Bay Design Group
 GHS 15.50            NORTH CAROLINA DOT PEDESTRIAN FERRY


 Geometry File: S:\16109\Eng-Des\Phase 3 - Contract Design\...\GHS\16109.GFT
 Geometry File date and time: 02/08/17 09:40:36

                            CRITICAL POINT STATUS
                            Baseline draft: 0.000
                           Trim: zero,  Heel: zero
                                      +
       Critical Points----------------------LCP-----TCP-----VCP-----Height
    (1) ER Intake Aft End          FLOOD   29.17f  12.88s  14.21      14.21
    (1) ER Intake Aft End          FLOOD   29.17f  12.88p  14.21      14.21
    (2) ER Intake Fwd End          FLOOD   31.67f  12.88s  14.21      14.21
    (2) ER Intake Fwd End          FLOOD   31.67f  12.88p  14.21      14.21
    (3) ER Access                  TIGHT   26.13f   9.38s  12.00      12.00
    (3) ER Access                  TIGHT   26.13f   9.38p  12.00      12.00
    (4) Jet Room Vent              FLOOD    9.00f  12.50s  12.50      12.50
    (4) Jet Room Vent              FLOOD    9.00f  12.50p  12.50      12.50
    (5) Void 2 Vent                FLOOD   73.00f   2.00s  12.50      12.50
    (5) Void 2 Vent                FLOOD   73.00f   2.00p  12.50      12.50
     Distances in FEET.-----------------------------------------------------
```

```
03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY


                         ***** Condition 1 *****
                               Lightship

                                WEIGHT STATUS
                          Baseline draft: 3.904 @ Origin
                     Trim: Aft 1.01/88.00,  Heel: Stbd 0.02 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                67.87   37.23f   0.01s   9.34
                  Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->               67.87   37.23f   0.01s   9.34
    Free Surface Adjustment---------->                           0.07
    Adjusted CG---------------------->        37.23f   0.01s   9.41
Distances in FEET.-----------------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                                FREEBOARD STATUS
                          Baseline draft: 3.904 @ Origin
                     Trim: Aft 1.01/88.00,  Heel: Stbd 0.02 deg.
                     Least freeboard is 7.64 Ft located at 4.00f
      Least extra freeboard (to margin line) is 7.26 Ft located at 25.24f

                             HYDROSTATIC PROPERTIES
            Trim: Aft 1.01/88.00, Heel: Stbd 0.02 deg., VCG = 9.34

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.443        67.88   37.15f   2.34     2.77   40.25f   14.56   226.5   30.66
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                               Trim is per 88.00Ft
 Draft is from Baseline.                          Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
```

```
03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY


                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers

                              WEIGHT STATUS
                         Baseline draft: 4.099 @ Origin
                  Trim: Aft 0.15/88.00,  Heel: Port 0.16 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG
LIGHT SHIP                          67.87   37.23f   0.01s   9.34
PASSENGERS - MN DK                   9.19   50.50f   0.00   24.00
PASSENGERS - UP DK                   2.72   37.00f   0.00   24.00
CREW                                 0.38   50.50f   0.00   24.00
BIKES                                0.22    4.00f   0.00   13.00
FOOD SERVICES SUPPLIES               0.08   27.83f   0.00   15.00
  Total Fixed--------->             80.45   38.70f   0.01s  11.59
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG-------FSM
FO.P          1.000    0.870          3.62   54.00f   8.50p   4.67       0.0
FO.S          1.000    0.870          3.62   54.00f   8.50s   4.67       0.0
FW.P          1.000    1.000          0.74   42.00f   8.50p   4.00       0.0
  Total Tanks--------->               7.98   52.89f   0.79p   4.60       5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
    Free Surface Adjustment---------->                       0.06
    Adjusted CG---------------------->       39.98f   0.06p  11.02
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                             FREEBOARD STATUS
                         Baseline draft: 4.099 @ Origin
                  Trim: Aft 0.15/88.00,  Heel: Port 0.16 deg.
                  Least freeboard is 7.37 Ft located at 4.00f
     Least extra freeboard (to margin line) is 6.69 Ft located at 43.45f

                          HYDROSTATIC PROPERTIES
           Trim: Aft 0.15/88.00, Heel: Port 0.16 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.028        88.41   39.97f   2.65     2.95   42.03f   16.34   195.2   22.54
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
```

03/03/17 13:57:35 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

***** Condition 3 *****
Max VCG Load - Light Tanks, Full Passengers

WEIGHT STATUS
Baseline draft: 4.080 @ Origin
Trim: Aft 0.52/88.00, Heel: Stbd 0.20 deg.

Part	Load	SpGr	Weight(LT)	LCG	TCG	VCG	FSM
LIGHT SHIP			67.87	37.23f	0.01s	9.34	
CREW			0.38	50.50f	0.00	24.00	
PASSENGERS - MN DK			9.19	50.50f	0.00	24.00	
PASSENGERS - UP DK			2.72	37.00f	0.00	24.00	
Total Fixed--------->			80.15	38.81f	0.01s	11.59	
FO.P	0.100	0.870	0.36	53.94f	8.49p	2.63	0.9
FO.S	0.100	0.870	0.36	53.94f	8.51s	2.63	0.9
SEWAGE.S	1.000	1.000	0.74	42.00f	8.50s	4.00	0.0
Total Tanks--------->			1.46	47.91f	4.30s	3.32	5.0*
Total Weight-------->			81.61	38.97f	0.08s	11.44	
Free Surface Adjustment---------->						0.06	
Adjusted CG---------->				38.97f	0.08s	11.50	

Distances in FEET. Moments in Ft-LT.

Note: FSM values marked with an asterisk (*) are formal values which are not the same as the true values in the present condition.

FREEBOARD STATUS
Baseline draft: 4.080 @ Origin
Trim: Aft 0.52/88.00, Heel: Stbd 0.20 deg.
Least freeboard is 7.40 Ft located at 4.00f
Least extra freeboard (to margin line) is 6.87 Ft located at 37.38f

HYDROSTATIC PROPERTIES
Trim: Aft 0.52/88.00, Heel: Stbd 0.20 deg., VCG = 11.44

LCF Draft	Displacement Weight(LT)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	In trim	GML	GMT
3.836	81.61	38.92f	2.55	2.89	41.48f	15.69	203.0	23.89

Distances in FEET. Specific Gravity = 1.025. Moment in Ft-LT.
Trim is per 88.00Ft
Draft is from Baseline. Formal Free Surface included.

Note: GMT includes the formal free surface moment 5.0 Ft-LT

7.4 Intact Stability Unusual Proportion and Form GHS Output

```
03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                             **** Condition 1 ****
                                  Lightship

              46 CFR 170.173(c) Intact Righting Energy Criterion

                      RESIDUAL RIGHTING ARMS vs HEEL ANGLE
          Total CG:  LCG =  37.23f  TCG =  0.01s  VCG =   9.34
                              Free Surface Adjustment:    0.07
       Adjusted CG:  LCG =  37.23f  TCG =  0.01s  VCG =   9.41

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
   3.903   0.66a   0.02s      67.841      0.00    0.000      0.00    8.39(3)
   3.921   0.74a   5.02s      67.857      0.00    2.648      6.62    7.55(4)
   3.968   1.02a  10.02s      67.867      0.00    5.070     26.01    6.32(4)
   3.875   1.40a  15.02s      67.845      0.00    6.589     55.53    5.18(4)
   3.740   1.53a  16.83s      67.870      0.00    6.708     67.59    4.84(4)
   3.271   1.61a  20.02s      67.868      0.00    6.436     88.74    4.44(4)
   2.371   1.58a  25.02s      67.870      0.00    5.814    119.72    3.92(4)
   1.450   1.54a  30.02s      67.869      0.00    5.163    147.17    3.36(4)
   0.519   1.50a  35.02s      67.902      0.00    4.496    171.33    2.78(4)
  -0.420   1.46a  40.02s      67.868      0.00    3.826    192.13    2.18(4)
  -1.359   1.42a  45.02s      67.868      0.00    3.171    209.62    1.58(4)
  -2.298   1.38a  50.02s      67.868      0.00    2.546    223.90    0.97(4)
  -3.242   1.33a  55.02s      67.869      0.00    1.938    235.10    0.38(4)
  -3.832   1.31a  58.20s      67.870      0.00    1.552    240.66    0.00(4)
  -4.161   1.30a  60.02s      67.870      0.00    1.331    243.28   -0.21(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                          Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------170.173C RIGHTING ENERGY CRITERION-----Min/Max--------Attained
(1)  GM Upright                                    >     0.49   Ft    30.64 P
(2) Angle from abs 0.019 deg to MaxRA              >    15.00  deg    16.81 P
(3) Area from abs 0.019 deg to 40 or Flood         >    16.90 Ft-deg 192.13 P
(4) Area from 30 deg to 40 or Flood                >     5.60 Ft-deg  44.96 P
(5) Area from abs 0.019 deg to MaxRA at 15         >    15.91 Ft-deg  70.63 P
(6) Area from abs 0.019 deg to MaxRA at 30         >    10.30 Ft-deg  45.72 P
--------------------Relative angles measured from 0.019 ----------------------
```

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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers

46 CFR 170.173(c) Intact Righting Energy Criterion

RESIDUAL RIGHTING ARMS vs HEEL ANGLE
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.099	0.10a	0.16p	88.397	0.00	0.000	0.00	7.92(3)
4.103	0.15a	5.16p	88.418	0.00	1.954	4.88	7.25(4)
4.108	0.31a	10.16p	88.388	0.00	3.820	19.36	6.04(4)
4.035	0.55a	15.16p	88.417	0.00	5.327	42.37	4.85(4)
3.744	0.73a	19.38p	88.422	0.00	5.886	66.27	4.01(4)
3.656	0.77a	20.16p	88.421	0.00	5.861	70.84	3.89(4)
2.782	0.80a	25.16p	88.422	0.00	5.184	98.92	3.34(4)
1.831	0.77a	30.16p	88.421	0.00	4.432	122.99	2.82(4)
0.866	0.74a	35.16p	88.421	0.00	3.669	143.25	2.27(4)
-0.105	0.73a	40.16p	88.421	0.00	2.911	159.69	1.71(4)
-1.072	0.72a	45.16p	88.422	0.00	2.174	172.40	1.13(4)
-2.013	0.74a	50.16p	88.421	0.00	1.472	181.50	0.54(4)
-2.755	0.80a	54.38p	88.422	0.00	0.885	186.47	0.00(4)
-2.889	0.81a	55.16p	88.422	0.00	0.774	187.12	-0.10(4)
-3.734	0.88a	60.16p	88.423	0.00	0.045	189.18	-0.75(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: The Weight and Center of Gravity used for the righting arms above include tank loads. However, the tank load centers were NOT ALLOWED TO SHIFT with heel and trim changes. Rather, a constant Free Surface Moment of 5.0 Ft-LT was applied to artificially modify the CG.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT 26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM	170.173C RIGHTING ENERGY CRITERION	Min/Max		Attained	
(1)	GM Upright	>	0.49	Ft	22.53 P
(2)	Angle from abs 0.161 deg to MaxRA	>	15.00	deg	19.22 P
(3)	Area from abs 0.161 deg to 40 or Flood	>	16.90	Ft-deg	159.69 P
(4)	Area from 30 deg to 40 or Flood	>	5.60	Ft-deg	36.70 P
(5)	Area from abs 0.161 deg to MaxRA at 15	>	15.91	Ft-deg	73.88 P
(6)	Area from abs 0.161 deg to MaxRA at 30	>	10.30	Ft-deg	47.83 P

Relative angles measured from 0.161

```
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GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 3 ****
                   Max VCG Load - Light Tanks, Full Passengers

              46 CFR 170.173(c) Intact Righting Energy Criterion

                     RESIDUAL RIGHTING ARMS vs HEEL ANGLE
          Total CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.44
                           Free Surface Adjustment:    0.06
       Adjusted CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.50

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
   4.080   0.34a   0.20s      81.616      0.00    0.000      0.00    8.04(3)
   4.088   0.40a   5.20s      81.608      0.00    2.068      5.17    7.29(4)
   4.111   0.61a  10.20s      81.612      0.00    4.010     20.42    6.07(4)
   4.041   0.90a  15.20s      81.608      0.00    5.463     44.30    4.88(4)
   3.854   1.08a  18.24s      81.591      0.00    5.803     61.50    4.27(4)
   3.616   1.17a  20.20s      81.612      0.00    5.660     72.77    3.98(4)
   2.719   1.17a  25.20s      81.614      0.00    4.910     99.63    3.45(4)
   1.772   1.13a  30.20s      81.613      0.00    4.114    122.21    2.92(4)
   0.812   1.09a  35.20s      81.613      0.00    3.310    140.78    2.37(4)
  -0.153   1.06a  40.20s      81.613      0.00    2.512    155.33    1.80(4)
  -1.118   1.03a  45.20s      81.613      0.00    1.740    165.95    1.22(4)
  -2.064   1.02a  50.20s      81.614      0.00    1.009    172.80    0.62(4)
  -2.963   1.06a  55.20s      81.613      0.00    0.297    176.06   -0.00(4)
  -3.324   1.08a  57.26s      81.582      0.00    0.000    176.37   -0.26(4)
  -3.827   1.10a  60.20s      81.614      0.00   -0.432    175.73   -0.63(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  The Weight and Center of Gravity used for the righting arms
         above include tank loads.  However, the tank load centers
         were NOT ALLOWED TO SHIFT with heel and trim changes.  Rather,
         a constant Free Surface Moment of 5.0 Ft-LT was applied
         to artificially modify the CG.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                         Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------170.173C RIGHTING ENERGY CRITERION-----Min/Max--------Attained
(1)  GM Upright                                    >     0.49   Ft    23.89 P
(2) Angle from abs 0.204 deg to MaxRA              >    15.00  deg    18.03 P
(3) Area from abs 0.204 deg to 40 or Flood         >    16.90 Ft-deg 155.33 P
(4) Area from 30 deg to 40 or Flood                >     5.60 Ft-deg  33.12 P
(5) Area from abs 0.204 deg to MaxRA at 15         >    15.91 Ft-deg  66.57 P
(6) Area from abs 0.204 deg to MaxRA at 30         >    10.30 Ft-deg  43.10 P
--------------------Relative angles measured from 0.204s---------------------
```

7.5 Intact Stability Weather Criterion Calculation

from 46 CFR 170.170
for service on partially protected waters

$$GM_{reqd} = \frac{PAH}{W \text{ Tan } (T)}$$

P = 0.0033 + (L/14200)2 = 0.0033384 Long tons / Ft^2
A = lateral area above waterline
H = vertical distance from centroid of A to 1/2 draft point
W = displacement in long tons
T = 14 degrees or angle of heel where 1/2 freeboard is submerged, whichever is less.

Length on max waterline:	88.00	ft	
Depth to freeboard deck: (low point, at edge)	11.50	ft	
Beam:	26.00	ft	
Superstructure Height:	9.00	ft	Full breadth of vessel, full length

Draft, T:	3.42	3.50	3.75	4.00	4.25	4.50
Displacement to T:	67	70	79	87	96	105
Area above waterline:	1635	1628	1606	1584	1562	1540
h of area above waterline:	10.00	9.96	9.85	9.73	9.61	9.50
h of area to baseline:	13.42	13.46	13.60	13.73	13.86	14.00
Vertical distance, H:	11.71	11.71	11.73	11.73	11.74	11.75
Freeboard, f:	8.08	8.00	7.75	7.50	7.25	7.00
Tangent to 1/2 freeboard:	0.311	0.308	0.298	0.288	0.279	0.269
Tangent 14 deg:	0.249	0.249	0.249	0.249	0.249	0.249
GM required:	3.82	3.65	3.21	2.85	2.55	2.30
KMt at draft T:	41.37	40.09	36.72	33.91	31.53	29.48
Max KG incl. free surface:	37.55	36.44	33.51	31.06	28.98	27.18

SUMMARY TABLE

DRAFT	DISP	MAX KG	MIN GMt
3.42	67.16	37.55	3.82
3.50	70.00	36.44	3.65
3.75	78.64	33.51	3.21
4.00	87.43	31.06	2.85
4.25	96.33	28.98	2.55
4.50	105.34	27.18	2.30

7.6 Intact Stability Passenger Criterion Calculation

from 46 CFR 171.050(a), effective March 14, 2011

$$GM_{reqd} = \boxed{\frac{W}{\Delta} * \frac{2}{3} * \frac{b}{\tan(T)}}$$

W = total weight of persons other than required crew, including effects, in long tons
b = distance off centerline to centroid of passenger deck on one side
(beam/4 used to be conservative)
Δ = displacement in long tons
T = 14 degrees or angle of heel where freeboard is submerged,
whichever is less.

Number of passengers:	127	
Depth to freeboard deck:	11.50	ft
(low point, at edge)		
Beam:	26.00	ft
b:	6.50	ft
W:	11.91	LT

Draft, T:	3.42	3.50	3.75	4.00	4.25	4.50
Displacement to T:	67.16	70.00	78.64	87.43	96.33	105.34
Freeboard:	8.08	8.00	7.75	7.50	7.25	7.00
Tangent to freeboard:	0.622	0.615	0.596	0.577	0.558	0.538
Tangent 14 deg:	0.249	0.249	0.249	0.249	0.249	0.249
GM required:	3.08	2.96	2.63	2.37	2.15	1.96
KMt at draft T:	41.37	40.09	36.72	33.91	31.53	29.48
Max KG incl. free surface:	38.29	37.13	34.09	31.54	29.38	27.52

PASSENGER CRITERION VALIDITY CALCULATION

from 46 CFR 171.050(b), effective March 14, 2011

The calculation of 46 CFR 171.050(a) is valid when the Righting Arm (GZ) at heel angle T is not less than the minimum Metacentric Height (GM) calculated in paragraph (a) multipied by sin(T).

Heel Angle, T, degrees:	14.00	14.00	14.00	14.00	14.00	14.00
sin(T) :	0.24	0.24	0.24	0.24	0.24	0.24
GM required (ft):	3.08	2.96	2.63	2.37	2.15	1.96
GZ required @ angle T (ft):	0.75	0.72	0.64	0.57	0.52	0.48

Compare required GZ to actual GZ from GHS output

SUMMARY TABLE

DRAFT	DISP	MAX KG	MIN GMt
3.42	67	38.29	3.08
3.50	70	37.13	2.96
3.75	79	34.09	2.63
4.00	87	31.54	2.37
4.25	96	29.38	2.15
4.50	105	27.52	1.96

7.7 Damage Stability Required Righting Arm Calculation

DAMAGE STABILITY CALCULATIONS

Calculation of required righting arm per 46 CFR 171.080 (f), for vessels built on or after April 1, 1996
(Same calculation of required righting arm as per SOLAS II-1,Part B, Reg 8, 2.3.3 A)

$$GZ_{reqd} = \left(\frac{HM}{W} + 0.13 \right)$$

HM = largest of heeling moments due to passengers, asymmetric escape routes, launching of survival craft, or wind pressure.
W = displacement in long tons

All distances in feet, all weights in long tons.

PASSENGER HEELING MOMENT
HM = 0.5 (n w b)

n =	131	passengers			
w =	185	pounds per passenger	Heeling moment =	35.16	ft-LT
b =	6.50	ft off centerline to the centroid of the approximate maximum outboard passenger occupied area			

ASYMMETRIC ESCAPE ROUTE HEELING MOMENT
For vessels with asymmetric escape routes
HM = n w b

n =	131	passengers			
w =	185	pounds per passenger	Heeling moment =	77.54	ft-LT
b =	7.17	ft off centerline to centroid of passenger occupied area, assumung 4 pass/m^2.			

SURVIVAL CRAFT HEELING MOMENT

w =	0	lbs, total survival craft weight	Heeling moment =	0.00	ft-LT
d =	0.00	feet, vessel centerline to center of gravity of survival craft			

WIND PRESSURE HEELING MOMENT

Wind pressure = 2.51 pounds/ft^2

Draft, T:	3.42	3.50	3.75	4.00	4.25	4.50
Displacement to T:	67	70	79	87	96	105
Area above waterline:	1635	1628	1606	1584	1562	1540
h of area above waterline:	10.00	9.96	9.85	9.73	9.61	9.50
Lever arm:	11.71	11.71	11.73	11.73	11.74	11.75
Force due to wind (LT):	1.83	1.82	1.80	1.78	1.75	1.73
Heeling moment:	21.45	21.36	21.10	20.82	20.54	20.28

RIGHTING ARM CALCULATION

C:	0.75	for service on partially protected waters				
Max heeling moment:	77.54	77.54	77.54	77.54	77.54	77.54
GZ_{reqd}:	0.96	0.93	0.84	0.76	0.70	0.65

All GZ_{reqd} values are the greater of 0.33 ft or that calculated by the above formula.

7.8 Damage Stability GHS Output

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 GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY


 Geometry File: S:\16109\Eng-Des\Phase 3 - Contract Design\...\GHS\16109.GFT
 Geometry File date and time: 02/08/17 09:40:36

                              TANK STATUS
                         Trim: zero,  Heel: zero
     Part------------Gals.-----SpGr------Weight(LT)----LCG------TCG------VCG
     AIR                0.0   0.000           0.00
     FUEL OIL        2232.6   0.870           7.24   54.00f   0.00    4.67
     FRESH WATER      396.6   1.000           1.48   42.00f   0.00    4.00
       Total Tanks--------->                 8.71   51.97f   0.00    4.55
     Distances in FEET.-------------------------------------------------
```

PERMEABILITY SETTINGS

Name	Description	Perm.	Cubic FEET
VOID1.S		0.9504	418
VOID2.S		0.9500	877
ER.S		0.8500	1,458
JETRM.S		0.9500	893
FO.P		0.9500	149
FO.S		0.9500	149
FW.P		1.0000	27
SEWAGE.S		1.0000	27
VOID1.P		0.9504	418
VOID2.P		0.9500	877
TANKRM.P		0.9480	3,022
TANKRM.S		0.9480	3,022
ER.P		0.8500	1,458
JETRM.P		0.9500	893

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 1 *****
                              Lightship
                    Damage Case 1: Void 1 Port Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 3.826 @ Origin
                  Trim: Aft 0.22/88.00,  Heel: Port 0.23 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               76.58   38.91f   0.01s   8.80
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025        77.72   39.54f   0.14p   2.48      -3.83
VOID1.P        Flooded  1.025        -1.14   83.60f   8.50p   2.55      -3.83
  Total Displacement--> 1.025        76.59   38.89f   0.02p   2.48
--------------------------------------------------------------------------------
         DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                                FREEBOARD STATUS
                          Baseline draft: 3.826 @ Origin
                    Trim: Aft 0.22/88.00,  Heel: Port 0.23 deg.
                    Least freeboard is 7.63 Ft located at 4.00f
     Least extra freeboard (to margin line) is 6.98 Ft located at 43.45f

                     HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 0.22/88.00, Heel: Port 0.23 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.726        76.59   38.89f   2.48     2.83   40.64f   14.72   203.0   27.89
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
```

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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50              NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 1 ****
                                 Lightship
                        Damage Case 1: Void 1 Port Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
          Total CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.80
                              Free Surface Adjustment:    0.07
       Adjusted CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.86

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    3.826   0.14a   0.23p      76.586      0.00    0.000      0.00    8.20(3)
    3.792   0.13a   5.23p      76.584      0.00    2.419      6.05    7.54(4)
    3.768   0.24a  10.23p      76.566      0.00    4.724     23.95    6.35(4)
    3.563   0.35a  15.23p      76.562      0.00    6.410     52.05    5.27(4)
    3.259   0.40a  18.32p      76.611      0.00    6.842     72.59    4.74(4)
    2.944   0.42a  20.23p      76.584      0.00    6.675     85.55    4.53(4)
    2.047   0.42a  25.23p      76.624      0.00    6.108    117.93    4.00(4)
    1.131   0.42a  30.23p      76.605      0.00    5.513    147.00    3.44(4)
    0.209   0.42a  35.23p      76.584      0.00    4.900    173.04    2.86(4)
   -0.710   0.44a  40.23p      76.584      0.00    4.284    196.00    2.25(4)
   -1.623   0.48a  45.23p      76.583      0.00    3.682    215.91    1.63(4)
   -1.741   0.48a  45.89p      76.582      0.00    3.605    218.29 Marg Imm.
   -2.526   0.53a  50.23p      76.582      0.00    3.109    232.88    1.00(4)
   -3.421   0.60a  55.23p      76.583      0.00    2.541    247.00    0.37(4)
   -3.936   0.64a  58.20p      76.584      0.00    2.185    254.01   -0.00(4)
   -4.284   0.66a  60.23p      76.584      0.00    1.930    258.19   -0.26(4)
   -5.117   0.71a  65.23p      76.585      0.00    1.278    266.23   -0.89(4)
   -5.918   0.73a  70.23p      76.584      0.00    0.599    270.94   -1.50(4)
   -6.583   0.72a  74.55p      76.556      0.00    0.000    272.23   -2.02(4)
   -6.681   0.71a  75.23p      76.613      0.00   -0.095    272.20   -2.11(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                          Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    74.32 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    57.97 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg 254.01 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     6.84 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     0.23 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    45.65 P
-------------------------------------------------------------------------------
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 1 *****
                              Lightship
                    Damage Case 2: Void 2 Port Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 3.721 @ Origin
                  Trim: Fwd 0.17/88.00,  Heel: Port 0.83 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                76.58   38.91f   0.01s   8.80
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         80.43   40.57f   0.49p   2.53      -3.72
VOID2.P        Flooded  1.025         -3.84   73.55f   8.52p   2.65      -3.72
  Total Displacement--> 1.025         76.58   38.92f   0.08p   2.52
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                                FREEBOARD STATUS
                       Baseline draft: 3.721 @ Origin
                  Trim: Fwd 0.17/88.00,  Heel: Port 0.83 deg.
                 Least freeboard is 7.45 Ft located at 79.86f
     Least extra freeboard (to margin line) is 6.75 Ft located at 52.55f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.17/88.00, Heel: Port 0.83 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.797        76.58   38.92f   2.52     2.77   40.09f   14.45   199.2   27.08
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 1 ****
                                 Lightship
                        Damage Case 2: Void 2 Port Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
         Total CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.80
                              Free Surface Adjustment:    0.07
      Adjusted CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.86

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    3.721   0.11f   0.83p      76.584      0.00    0.000      0.00    8.09(3)
    3.644   0.22f   5.83p      76.571      0.00    2.341      5.85    7.49(4)
    3.562   0.23f  10.83p      76.584      0.00    4.597     23.23    6.33(4)
    3.189   0.39f  15.83p      76.547      0.00    6.208     50.52    5.37(4)
    2.638   0.62f  19.43p      76.564      0.00    6.705     73.95    4.89(4)
    2.369   0.68f  20.83p      76.580      0.00    6.630     83.26    4.76(4)
    1.480   0.65f  25.83p      76.584      0.00    6.068    115.44    4.22(4)
    0.581   0.61f  30.83p      76.584      0.00    5.474    144.31    3.65(4)
   -0.323   0.56f  35.83p      76.584      0.00    4.866    170.17    3.05(4)
   -1.226   0.50f  40.83p      76.582      0.00    4.258    192.98    2.43(4)
   -1.533   0.48f  42.54p      76.583      0.00    4.053    200.09 Marg Imm.
   -2.118   0.43f  45.83p      76.582      0.00    3.668    212.78    1.80(4)
   -3.007   0.34f  50.83p      76.586      0.00    3.106    229.71    1.16(4)
   -3.910   0.29f  55.83p      76.585      0.00    2.515    243.77    0.54(4)
   -4.674   0.25f  60.20p      76.584      0.00    1.953    253.56    0.00(4)
   -4.781   0.24f  60.83p      76.584      0.00    1.870    254.75   -0.08(4)
   -5.615   0.21f  65.83p      76.585      0.00    1.188    262.42   -0.70(4)
   -6.409   0.19f  70.83p      76.584      0.00    0.482    266.60   -1.32(4)
   -6.919   0.18f  74.19p      76.573      0.00    0.000    267.41   -1.73(4)
   -7.159   0.18f  75.83p      76.551      0.00   -0.235    267.22   -1.94(2)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                          Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (2) ER Intake Fwd End          FLOOD   31.67f  12.88   14.21
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero              >    10.00  deg    73.36 P
(2) Angle from Equilibrium to Flood               >    10.00  deg    59.37 P
(3) Area from Equilibrium to Flood or RAzero      >     2.82 Ft-deg 253.56 P
(4) Righting Arm at MaxRA                         >     0.96   Ft     6.70 P
(6) Absolute Angle at Equilibrium                 <    12.00  deg     0.83 P
(7) Angle from Equilibrium to Dk/margin Immersion >     0.00  deg    41.71 P
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                          ***** Condition 1 *****
                                Lightship
                     Damage Case 3: Tank Room Port Flooded

                        WEIGHT and DISPLACEMENT STATUS
                        Baseline draft: 4.304 @ Origin
                   Trim: Fwd 0.68/88.00,  Heel: Port 7.18 deg.
Part------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               76.58   38.91f   0.01s   8.80
                 Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                     1.025      110.84   42.14f   3.18p   3.20      -4.27
FO.P           Flooded   1.025       -3.30   54.01f   8.56p   4.18      -4.27
FW.P           Flooded   1.025       -0.76   42.00f   8.50p   4.00      -4.27
TANKRM.P       Flooded   1.025      -30.19   48.95f   8.69p   3.45      -4.27
  Total Displacement--> 1.025       76.58   38.95f   0.72p   3.05
--------------------------------------------------------------------------------
                WEIGHT EXCESS:        0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                                FREEBOARD STATUS
                        Baseline draft: 4.304 @ Origin
                   Trim: Fwd 0.68/88.00,  Heel: Port 7.18 deg.
                  Least freeboard is 4.94 Ft located at 76.83f
     Least extra freeboard (to margin line) is 4.34 Ft located at 61.65f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.68/88.00, Heel: Port 7.18 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.614        76.58   38.95f   3.05     2.32   39.95f   15.56   214.6   20.77
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50              NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 1 ****
                                 Lightship
                      Damage Case 3: Tank Room Port Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
          Total CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.80
                            Free Surface Adjustment:    0.07
       Adjusted CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.86

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
   4.270   0.44f   7.18p      76.582      0.00    0.000      0.00    6.26(3)
   4.287   0.56f  12.18p      76.568      0.00    1.841      4.60    5.21(4)
   4.230   0.64f  17.18p      76.577      0.00    3.668     18.38    3.92(4)
   3.921   0.79f  22.18p      76.547      0.00    5.193     40.66    2.81(4)
   3.833   0.82f  23.15p      76.584      0.00    5.446     45.82 Marg Imm.
   3.327   0.98f  27.18p      76.582      0.00    6.250     69.49    1.93(4)
   3.113   1.02f  28.35p      76.585      0.00    6.294     76.84    1.79(4)
   2.330   1.02f  32.18p      76.585      0.00    5.907    100.40    1.43(4)
   1.304   1.00f  37.18p      76.584      0.00    5.329    128.53    0.95(4)
   0.306   0.95f  42.18p      76.585      0.00    4.704    153.63    0.41(4)
  -0.393   0.90f  45.81p      76.584      0.00    4.224    169.88   -0.00(4)
  -0.649   0.88f  47.18p      76.584      0.00    4.040    175.50   -0.16(4)
  -1.556   0.79f  52.18p      76.590      0.00    3.345    193.98   -0.78(4)
  -2.407   0.67f  57.18p      76.594      0.00    2.629    208.92   -1.43(4)
  -3.197   0.52f  62.18p      76.570      0.00    1.903    220.25   -2.11(4)
  -3.585   0.44f  64.84p      76.589      0.00    1.515    224.81    0.00(3)
  -3.914   0.36f  67.18p      76.589      0.00    1.174    227.94   -2.81(4)
  -4.598   0.21f  72.18p      76.610      0.00    0.433    231.96   -3.51(4)
  -4.981   0.12f  75.06p      76.591      0.00    0.000    232.59   -3.89(4)
  -5.253   0.07f  77.18p      76.588      0.00   -0.317    232.25   -4.18(2)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                   +
  Note:  No tank loads are present.
                                   +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                         Stbd heeling moment = 0.00
                                   +
            Critical Points----------------------LCP-----TCP-----VCP
         (2) ER Intake Fwd End          FLOOD   31.67f  12.88   14.21
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    67.89 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    38.64 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg 169.88 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     6.29 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     7.18 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    15.97 P
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 1 *****
                              Lightship
                  Damage Case 4: Engine Room Port Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 4.846 @ Origin
                 Trim: Aft 1.71/88.00,  Heel: Port 2.79 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                76.58   38.91f   0.01s   8.80
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         89.03   36.58f   1.45p   2.73      -4.84
ER.P           Flooded  1.025        -12.45   23.02f   8.58p   3.08      -4.84
  Total Displacement--> 1.025         76.58   38.79f   0.29p   2.67
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                                FREEBOARD STATUS
                      Baseline draft: 4.846 @ Origin
                 Trim: Aft 1.71/88.00,  Heel: Port 2.79 deg.
                 Least freeboard is 6.09 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.83 Ft located at 10.07f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 1.71/88.00, Heel: Port 2.79 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.010        76.58   38.79f   2.67     2.55   43.00f   14.08   194.1   24.48
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 1 ****
Lightship
Damage Case 4: Engine Room Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.91f TCG = 0.01s VCG = 8.80
Free Surface Adjustment: 0.07
Adjusted CG: LCG = 38.91f TCG = 0.01s VCG = 8.86

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.838	1.11a	2.79p	76.550	0.00	0.000	0.00	7.20(3)
5.101	1.46a	7.79p	76.582	0.00	2.038	5.09	5.82(4)
5.379	1.97a	12.79p	76.583	0.00	3.888	19.99	4.35(4)
5.648	2.70a	17.79p	76.566	0.00	5.287	43.11	2.85(4)
5.704	3.37a	22.23p	76.584	0.00	5.904	68.22	Marg Imm.
5.686	3.45a	22.79p	76.584	0.00	5.936	71.49	1.53(4)
5.564	3.67a	24.84p	76.564	0.00	5.982	83.73	1.09(4)
5.267	3.89a	27.79p	76.621	0.00	5.888	101.21	0.56(4)
4.610	4.01a	31.96p	76.587	0.00	5.530	125.10	-0.00(4)
4.450	4.00a	32.79p	76.592	0.00	5.436	129.66	-0.09(4)
3.418	3.91a	37.79p	76.577	0.00	4.824	155.40	-0.59(4)
2.383	3.82a	42.79p	76.576	0.00	4.189	177.94	-1.10(4)
1.370	3.75a	47.79p	76.579	0.00	3.541	197.27	-1.64(4)
0.399	3.70a	52.79p	76.582	0.00	2.882	213.33	-2.21(4)
-0.519	3.68a	57.79p	76.584	0.00	2.215	226.07	-2.81(4)
-1.386	3.68a	62.79p	76.553	0.00	1.540	235.46	-3.42(4)
-1.769	3.69a	65.11p	76.584	0.00	1.223	238.68	0.00(3)
-2.196	3.69a	67.79p	76.589	0.00	0.858	241.46	-4.06(4)
-2.950	3.70a	72.79p	76.584	0.00	0.172	244.04	-4.69(4)
-3.129	3.71a	74.04p	76.581	0.00	-0.001	244.15	-4.85(4)
-3.630	3.74a	77.79p	76.583	0.00	-0.512	243.18	-5.34(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT 26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	71.26	P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	29.17	P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	125.10	P
(4)	Righting Arm at MaxRA	>	0.96	Ft	5.98	P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	2.79	P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	19.45	P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                         ***** Condition 1 *****
                               Lightship
                    Damage Case 5: Jet Room Port Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 4.720 @ Origin
                  Trim: Aft 1.75/88.00,  Heel: Port 1.65 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               76.58   38.91f   0.01s   8.80
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->          --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025        83.89   36.18f   0.90p   2.63      -4.72
JETRM.P        Flooded  1.025        -7.31    8.95f   8.55p   3.15      -4.72
  Total Displacement--> 1.025        76.58   38.78f   0.17p   2.58
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                                FREEBOARD STATUS
                       Baseline draft: 4.720 @ Origin
                  Trim: Aft 1.75/88.00,  Heel: Port 1.65 deg.
                  Least freeboard is 6.48 Ft located at 4.00f
     Least extra freeboard (to margin line) is 6.22 Ft located at 10.07f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 1.75/88.00, Heel: Port 1.65 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.866        76.58   38.78f   2.58     2.64   42.86f   12.73   175.6   25.55
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 1 ****
                                 Lightship
                      Damage Case 5: Jet Room Port Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL Rrighting ARMS vs HEEL ANGLE with FLOODING
          Total CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.80
                            Free Surface Adjustment:    0.07
       Adjusted CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.86

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
   4.716   1.14a   1.65p      76.548      0.00    0.000      0.00    7.53(3)
   4.982   1.52a   6.65p      76.582      0.00    2.119      5.30    6.22(4)
   5.294   2.11a  11.65p      76.585      0.00    4.001     20.70    4.75(4)
   5.643   2.98a  16.65p      76.564      0.00    5.342     44.28    3.21(4)
   5.795   3.91a  21.65p      76.555      0.00    5.920     72.75    1.81(4)
   5.791   3.97a  22.06p      76.606      0.00    5.934     75.20 Marg Imm.
   5.725   4.21a  23.75p      76.563      0.00    5.959     85.21    1.33(4)
   5.489   4.49a  26.65p      76.622      0.00    5.885    102.45    0.76(4)
   4.716   4.64a  31.65p      76.596      0.00    5.491    131.07    0.08(4)
   4.556   4.63a  32.45p      76.592      0.00    5.403    135.42   -0.00(4)
   3.653   4.50a  36.65p      76.570      0.00    4.894    157.10   -0.39(4)
   2.572   4.34a  41.65p      76.560      0.00    4.264    180.03   -0.86(4)
   1.520   4.20a  46.65p      76.564      0.00    3.620    199.75   -1.37(4)
   0.516   4.10a  51.65p      76.572      0.00    2.968    216.22   -1.91(4)
  -0.424   4.04a  56.65p      76.580      0.00    2.313    229.43   -2.50(4)
  -1.290   4.04a  61.65p      76.584      0.00    1.657    239.35   -3.13(4)
  -2.078   4.07a  66.65p      76.587      0.00    0.998    245.99   -3.79(4)
  -2.211   4.08a  67.53p      76.577      0.00    0.881    246.82    0.00(3)
  -2.802   4.13a  71.65p      76.570      0.00    0.327    249.31   -4.46(4)
  -3.126   4.17a  74.06p      76.573      0.00    0.000    249.70   -4.78(4)
  -3.461   4.21a  76.65p      76.582      0.00   -0.355    249.24   -5.13(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                   +
  Note:  No tank loads are present.
                                   +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                         Stbd heeling moment = 0.00
                                   +
            Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    72.41 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    30.80 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg 135.42 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     5.96 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     1.65 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    20.41 P
-------------------------------------------------------------------------------
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 1 *****
                              Lightship
                      Damage Case 6: Void 1 P/S Flooded

                        WEIGHT and DISPLACEMENT STATUS
                        Baseline draft: 3.726 @ Origin
                   Trim: Fwd 0.07/88.00,  Heel: Stbd 0.02 deg.
Part------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               76.58   38.91f   0.01s   8.80
                Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025        79.06   40.31f   0.01s   2.50      -3.73
VOID1.S        Flooded  1.025        -1.24   83.65f   8.50s   2.64      -3.73
VOID1.P        Flooded  1.025        -1.23   83.65f   8.50p   2.64      -3.73
  Total Displacement--> 1.025        76.58   38.91f   0.01s   2.50
--------------------------------------------------------------------------------
         DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                                FREEBOARD STATUS
                        Baseline draft: 3.726 @ Origin
                   Trim: Fwd 0.07/88.00,  Heel: Stbd 0.02 deg.
                  Least freeboard is 7.69 Ft located at 91.37f
     Least extra freeboard (to margin line) is 6.98 Ft located at 49.52f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.07/88.00, Heel: Stbd 0.02 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.760        76.58   38.91f   2.50     2.79   39.98f   13.70   188.8   27.51
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 1 ****
                                 Lightship
                          Damage Case 6: Void 1 P/S Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL Rrighting ARMS vs HEEL ANGLE with FLOODING
         Total CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.80
                              Free Surface Adjustment:    0.07
      Adjusted CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.86

   Origin    Degrees of   Displacement    Residual Arms            Flood Pt
    Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    3.726   0.05f   0.02s      76.575      0.00    0.000      0.00    8.25(3)
    3.731   0.01a   5.02s      76.581      0.00    2.385      5.96    7.63(4)
    3.741   0.18a  10.02s      76.546      0.00    4.657     23.62    6.42(4)
    3.574   0.34a  15.02s      76.544      0.00    6.350     51.38    5.31(4)
    3.263   0.40a  18.27s      76.565      0.00    6.826     72.94    4.75(4)
    2.982   0.42a  20.02s      76.584      0.00    6.681     84.74    4.55(4)
    2.086   0.42a  25.02s      76.620      0.00    6.117    117.17    4.02(4)
    1.171   0.42a  30.02s      76.605      0.00    5.523    146.28    3.46(4)
    0.249   0.42a  35.02s      76.584      0.00    4.912    172.38    2.88(4)
   -0.671   0.44a  40.02s      76.584      0.00    4.297    195.41    2.28(4)
   -1.583   0.48a  45.02s      76.583      0.00    3.694    215.38    1.65(4)
   -1.741   0.48a  45.89s      76.582      0.00    3.592    218.55 Marg Imm.
   -2.486   0.53a  50.02s      76.582      0.00    3.122    232.41    1.02(4)
   -3.383   0.59a  55.02s      76.583      0.00    2.556    246.59    0.40(4)
   -3.936   0.64a  58.20s      76.584      0.00    2.175    254.12   -0.00(4)
   -4.247   0.66a  60.02s      76.584      0.00    1.949    257.87   -0.23(4)
   -5.081   0.71a  65.02s      76.585      0.00    1.300    266.01   -0.86(4)
   -5.884   0.73a  70.02s      76.584      0.00    0.623    270.83   -1.48(4)
   -6.578   0.72a  74.52s      76.553      0.00    0.000    272.23   -2.02(4)
   -6.649   0.71a  75.02s      76.609      0.00   -0.069    272.22   -2.08(4)
   Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
   Note:  No tank loads are present.
                                    +
   Note:  The Residual Righting Arms shown above are in excess of the
          overturning arms derived from these moments (in Ft-LT):
                          Stbd heeling moment = 0.00
                                    +
             Critical Points----------------------LCP-----TCP-----VCP
          (3) ER Access                  TIGHT   26.13f   9.38   12.00
          (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
 LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
 (1) Angle from Equilibrium to RAzero               >    10.00  deg    74.50 P
 (2) Angle from Equilibrium to Flood                >    10.00  deg    58.18 P
 (3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg 254.12 P
 (4) Righting Arm at MaxRA                          >     0.96   Ft     6.83 P
 (6) Absolute Angle at Equilibrium                  <    12.00  deg     0.02 P
 (7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    45.87 P
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 1 *****
                              Lightship
                      Damage Case 7: Void 2 P/S Flooded

                        WEIGHT and DISPLACEMENT STATUS
                        Baseline draft: 3.486 @ Origin
                   Trim: Fwd 0.95/88.00,  Heel: Stbd 0.02 deg.
Part------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               76.58   38.91f   0.01s   8.80
                Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025        85.43   42.56f   0.01s   2.62      -3.49
VOID2.S        Flooded  1.025        -4.43   73.59f   8.50s   2.84      -3.49
VOID2.P        Flooded  1.025        -4.42   73.59f   8.50p   2.84      -3.49
  Total Displacement--> 1.025        76.57   38.97f   0.01s   2.59
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.01
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                                FREEBOARD STATUS
                        Baseline draft: 3.486 @ Origin
                   Trim: Fwd 0.95/88.00,  Heel: Stbd 0.02 deg.
                  Least freeboard is 7.02 Ft located at 91.97f
     Least extra freeboard (to margin line) is 6.63 Ft located at 67.72f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.95/88.00, Heel: Stbd 0.02 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.904        76.57   38.97f   2.59     2.64   38.62f   12.95   178.6   25.84
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 1 ****
                                 Lightship
                          Damage Case 7: Void 2 P/S Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
         Total CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.80
                             Free Surface Adjustment:    0.07
      Adjusted CG:  LCG =  38.91f  TCG =  0.01s  VCG =   8.86

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    3.487   0.62f   0.02s      76.578      0.00    0.000      0.00    8.22(5)
    3.482   0.59f   5.02s      76.583      0.00    2.252      5.63    7.78(4)
    3.468   0.48f  10.02s      76.577      0.00    4.441     22.39    6.59(4)
    3.215   0.48f  15.02s      76.609      0.00    6.083     48.93    5.54(4)
    2.664   0.64f  19.22s      76.583      0.00    6.711     76.01    4.92(4)
    2.514   0.67f  20.02s      76.582      0.00    6.684     81.40    4.85(4)
    1.624   0.66f  25.02s      76.584      0.00    6.145    113.93    4.31(4)
    0.726   0.62f  30.02s      76.584      0.00    5.556    143.20    3.75(4)
   -0.178   0.57f  35.02s      76.584      0.00    4.949    169.47    3.15(4)
   -1.081   0.51f  40.02s      76.583      0.00    4.341    192.70    2.54(4)
   -1.533   0.48f  42.54s      76.583      0.00    4.040    203.26 Marg Imm.
   -1.975   0.44f  45.02s      76.583      0.00    3.749    212.92    1.90(4)
   -2.862   0.35f  50.02s      76.584      0.00    3.184    230.24    1.26(4)
   -3.766   0.30f  55.02s      76.585      0.00    2.604    244.72    0.64(4)
   -4.643   0.25f  60.02s      76.584      0.00    1.968    256.17    0.02(4)
   -4.674   0.25f  60.20s      76.584      0.00    1.944    256.52   -0.00(4)
   -5.484   0.21f  65.02s      76.584      0.00    1.292    264.33   -0.60(4)
   -6.284   0.19f  70.02s      76.584      0.00    0.591    269.05   -1.22(4)
   -6.914   0.18f  74.15s      76.577      0.00    0.000    270.28   -1.73(4)
   -7.039   0.18f  75.02s      76.592      0.00   -0.124    270.22   -1.83(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                          Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
         (5) Void 2 Vent                FLOOD   73.00f   2.00   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    74.13 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    60.18 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg 256.52 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     6.71 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     0.02 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    42.52 P
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                         ***** Condition 1 *****
                               Lightship
                    Damage Case 8: Tank Room  P/S Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 4.661 @ Origin
                  Trim: Fwd 1.88/88.00,  Heel: Stbd 0.03 deg.
Part-----------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                              76.58   38.91f   0.01s   8.80
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025       144.44   44.00f   0.01s   3.51      -4.66
FO.P           Flooded  1.025        -3.32   54.03f   8.50p   4.18      -4.66
FO.S           Flooded  1.025        -3.33   54.03f   8.50s   4.19      -4.66
FW.P           Flooded  1.025        -0.76   42.00f   8.50p   4.00      -4.66
SEWAGE.S       Flooded  1.025        -0.76   42.00f   8.50s   4.00      -4.66
TANKRM.P       Flooded  1.025       -29.81   49.33f   8.50p   3.41      -4.66
TANKRM.S       Flooded  1.025       -29.88   49.33f   8.50s   3.42      -4.66
  Total Displacement--> 1.025        76.58   39.02f   0.01s   3.53
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                                FREEBOARD STATUS
                       Baseline draft: 4.661 @ Origin
                  Trim: Fwd 1.88/88.00,  Heel: Stbd 0.03 deg.
                 Least freeboard is 4.88 Ft located at 91.97f
     Least extra freeboard (to margin line) is 4.62 Ft located at 88.46f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 1.88/88.00, Heel: Stbd 0.03 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  5.452        76.58   39.02f   3.53     1.72   37.08f   14.47   199.5   15.41
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 1 ****
Lightship
Damage Case 8: Tank Room P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.91f TCG = 0.01s VCG = 8.80
Free Surface Adjustment: 0.07
Adjusted CG: LCG = 38.91f TCG = 0.01s VCG = 8.86

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.661	1.22f	0.03s	76.578	0.00	0.000	0.00	6.28(5)
4.644	1.20f	5.03s	76.584	0.00	1.356	3.39	6.10(5)
4.585	1.16f	10.03s	76.583	0.00	2.774	13.69	5.36(4)
4.498	1.06f	15.03s	76.579	0.00	4.241	31.21	4.16(4)
4.258	0.97f	20.03s	76.577	0.00	5.518	55.68	3.05(4)
4.131	0.96f	21.48s	76.584	0.00	5.792	63.88	Marg Imm.
3.700	0.97f	25.03s	76.584	0.00	6.254	85.35	2.18(4)
3.387	1.00f	26.94s	76.584	0.00	6.332	97.34	1.94(4)
2.767	1.03f	30.03s	76.585	0.00	6.126	116.61	1.64(4)
1.742	1.01f	35.03s	76.584	0.00	5.567	145.96	1.16(4)
0.729	0.98f	40.03s	76.585	0.00	4.963	172.31	0.65(4)
-0.245	0.92f	45.03s	76.586	0.00	4.316	195.53	0.09(4)
-0.392	0.90f	45.81s	76.584	0.00	4.212	198.84	0.00(4)
-1.174	0.83f	50.03s	76.587	0.00	3.634	215.41	-0.51(4)
-2.050	0.72f	55.03s	76.593	0.00	2.927	231.83	-1.14(4)
-2.867	0.59f	60.03s	76.588	0.00	2.205	244.66	-1.81(4)
-3.588	0.44f	64.86s	76.584	0.00	1.505	253.62	0.00(3)
-3.613	0.43f	65.03s	76.584	0.00	1.480	253.88	-2.51(4)
-4.311	0.27f	70.03s	76.577	0.00	0.746	259.44	-3.21(4)
-4.979	0.12f	75.03s	76.570	0.00	0.000	261.31	-3.89(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT	26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD	9.00f	12.50	12.50
(5)	Void 2 Vent	FLOOD	73.00f	2.00	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	75.00	P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	45.78	P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	198.84	P
(4)	Righting Arm at MaxRA	>	0.96	Ft	6.33	P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	0.03	P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	21.45	P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 1 *****
                              Lightship
                  Damage Case 9: Engine Room P/S Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 5.927 @ Origin
                 Trim: Aft 3.11/88.00,  Heel: Stbd 0.02 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                76.58   38.91f   0.01s   8.80
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              76.58   38.91f   0.01s   8.80
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025        103.69   34.57f   0.01s   2.99      -5.92
ER.S           Flooded  1.025        -13.56   22.90f   8.50s   3.24      -5.92
ER.P           Flooded  1.025        -13.54   22.90f   8.50p   3.24      -5.92
  Total Displacement--> 1.025         76.58   38.70f   0.01s   2.90
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                              FREEBOARD STATUS
                      Baseline draft: 5.927 @ Origin
                 Trim: Aft 3.11/88.00,  Heel: Stbd 0.02 deg.
                 Least freeboard is 5.71 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.46 Ft located at 4.00f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 3.11/88.00, Heel: Stbd 0.02 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.323        76.58   38.70f   2.90     2.26   45.41f   12.32   169.9   21.31
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 1 ****
Lightship
Damage Case 9: Engine Room P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.91f TCG = 0.01s VCG = 8.80
Free Surface Adjustment: 0.07
Adjusted CG: LCG = 38.91f TCG = 0.01s VCG = 8.86

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
5.923	2.02a	0.02s	76.584	0.00	0.000	0.00	6.88(4)
5.931	2.09a	5.02s	76.578	0.00	1.846	4.61	5.75(4)
5.953	2.29a	10.02s	76.612	0.00	3.577	18.22	4.53(4)
5.983	2.68a	15.02s	76.583	0.00	5.031	39.86	3.26(4)
5.972	3.27a	20.02s	76.612	0.00	5.911	67.45	1.99(4)
5.921	3.44a	21.49s	76.584	0.00	6.033	76.18	Marg Imm.
5.797	3.63a	23.37s	76.578	0.00	6.081	87.60	1.28(4)
5.636	3.76a	25.02s	76.611	0.00	6.043	97.62	0.98(4)
4.949	3.99a	30.02s	76.583	0.00	5.709	127.23	0.23(4)
4.605	4.00a	31.97s	76.585	0.00	5.513	138.17	-0.00(4)
3.994	3.96a	35.02s	76.610	0.00	5.153	154.46	-0.32(4)
2.953	3.87a	40.02s	76.576	0.00	4.528	178.71	-0.82(4)
1.925	3.78a	45.02s	76.577	0.00	3.888	199.76	-1.34(4)
0.929	3.72a	50.02s	76.580	0.00	3.235	217.57	-1.89(4)
-0.019	3.69a	55.02s	76.583	0.00	2.574	232.10	-2.47(4)
-0.912	3.68a	60.02s	76.584	0.00	1.905	243.30	-3.08(4)
-1.756	3.68a	65.02s	76.556	0.00	1.228	251.13	-3.71(4)
-1.769	3.69a	65.12s	76.596	0.00	1.215	251.25	-0.00(3)
-2.540	3.70a	70.02s	76.585	0.00	0.545	255.57	-4.34(4)
-3.122	3.71a	74.01s	76.584	0.00	-0.001	256.65	-4.85(4)
-3.268	3.71a	75.02s	76.547	0.00	-0.139	256.58	-4.98(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3) ER Access	TIGHT	26.13f	9.38	12.00
(4) Jet Room Vent	FLOOD	9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1) Angle from Equilibrium to RAzero	>	10.00	deg	73.98	P
(2) Angle from Equilibrium to Flood	>	10.00	deg	31.95	P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	138.17	P
(4) Righting Arm at MaxRA	>	0.96	Ft	6.08	P
(6) Absolute Angle at Equilibrium	<	12.00	deg	0.02	P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	21.46	P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 1 *****
                              Lightship
                    Damage Case 10: JET Room P/S Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 5.910 @ Origin
                  Trim: Aft 3.66/88.00,  Heel: Stbd 0.02 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                76.58   38.91f   0.01s   8.80
                Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->               76.58   38.91f   0.01s   8.80
                                   Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                     1.025         94.62   32.98f   0.01s   2.89      -5.90
JETRM.S        Flooded   1.025         -9.03    8.91f   8.50s   3.54      -5.90
JETRM.P        Flooded   1.025         -9.01    8.91f   8.50p   3.53      -5.90
  Total Displacement--> 1.025         76.58   38.65f   0.01s   2.74
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                              FREEBOARD STATUS
                       Baseline draft: 5.910 @ Origin
                  Trim: Aft 3.66/88.00,  Heel: Stbd 0.02 deg.
                  Least freeboard is 5.75 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.50 Ft located at 4.00f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 3.66/88.00, Heel: Stbd 0.02 deg., VCG = 8.80

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.060        76.58   38.65f   2.74     2.39   44.50f    9.34   128.9   22.80
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 1 ****
Lightship
Damage Case 10: JET Room P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.91f TCG = 0.01s VCG = 8.80
Free Surface Adjustment: 0.07
Adjusted CG: LCG = 38.91f TCG = 0.01s VCG = 8.86

Origin Depth	Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
5.904	2.38a	0.02s	76.584	0.00	0.000	0.00	6.95(4)
5.937	2.48a	5.02s	76.567	0.00	1.970	4.92	5.80(4)
6.043	2.81a	10.02s	76.583	0.00	3.787	19.38	4.52(4)
6.226	3.43a	15.02s	76.584	0.00	5.228	42.07	3.13(4)
6.314	4.20a	20.02s	76.593	0.00	6.036	70.50	1.79(4)
6.310	4.23a	20.28s	76.621	0.00	6.057	72.05	Marg Imm.
6.165	4.55a	23.04s	76.601	0.00	6.158	88.98	1.14(4)
5.952	4.68a	25.02s	76.585	0.00	6.105	101.12	0.80(4)
5.082	4.71a	30.02s	76.584	0.00	5.677	130.81	0.21(4)
4.580	4.64a	32.38s	76.578	0.00	5.402	143.86	-0.00(4)
4.007	4.55a	35.02s	76.578	0.00	5.081	157.74	-0.24(4)
2.921	4.39a	40.02s	76.560	0.00	4.457	181.61	-0.70(4)
1.858	4.24a	45.02s	76.562	0.00	3.818	202.31	-1.20(4)
0.836	4.13a	50.02s	76.570	0.00	3.170	219.78	-1.73(4)
-0.127	4.06a	55.02s	76.577	0.00	2.517	234.00	-2.31(4)
-1.016	4.03a	60.02s	76.582	0.00	1.862	244.95	-2.92(4)
-1.829	4.06a	65.02s	76.585	0.00	1.206	252.62	-3.57(4)
-2.206	4.08a	67.52s	76.614	0.00	0.876	255.21	0.00(3)
-2.571	4.11a	70.02s	76.584	0.00	0.541	256.99	-4.24(4)
-3.120	4.17a	74.03s	76.589	0.00	0.000	258.07	-4.78(4)
-3.252	4.18a	75.02s	76.583	0.00	-0.136	258.01	-4.91(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT 26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	74.00	P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	32.35	P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	143.86	P
(4)	Righting Arm at MaxRA	>	0.96	Ft	6.16	P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	0.02	P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	20.26	P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                    Damage Case 1: Void 1 Port Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 3.987 @ Origin
                 Trim: Fwd 0.18/88.00,  Heel: Port 0.54 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                 88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         90.02   40.76f   0.29p   2.68      -3.99
VOID1.P        Flooded  1.025         -1.57   83.75f   8.50p   2.93      -3.99
  Total Displacement--> 1.025         88.45   40.00f   0.14p   2.67
--------------------------------------------------------------------------------
         DISPLACEMENT EXCESS:          0.03
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                                FREEBOARD STATUS
                      Baseline draft: 3.987 @ Origin
                 Trim: Fwd 0.18/88.00,  Heel: Port 0.54 deg.
                Least freeboard is 7.23 Ft located at 82.90f
     Least extra freeboard (to margin line) is 6.54 Ft located at 52.55f

                    HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.18/88.00, Heel: Port 0.54 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.071        88.45   40.00f   2.67     2.90   41.33f   15.28   182.4   22.11
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers
Damage Case 1: Void 1 Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
3.985	0.12f	0.54p	88.398	0.00	0.000	0.00	7.87(3)
3.937	0.16f	5.54p	88.420	0.00	1.918	4.79	7.27(4)
3.886	0.10f	10.54p	88.418	0.00	3.776	19.05	6.10(4)
3.696	0.04f	15.54p	88.416	0.00	5.262	41.80	4.99(4)
3.202	0.07f	20.21p	88.449	0.00	5.872	68.13	4.20(4)
3.152	0.07f	20.54p	88.460	0.00	5.861	70.03	4.16(4)
2.247	0.06f	25.54p	88.422	0.00	5.165	98.13	3.63(4)
1.320	0.04f	30.54p	88.422	0.00	4.418	122.11	3.09(4)
0.382	0.02f	35.54p	88.422	0.00	3.664	142.32	2.52(4)
-0.558	0.02a	40.54p	88.421	0.00	2.917	158.77	1.94(4)
-0.758	0.03a	41.61p	88.421	0.00	2.759	161.82	Marg Imm.
-1.488	0.08a	45.54p	88.421	0.00	2.195	171.54	1.33(4)
-2.396	0.16a	50.54p	88.424	0.00	1.509	180.78	0.72(4)
-3.256	0.26a	55.54p	88.427	0.00	0.801	186.57	0.06(4)
-3.340	0.27a	56.03p	88.425	0.00	0.729	186.94	-0.00(4)
-4.095	0.34a	60.54p	88.425	0.00	0.053	188.72	-0.59(4)
-4.153	0.34a	60.89p	88.397	0.00	0.000	188.73	-0.63(4)
-4.906	0.40a	65.54p	88.424	0.00	-0.717	187.07	-1.23(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

+

Note: No tank loads are present.

+

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

+

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT 26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	60.35	P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	55.49	P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	186.94	P
(4)	Righting Arm at MaxRA	>	0.96	Ft	5.87	P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	0.54	P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	41.07	P

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GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                    Damage Case 2: Void 2 Port Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 3.862 @ Origin
                  Trim: Fwd 0.64/88.00,  Heel: Port 1.37 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->               88.42   39.98f   0.06p  10.96
                                   Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         93.49   41.86f   0.71p   2.74      -3.86
VOID2.P        Flooded  1.025         -5.08   73.57f   8.53p   3.05      -3.86
  Total Displacement--> 1.025         88.41   40.04f   0.26p   2.72
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.01
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                                FREEBOARD STATUS
                       Baseline draft: 3.862 @ Origin
                  Trim: Fwd 0.64/88.00,  Heel: Port 1.37 deg.
                 Least freeboard is 6.75 Ft located at 85.93f
     Least extra freeboard (to margin line) is 6.18 Ft located at 61.65f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.64/88.00, Heel: Port 1.37 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.157        88.41   40.04f   2.72     2.82   40.68f   14.99   179.0   21.27
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
```

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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers
Damage Case 2: Void 2 Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
3.861	0.42f	1.37p	88.422	0.00	0.000	0.00	7.72(3)
3.767	0.55f	6.37p	88.411	0.00	1.839	4.60	7.18(4)
3.648	0.64f	11.37p	88.414	0.00	3.638	18.31	6.04(4)
3.277	0.84f	16.37p	88.421	0.00	5.000	40.08	5.06(4)
2.488	1.26f	21.37p	88.419	0.00	5.619	66.94	4.40(4)
1.519	1.38f	26.37p	88.418	0.00	5.098	94.21	3.91(4)
0.618	1.30f	31.37p	88.420	0.00	4.356	117.94	3.34(4)
0.246	1.26f	33.42p	88.421	0.00	4.048	126.58	Marg Imm.
-0.288	1.20f	36.37p	88.421	0.00	3.607	137.85	2.75(4)
-1.193	1.09f	41.37p	88.421	0.00	2.865	154.03	2.14(4)
-2.096	0.98f	46.37p	88.428	0.00	2.147	166.55	1.52(4)
-2.987	0.88f	51.37p	88.425	0.00	1.443	175.52	0.89(4)
-3.850	0.80f	56.37p	88.425	0.00	0.708	180.91	0.24(4)
-4.161	0.77f	58.21p	88.423	0.00	0.428	181.96	0.00(4)
-4.618	0.72f	60.98p	88.434	0.00	0.000	182.55	-0.36(4)
-4.683	0.72f	61.37p	88.422	0.00	-0.061	182.54	-0.41(4)
-5.480	0.64f	66.37p	88.425	0.00	-0.848	180.28	-1.06(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3) ER Access	TIGHT	26.13f	9.38	12.00
(4) Jet Room Vent	FLOOD	9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1) Angle from Equilibrium to RAzero	>	10.00	deg	59.61	P
(2) Angle from Equilibrium to Flood	>	10.00	deg	56.84	P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	181.96	P
(4) Righting Arm at MaxRA	>	0.96	Ft	5.62	P
(6) Absolute Angle at Equilibrium	<	12.00	deg	1.37	P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	32.06	P

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03/03/17 13:57:35         Elliott Bay Design Group
GHS 15.50            NORTH CAROLINA DOT PEDESTRIAN FERRY

                          ***** Condition 2 *****
                    Full Load - Full Tanks, Full Passengers
                     Damage Case 3: Tank Room Port Flooded

                        WEIGHT and DISPLACEMENT STATUS
                        Baseline draft: 4.568 @ Origin
                   Trim: Fwd 1.22/88.00,  Heel: Port 9.77 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                 88.42   39.98f   0.06p  10.96
                 Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                     1.025       130.63   43.14f   3.74p   3.62      -4.50
FO.P           Flooded   1.025        -4.10   54.01f   8.52p   4.58      -4.50
FW.P           Flooded   1.025        -0.76   42.00f   8.50p   4.00      -4.50
TANKRM.P       Flooded   1.025       -37.36   49.18f   8.72p   4.00      -4.50
  Total Displacement--> 1.025        88.41   40.09f   1.37p   3.41
--------------------------------------------------------------------------------
                WEIGHT EXCESS:          0.01
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                                FREEBOARD STATUS
                        Baseline draft: 4.568 @ Origin
                   Trim: Fwd 1.22/88.00,  Heel: Port 9.77 deg.
                  Least freeboard is 3.58 Ft located at 76.83f
     Least extra freeboard (to margin line) is 3.02 Ft located at 73.79f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 1.22/88.00, Heel: Port 9.77 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  5.141        88.41   40.09f   3.41     2.39   40.62f   16.25   194.0   16.54
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers
Damage Case 3: Tank Room Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.501	0.80f	9.77p	88.411	0.00	0.000	0.00	5.37(3)
4.509	0.88f	14.77p	88.415	0.00	1.492	3.73	4.25(4)
4.400	0.94f	19.77p	88.417	0.00	2.950	14.85	2.99(4)
4.354	0.97f	20.67p	88.422	0.00	3.187	17.60	Marg Imm.
4.034	1.10f	24.77p	88.412	0.00	4.152	32.72	1.90(4)
3.307	1.54f	29.77p	88.421	0.00	4.796	55.28	1.09(4)
3.088	1.68f	30.89p	88.422	0.00	4.826	60.63	0.96(4)
2.231	1.98f	34.77p	88.388	0.00	4.462	78.88	0.60(4)
1.212	2.02f	39.77p	88.423	0.00	3.703	99.55	0.08(4)
1.068	2.02f	40.50p	88.426	0.00	3.591	102.19	0.00(4)
0.224	2.02f	44.77p	88.416	0.00	2.913	116.10	-0.47(4)
-0.724	1.98f	49.77p	88.423	0.00	2.100	128.65	-1.06(4)
-1.624	1.90f	54.77p	88.425	0.00	1.272	137.08	-1.74(2)
-1.673	1.89f	55.06p	88.428	0.00	1.224	137.44	0.00(3)
-2.469	1.77f	59.77p	88.428	0.00	0.437	141.36	-2.48(2)
-2.888	1.68f	62.40p	88.426	0.00	-0.001	141.93	-2.87(2)
-3.248	1.60f	64.77p	88.426	0.00	-0.395	141.46	-3.22(2)
-3.951	1.39f	69.77p	88.451	0.00	-1.214	137.43	-3.98(2)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(2)	ER Intake Fwd End	FLOOD 31.67f	12.88	14.21
(3)	ER Access	TIGHT 26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION	Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	52.63 P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	30.72 P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	102.19 P
(4)	Righting Arm at MaxRA	>	0.96	Ft	4.83 P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	9.77 P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	10.90 P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                  Damage Case 4: Engine Room Port Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 5.166 @ Origin
                 Trim: Aft 1.56/88.00,  Heel: Port 3.64 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025        102.63   37.51f   1.69p   2.95      -5.16
ER.P           Flooded  1.025        -14.23   23.03f   8.60p   3.33      -5.16
  Total Displacement--> 1.025         88.41   39.83f   0.58p   2.89
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.02
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                                FREEBOARD STATUS
                      Baseline draft: 5.166 @ Origin
                 Trim: Aft 1.56/88.00,  Heel: Port 3.64 deg.
                 Least freeboard is 5.57 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.29 Ft located at 13.10f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 1.56/88.00, Heel: Port 3.64 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.388        88.41   39.83f   2.89     2.63   43.72f   14.61   174.5   19.25
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50              NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 2 ****
                     Full Load - Full Tanks, Full Passengers
                     Damage Case 4: Engine Room Port Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL Rrighting ARMS vs HEEL ANGLE with FLOODING
         Total CG:  LCG =  39.98f  TCG =  0.06p  VCG =  10.96
                           Free Surface Adjustment:    0.06
      Adjusted CG:  LCG =  39.98f  TCG =  0.06p  VCG =  11.02

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    5.155   1.02a   3.64p      88.402      0.00    0.000      0.00    6.68(4)
    5.403   1.35a   8.64p      88.420      0.00    1.601      4.00    5.29(4)
    5.657   1.82a  13.64p      88.420      0.00    3.080     15.76    3.82(4)
    5.910   2.49a  18.64p      88.409      0.00    4.256     34.22    2.32(4)
    5.995   2.87a  21.09p      88.422      0.00    4.613     45.13 Marg Imm.
    6.009   3.26a  23.64p      88.412      0.00    4.811     57.16    0.93(4)
    5.987   3.45a  24.92p      88.422      0.00    4.832     63.35    0.61(4)
    5.868   3.80a  27.61p      88.422      0.00    4.740     76.23   -0.00(4)
    5.797   3.91a  28.64p      88.422      0.00    4.671     81.06   -0.22(4)
    5.232   4.28a  33.64p      88.421      0.00    4.156    103.27   -1.09(4)
    4.312   4.32a  38.64p      88.421      0.00    3.438    122.34   -1.68(4)
    3.292   4.27a  43.64p      88.420      0.00    2.661    137.61   -2.20(4)
    2.295   4.23a  48.64p      88.421      0.00    1.873    148.95   -2.75(4)
    1.331   4.20a  53.64p      88.422      0.00    1.080    156.34   -3.32(4)
    0.988   4.19a  55.48p      88.425      0.00    0.788    158.06   -0.00(3)
    0.411   4.18a  58.64p      88.422      0.00    0.287    159.76   -3.91(4)
    0.085   4.18a  60.46p      88.422      0.00   -0.001    160.02   -4.13(4)
   -0.471   4.16a  63.64p      88.422      0.00   -0.502    159.22   -4.51(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                          Stbd heeling moment = 0.00
                                    +
             Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero                >    10.00  deg    56.82 P
(2) Angle from Equilibrium to Flood                 >    10.00  deg    23.97 P
(3) Area from Equilibrium to Flood or RAzero        >     2.82 Ft-deg  76.23 P
(4) Righting Arm at MaxRA                           >     0.96   Ft     4.83 P
(6) Absolute Angle at Equilibrium                   <    12.00  deg     3.64 P
(7) Angle from Equilibrium to Dk/margin Immersion   >     0.00  deg    17.45 P
-------------------------------------------------------------------------------
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                   Damage Case 5: Jet Room Port Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 4.994 @ Origin
                 Trim: Aft 1.55/88.00,  Heel: Port 2.19 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         96.58   37.23f   1.07p   2.82      -4.99
JETRM.P        Flooded  1.025         -8.16    8.96f   8.56p   3.34      -4.99
  Total Displacement--> 1.025         88.42   39.83f   0.38p   2.78
--------------------------------------------------------------------------------
        DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                               FREEBOARD STATUS
                      Baseline draft: 4.994 @ Origin
                 Trim: Aft 1.55/88.00,  Heel: Port 2.19 deg.
                 Least freeboard is 6.07 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.80 Ft located at 13.10f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 1.55/88.00, Heel: Port 2.19 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.223        88.42   39.83f   2.78     2.72   43.65f   13.33   159.2   20.23
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers
Damage Case 5: Jet Room Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.989	1.01a	2.19p	88.410	0.00	0.000	0.00	7.10(3)
5.241	1.37a	7.19p	88.420	0.00	1.679	4.20	5.81(4)
5.523	1.89a	12.19p	88.421	0.00	3.200	16.46	4.35(4)
5.846	2.68a	17.19p	88.414	0.00	4.355	35.50	2.81(4)
6.039	3.42a	21.07p	88.422	0.00	4.804	53.40	Marg Imm.
6.060	3.62a	22.19p	88.421	0.00	4.861	58.81	1.35(4)
6.054	3.88a	23.73p	88.422	0.00	4.887	66.33	0.95(4)
5.877	4.33a	27.19p	88.435	0.00	4.768	83.02	0.19(4)
5.784	4.43a	28.22p	88.422	0.00	4.696	87.92	-0.00(4)
5.274	4.66a	32.19p	88.421	0.00	4.294	105.81	-0.63(4)
4.308	4.64a	37.19p	88.421	0.00	3.586	125.62	-1.18(4)
3.237	4.51a	42.19p	88.411	0.00	2.810	141.64	-1.66(4)
2.200	4.41a	47.19p	88.414	0.00	2.024	153.73	-2.18(4)
1.207	4.34a	52.19p	88.418	0.00	1.236	161.88	-2.73(4)
0.271	4.30a	57.19p	88.421	0.00	0.452	166.10	-3.32(4)
-0.241	4.30a	60.10p	88.448	0.00	-0.001	166.75	-3.68(4)
-0.353	4.30a	60.75p	88.443	0.00	-0.102	166.72	0.00(3)
-0.595	4.30a	62.19p	88.422	0.00	-0.324	166.41	-3.94(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points	LCP	TCP	VCP
(3) ER Access	TIGHT 26.13f	9.38	12.00
(4) Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION	Min/Max		Attained	
(1) Angle from Equilibrium to RAzero	>	10.00	deg	57.91 P
(2) Angle from Equilibrium to Flood	>	10.00	deg	26.04 P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	87.92 P
(4) Righting Arm at MaxRA	>	0.96	Ft	4.89 P
(6) Absolute Angle at Equilibrium	<	12.00	deg	2.19 P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	18.88 P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                     Damage Case 6: Void 1 P/S Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 3.857 @ Origin
                  Trim: Fwd 0.55/88.00,  Heel: Port 0.17 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                 88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025          91.77   41.64f   0.09p   2.71      -3.86
VOID1.S        Flooded  1.025          -1.67   83.79f   8.50s   3.02      -3.86
VOID1.P        Flooded  1.025          -1.71   83.80f   8.50p   3.05      -3.86
  Total Displacement--> 1.025          88.39   40.03f   0.09p   2.69
--------------------------------------------------------------------------------
               WEIGHT EXCESS:           0.03
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                       +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                       +

                                FREEBOARD STATUS
                       Baseline draft: 3.857 @ Origin
                  Trim: Fwd 0.55/88.00,  Heel: Port 0.17 deg.
                 Least freeboard is 7.05 Ft located at 91.24f
     Least extra freeboard (to margin line) is 6.52 Ft located at 58.62f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.55/88.00, Heel: Port 0.17 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.111        88.39   40.03f   2.69     2.85   40.54f   14.10   168.4   21.68
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                          **** Condition 2 ****
                    Full Load - Full Tanks, Full Passengers
                      Damage Case 6: Void 1 P/S Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
         Total CG:  LCG =  39.98f  TCG =  0.06p  VCG =  10.96
                          Free Surface Adjustment:    0.06
      Adjusted CG:  LCG =  39.98f  TCG =  0.06p  VCG =  11.02

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    3.857   0.36f   0.17p      88.422      0.00    0.000      0.00    7.95(3)
    3.851   0.33f   5.17p      88.421      0.00    1.882      4.71    7.42(4)
    3.839   0.21f  10.17p      88.407      0.00    3.709     18.71    6.23(4)
    3.702   0.08f  15.17p      88.399      0.00    5.203     41.13    5.08(4)
    3.208   0.07f  20.17p      88.442      0.00    5.873     69.16    4.21(4)
    2.314   0.06f  25.17p      88.422      0.00    5.220     97.44    3.67(4)
    1.389   0.04f  30.17p      88.422      0.00    4.474    121.71    3.13(4)
    0.451   0.02f  35.17p      88.422      0.00    3.720    142.20    2.57(4)
   -0.488   0.02a  40.17p      88.421      0.00    2.972    158.93    1.98(4)
   -0.758   0.03a  41.61p      88.421      0.00    2.759    163.07 Marg Imm.
   -1.420   0.07a  45.17p      88.421      0.00    2.247    171.96    1.38(4)
   -2.331   0.15a  50.17p      88.424      0.00    1.560    181.47    0.76(4)
   -3.193   0.25a  55.17p      88.427      0.00    0.855    187.51    0.11(4)
   -3.340   0.27a  56.03p      88.424      0.00    0.728    188.19   -0.00(4)
   -4.033   0.33a  60.17p      88.424      0.00    0.110    189.94   -0.54(4)
   -4.153   0.34a  60.89p      88.397      0.00    0.000    189.98   -0.63(4)
   -4.847   0.39a  65.17p      88.424      0.00   -0.660    188.57   -1.19(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                         Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    60.72 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    55.86 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg 188.19 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     5.87 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     0.17 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    41.45 P
-------------------------------------------------------------------------------
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                     Damage Case 7: Void 2 P/S Flooded

                       WEIGHT and DISPLACEMENT STATUS
                       Baseline draft: 3.578 @ Origin
                  Trim: Fwd 1.58/88.00,  Heel: Port 0.18 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                 88.42   39.98f   0.06p  10.96
                Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->             --- Included in Fixed Weight ---        5.0*
  Total Weight-------->                88.42   39.98f   0.06p  10.96
                                    Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                     1.025         99.86   43.97f   0.09p   2.86      -3.58
VOID2.S        Flooded   1.025         -5.66   73.63f   8.50s   3.22      -3.58
VOID2.P        Flooded   1.025         -5.78   73.63f   8.50p   3.26      -3.58
  Total Displacement--> 1.025         88.43   40.13f   0.09p   2.81
--------------------------------------------------------------------------------
         DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                       +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                       +

                                FREEBOARD STATUS
                       Baseline draft: 3.578 @ Origin
                  Trim: Fwd 1.58/88.00,  Heel: Port 0.18 deg.
                 Least freeboard is 6.25 Ft located at 91.37f
     Least extra freeboard (to margin line) is 5.96 Ft located at 82.90f

                     HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 1.58/88.00, Heel: Port 0.18 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.280        88.43   40.13f   2.81     2.68   38.98f   13.23   158.0   19.95
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers
Damage Case 7: Void 2 P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
3.578	1.03f	0.18p	88.422	0.00	0.000	0.00	7.60(5)
3.556	1.03f	5.18p	88.426	0.00	1.739	4.35	7.40(5)
3.509	0.99f	10.18p	88.421	0.00	3.470	17.37	6.43(4)
3.284	1.01f	15.18p	88.422	0.00	4.889	38.40	5.35(4)
2.664	1.25f	20.18p	88.419	0.00	5.631	64.98	4.56(4)
2.468	1.32f	21.29p	88.422	0.00	5.669	71.22	4.43(4)
1.732	1.40f	25.18p	88.420	0.00	5.271	92.75	4.04(4)
0.833	1.32f	30.18p	88.422	0.00	4.534	117.53	3.48(4)
0.246	1.26f	33.42p	88.422	0.00	4.048	131.45	Marg Imm.
-0.073	1.22f	35.18p	88.422	0.00	3.785	138.33	2.89(4)
-0.979	1.11f	40.18p	88.420	0.00	3.040	155.39	2.29(4)
-1.882	1.00f	45.18p	88.426	0.00	2.316	168.77	1.67(4)
-2.778	0.90f	50.18p	88.427	0.00	1.611	178.58	1.04(4)
-3.648	0.82f	55.18p	88.425	0.00	0.886	184.83	0.39(4)
-4.161	0.77f	58.21p	88.422	0.00	0.427	186.83	0.00(4)
-4.488	0.73f	60.18p	88.423	0.00	0.124	187.37	-0.26(4)
-4.617	0.72f	60.98p	88.454	0.00	0.000	187.42	-0.36(4)
-5.294	0.66f	65.18p	88.423	0.00	-0.660	186.04	-0.91(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50
(5)	Void 2 Vent	FLOOD 73.00f	2.00	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION	Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	60.80 P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	58.03 P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	186.83 P
(4)	Righting Arm at MaxRA	>	0.96	Ft	5.67 P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	0.18 P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	33.24 P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                   Damage Case 8: Tank Room  P/S Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 4.950 @ Origin
                 Trim: Fwd 2.53/88.00,  Heel: Port 0.32 deg.
Part-----------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                              88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025       166.97   44.72f   0.10p   3.86      -4.95
FO.P           Flooded  1.025        -3.96   54.03f   8.50p   4.51      -4.95
FO.S           Flooded  1.025        -3.89   54.03f   8.50s   4.47      -4.95
FW.P           Flooded  1.025        -0.76   42.00f   8.50p   4.00      -4.95
SEWAGE.S       Flooded  1.025        -0.76   42.00f   8.50s   4.00      -4.95
TANKRM.P       Flooded  1.025       -34.94   49.52f   8.51p   3.80      -4.95
TANKRM.S       Flooded  1.025       -34.25   49.52f   8.49s   3.75      -4.95
  Total Displacement--> 1.025        88.42   40.19f   0.10p   3.86
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                                FREEBOARD STATUS
                          Baseline draft: 4.950 @ Origin
                 Trim: Fwd 2.53/88.00,  Heel: Port 0.32 deg.
                Least freeboard is 3.88 Ft located at 91.37f
     Least extra freeboard (to margin line) is 3.62 Ft located at 91.24f

                      HYDROSTATIC PROPERTIES with FLOODING
              Trim: Fwd 2.53/88.00, Heel: Port 0.32 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  6.045        88.42   40.19f   3.86     1.77   38.15f   15.26   182.3   11.39
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                               Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50              NORTH CAROLINA DOT PEDESTRIAN FERRY

                            **** Condition 2 ****
                     Full Load - Full Tanks, Full Passengers
                      Damage Case 8: Tank Room  P/S Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
          Total CG:  LCG =  39.98f  TCG =  0.06p  VCG =  10.96
                           Free Surface Adjustment:    0.06
       Adjusted CG:  LCG =  39.98f  TCG =  0.06p  VCG =  11.02

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    4.948   1.64f   0.32p      88.422      0.00    0.000      0.00    5.44(5)
    4.932   1.61f   5.32p      88.421      0.00    0.999      2.50    5.27(5)
    4.884   1.52f  10.32p      88.421      0.00    2.032     10.06    4.93(4)
    4.792   1.41f  15.32p      88.416      0.00    3.151     22.98    3.74(4)
    4.735   1.34f  17.57p      88.381      0.00    3.673     30.66 Marg Imm.
    4.608   1.28f  20.32p      88.421      0.00    4.242     41.55    2.57(4)
    4.108   1.34f  25.32p      88.423      0.00    4.900     64.53    1.63(4)
    3.658   1.50f  28.14p      88.421      0.00    5.013     78.57    1.23(4)
    3.223   1.68f  30.32p      88.409      0.00    4.947     89.40    0.99(4)
    2.121   1.99f  35.32p      88.422      0.00    4.382    112.98    0.54(4)
    1.103   2.02f  40.32p      88.423      0.00    3.619    133.06    0.02(4)
    1.069   2.03f  40.50p      88.453      0.00    3.590    133.72   -0.00(4)
    0.119   2.02f  45.32p      88.418      0.00    2.826    149.18   -0.53(4)
   -0.824   1.97f  50.32p      88.423      0.00    2.011    161.28   -1.12(4)
   -1.675   1.89f  55.06p      88.425      0.00    1.224    168.96    0.00(3)
   -1.719   1.88f  55.32p      88.426      0.00    1.181    169.27   -1.82(2)
   -2.557   1.75f  60.32p      88.430      0.00    0.346    173.09   -2.56(2)
   -2.887   1.68f  62.40p      88.428      0.00   -0.001    173.45   -2.87(2)
   -3.330   1.58f  65.32p      88.423      0.00   -0.485    172.74   -3.30(2)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                          Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (2) ER Intake Fwd End          FLOOD   31.67f  12.88   14.21
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
         (5) Void 2 Vent                FLOOD   73.00f   2.00   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    62.08 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    40.18 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg 133.72 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     5.01 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     0.32 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    17.25 P
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                  Damage Case 9: Engine Room P/S Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 6.341 @ Origin
                 Trim: Aft 3.08/88.00,  Heel: Port 0.22 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025        118.61   35.43f   0.09p   3.20      -6.34
ER.S           Flooded  1.025        -14.98   22.91f   8.49s   3.43      -6.34
ER.P           Flooded  1.025        -15.22   22.91f   8.51p   3.47      -6.34
  Total Displacement--> 1.025         88.41   39.70f   0.09p   3.12
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.01
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                              FREEBOARD STATUS
                      Baseline draft: 6.341 @ Origin
                 Trim: Aft 3.08/88.00,  Heel: Port 0.22 deg.
                 Least freeboard is 5.25 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.00 Ft located at 4.00f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 3.08/88.00, Heel: Port 0.22 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.724        88.41   39.70f   3.12     2.33   46.20f   12.79   152.8   16.55
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers
Damage Case 9: Engine Room P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
6.338	2.00a	0.22p	88.436	0.00	0.000	0.00	6.42(4)
6.337	2.06a	5.22p	88.419	0.00	1.435	3.59	5.29(4)
6.335	2.22a	10.22p	88.388	0.00	2.801	14.20	4.09(4)
6.338	2.52a	15.22p	88.420	0.00	3.999	31.27	2.83(4)
6.331	3.00a	19.93p	88.421	0.00	4.777	52.11	Marg Imm.
6.328	3.04a	20.22p	88.421	0.00	4.808	53.46	1.55(4)
6.233	3.50a	23.97p	88.421	0.00	5.009	71.98	0.65(4)
6.169	3.65a	25.22p	88.445	0.00	4.977	78.22	0.38(4)
6.028	3.85a	27.09p	88.425	0.00	4.860	87.43	-0.00(4)
5.705	4.11a	30.22p	88.420	0.00	4.564	102.17	-0.56(4)
4.973	4.33a	35.22p	88.399	0.00	3.946	123.52	-1.30(4)
3.989	4.31a	40.22p	88.422	0.00	3.195	141.42	-1.84(4)
2.974	4.25a	45.22p	88.420	0.00	2.413	155.45	-2.37(4)
1.987	4.22a	50.22p	88.421	0.00	1.623	165.55	-2.93(4)
1.036	4.19a	55.22p	88.422	0.00	0.830	171.69	-3.51(4)
0.990	4.19a	55.48p	88.425	0.00	0.789	171.90	-0.00(3)
0.128	4.18a	60.22p	88.422	0.00	0.038	173.86	-4.10(4)
0.085	4.18a	60.46p	88.422	0.00	0.000	173.86	-4.13(4)
-0.743	4.15a	65.22p	88.420	0.00	-0.750	172.07	-4.70(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT 26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained
(1) Angle from Equilibrium to RAzero	>	10.00	deg	60.24 P
(2) Angle from Equilibrium to Flood	>	10.00	deg	26.87 P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	87.43 P
(4) Righting Arm at MaxRA	>	0.96	Ft	5.01 P
(6) Absolute Angle at Equilibrium	<	12.00	deg	0.22 P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	19.72 P

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GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 2 *****
                  Full Load - Full Tanks, Full Passengers
                   Damage Case 10: JET Room P/S Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 6.256 @ Origin
                 Trim: Aft 3.54/88.00,  Heel: Port 0.20 deg.
Part------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               88.42   39.98f   0.06p  10.96
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              88.42   39.98f   0.06p  10.96
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025       108.09   34.06f   0.09p   3.08      -6.25
JETRM.S        Flooded  1.025        -9.77    8.92f   8.50s   3.70      -6.25
JETRM.P        Flooded  1.025        -9.91    8.92f   8.50p   3.73      -6.25
  Total Displacement--> 1.025        88.41   39.65f   0.09p   2.94
--------------------------------------------------------------------------------
              WEIGHT EXCESS:          0.01
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                              FREEBOARD STATUS
                      Baseline draft: 6.256 @ Origin
                 Trim: Aft 3.54/88.00,  Heel: Port 0.20 deg.
                 Least freeboard is 5.36 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.11 Ft located at 4.00f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 3.54/88.00, Heel: Port 0.20 deg., VCG = 10.96

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.428        88.41   39.65f   2.94     2.49   45.39f    9.90   118.2   17.96
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 2 ****
Full Load - Full Tanks, Full Passengers
Damage Case 10: JET Room P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 39.98f TCG = 0.06p VCG = 10.96
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 39.98f TCG = 0.06p VCG = 11.02

Origin Depth	Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
6.250	2.31a	0.20p	88.413	0.00	0.000	0.00	6.56(4)
6.274	2.39a	5.20p	88.411	0.00	1.554	3.88	5.41(4)
6.346	2.66a	10.20p	88.422	0.00	3.010	15.33	4.15(4)
6.483	3.17a	15.20p	88.421	0.00	4.226	33.52	2.79(4)
6.603	3.75a	19.14p	88.426	0.00	4.853	51.49	Marg Imm.
6.615	3.91a	20.20p	88.426	0.00	4.960	56.71	1.40(4)
6.545	4.36a	23.46p	88.430	0.00	5.102	73.11	0.61(4)
6.424	4.54a	25.20p	88.415	0.00	5.061	81.95	0.26(4)
6.277	4.65a	26.65p	88.429	0.00	4.974	89.22	-0.00(4)
5.751	4.77a	30.20p	88.422	0.00	4.608	106.31	-0.50(4)
4.735	4.70a	35.20p	88.421	0.00	3.891	127.68	-1.00(4)
3.661	4.56a	40.20p	88.427	0.00	3.119	145.22	-1.47(4)
2.605	4.45a	45.20p	88.384	0.00	2.336	158.87	-1.97(4)
1.595	4.36a	50.20p	88.416	0.00	1.549	168.58	-2.51(4)
0.636	4.31a	55.20p	88.420	0.00	0.762	174.36	-3.08(4)
-0.241	4.30a	60.09p	88.417	0.00	0.000	176.22	-3.67(4)
-0.261	4.29a	60.20p	88.416	0.00	-0.017	176.22	-3.69(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Point		LCP	TCP	VCP
(4) Jet Room Vent	FLOOD	9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1) Angle from Equilibrium to RAzero	>	10.00	deg	59.89	P
(2) Angle from Equilibrium to Flood	>	10.00	deg	26.45	P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	89.22	P
(4) Righting Arm at MaxRA	>	0.96	Ft	5.10	P
(6) Absolute Angle at Equilibrium	<	12.00	deg	0.20	P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	18.94	P

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GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
               Max VCG Load - Light Tanks, Full Passengers
                   Damage Case 1: Void 1 Port Flooded

                     WEIGHT and DISPLACEMENT STATUS
                     Baseline draft: 3.988 @ Origin
                Trim: Aft 0.25/88.00,  Heel: Port 0.10 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               81.61   38.97f   0.09s  11.44
              Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->          --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                   1.025         82.83   39.60f   0.06p   2.56      -3.99
VOID1.P       Flooded  1.025         -1.21   83.62f   8.50p   2.62      -3.99
  Total Displacement--> 1.025         81.62   38.94f   0.07s   2.56
--------------------------------------------------------------------------------
        DISPLACEMENT EXCESS:          0.00
Distances in FEET.-------------------------------------------Moments in Ft-LT.
                                     +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                     +

                               FREEBOARD STATUS
                     Baseline draft: 3.988 @ Origin
                Trim: Aft 0.25/88.00,  Heel: Port 0.10 deg.
                Least freeboard is 7.50 Ft located at 4.00f
     Least extra freeboard (to margin line) is 6.87 Ft located at 43.45f

                   HYDROSTATIC PROPERTIES with FLOODING
          Trim: Aft 0.25/88.00, Heel: Port 0.10 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.872        81.62   38.94f   2.56     2.86   40.86f   14.75   190.8   23.52
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                            Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                          **** Condition 3 ****
                  Max VCG Load - Light Tanks, Full Passengers
                       Damage Case 1: Void 1 Port Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
         Total CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.44
                           Free Surface Adjustment:    0.06
      Adjusted CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.50

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    3.987   0.16a   0.10p      81.598      0.00    0.000      0.00    8.07(3)
    3.948   0.13a   5.10p      81.613      0.00    2.041      5.10    7.41(4)
    3.916   0.22a  10.10p      81.603      0.00    3.995     20.23    6.23(4)
    3.763   0.36a  15.10p      81.586      0.00    5.509     44.17    5.11(4)
    3.434   0.43a  18.85p      81.614      0.00    5.979     65.89    4.42(4)
    3.258   0.46a  20.10p      81.614      0.00    5.876     73.30    4.26(4)
    2.358   0.46a  25.10p      81.647      0.00    5.108    101.23    3.73(4)
    1.428   0.46a  30.10p      81.614      0.00    4.312    124.79    3.19(4)
    0.490   0.46a  35.10p      81.588      0.00    3.507    144.34    2.62(4)
   -0.448   0.47a  40.10p      81.614      0.00    2.709    159.88    2.03(4)
   -1.187   0.49a  44.06p      81.614      0.00    2.093    169.38 Marg Imm.
   -1.380   0.49a  45.10p      81.614      0.00    1.935    171.48    1.43(4)
   -2.296   0.55a  50.10p      81.612      0.00    1.206    179.32    0.81(4)
   -3.171   0.64a  55.10p      81.617      0.00    0.486    183.54    0.17(4)
   -3.400   0.66a  56.43p      81.614      0.00    0.287    184.06   -0.00(4)
   -3.724   0.69a  58.34p      81.587      0.00    0.000    184.33   -0.25(4)
   -4.018   0.72a  60.10p      81.614      0.00   -0.269    184.09   -0.47(4)
   -4.840   0.78a  65.10p      81.616      0.00   -1.047    180.81   -1.11(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                         Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                 TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent             FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero              >    10.00  deg    58.24 P
(2) Angle from Equilibrium to Flood               >    10.00  deg    56.34 P
(3) Area from Equilibrium to Flood or RAzero      >     2.82 Ft-deg 184.06 P
(4) Righting Arm at MaxRA                         >     0.96   Ft     5.98 P
(6) Absolute Angle at Equilibrium                 <    12.00  deg     0.10 P
(7) Angle from Equilibrium to Dk/margin Immersion >     0.00  deg    43.96 P
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
               Max VCG Load - Light Tanks, Full Passengers
                   Damage Case 2: Void 2 Port Flooded

                     WEIGHT and DISPLACEMENT STATUS
                     Baseline draft: 3.875 @ Origin
                Trim: Fwd 0.16/88.00,  Heel: Port 0.80 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                               81.61   38.97f   0.09s  11.44
              Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->          --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                   1.025         85.74   40.65f   0.45p   2.61      -3.87
VOID2.P       Flooded  1.025         -4.12   73.55f   8.52p   2.74      -3.87
  Total Displacement--> 1.025         81.61   38.99f   0.04p   2.60
--------------------------------------------------------------------------------
              WEIGHT EXCESS:          0.00
Distances in FEET.-------------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                               FREEBOARD STATUS
                     Baseline draft: 3.875 @ Origin
                Trim: Fwd 0.16/88.00,  Heel: Port 0.80 deg.
               Least freeboard is 7.30 Ft located at 79.86f
     Least extra freeboard (to margin line) is 6.60 Ft located at 52.55f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Fwd 0.16/88.00, Heel: Port 0.80 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.949        81.61   38.99f   2.60     2.79   40.27f   14.46   187.1   22.70
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                            Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 3 ****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 2: Void 2 Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.97f TCG = 0.09s VCG = 11.44
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 38.97f TCG = 0.09s VCG = 11.50

Origin Depth	Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
3.874	0.11f	0.80p	81.614	0.00	0.000	0.00	7.95(3)
3.792	0.23f	5.80p	81.600	0.00	1.963	4.91	7.34(4)
3.705	0.26f	10.80p	81.613	0.00	3.872	19.52	6.19(4)
3.380	0.39f	15.80p	81.586	0.00	5.290	42.63	5.18(4)
2.825	0.64f	19.79p	81.613	0.00	5.796	64.92	4.60(4)
2.627	0.71f	20.80p	81.602	0.00	5.759	70.76	4.51(4)
1.713	0.72f	25.80p	81.614	0.00	5.032	98.20	3.99(4)
0.806	0.67f	30.80p	81.613	0.00	4.238	121.41	3.42(4)
-0.108	0.61f	35.80p	81.613	0.00	3.438	140.60	2.84(4)
-0.909	0.56f	40.19p	81.614	0.00	2.745	154.14	Marg Imm.
-1.022	0.55f	40.80p	81.614	0.00	2.648	155.81	2.23(4)
-1.929	0.47f	45.80p	81.611	0.00	1.888	167.14	1.61(4)
-2.825	0.38f	50.80p	81.615	0.00	1.168	174.77	0.98(4)
-3.707	0.31f	55.80p	81.615	0.00	0.420	178.75	0.34(4)
-4.171	0.27f	58.50p	81.614	0.00	0.000	179.32	0.00(4)
-4.559	0.25f	60.80p	81.614	0.00	-0.364	178.90	-0.29(4)

Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3) ER Access	TIGHT	26.13f	9.38	12.00
(4) Jet Room Vent	FLOOD	9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1) Angle from Equilibrium to RAzero	>	10.00	deg	57.70	P
(2) Angle from Equilibrium to Flood	>	10.00	deg	57.70	P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	179.32	P
(4) Righting Arm at MaxRA	>	0.96	Ft	5.80	P
(6) Absolute Angle at Equilibrium	<	12.00	deg	0.80	P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	39.38	P

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GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                          ***** Condition 3 *****
                  Max VCG Load - Light Tanks, Full Passengers
                     Damage Case 3: Tank Room Port Flooded

                        WEIGHT and DISPLACEMENT STATUS
                        Baseline draft: 4.502 @ Origin
                   Trim: Fwd 0.76/88.00,  Heel: Port 8.61 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                 81.61   38.97f   0.09s  11.44
                 Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                   Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                     1.025       119.61   42.32f   3.56p   3.40      -4.45
FO.P           Flooded   1.025        -3.72   54.01f   8.55p   4.38      -4.45
FW.P           Flooded   1.025        -0.76   42.00f   8.50p   4.00      -4.45
TANKRM.P       Flooded   1.025       -33.52   49.01f   8.71p   3.70      -4.45
  Total Displacement--> 1.025        81.61   39.04f   1.17p   3.22
--------------------------------------------------------------------------------
                 WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                       +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                       +

                                FREEBOARD STATUS
                           Baseline draft: 4.502 @ Origin
                     Trim: Fwd 0.76/88.00,  Heel: Port 8.61 deg.
                    Least freeboard is 4.33 Ft located at 76.83f
     Least extra freeboard (to margin line) is 3.74 Ft located at 64.69f

                       HYDROSTATIC PROPERTIES with FLOODING
              Trim: Fwd 0.76/88.00, Heel: Port 8.61 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.850        81.61   39.04f   3.22     2.34   40.08f   15.58   201.6   17.10
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                               Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 3 ****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 3: Tank Room Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.97f TCG = 0.09s VCG = 11.44
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 38.97f TCG = 0.09s VCG = 11.50

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.451	0.49f	8.61p	81.607	0.00	0.000	0.00	5.79(3)
4.461	0.59f	13.61p	81.603	0.00	1.534	3.83	4.65(4)
4.377	0.66f	18.61p	81.608	0.00	3.039	15.28	3.38(4)
4.155	0.76f	22.30p	81.614	0.00	3.977	28.27	Marg Imm.
4.043	0.80f	23.61p	81.611	0.00	4.271	33.67	2.28(4)
3.401	1.03f	28.61p	81.610	0.00	5.014	57.05	1.43(4)
3.303	1.06f	29.14p	81.612	0.00	5.024	59.75	1.36(4)
2.378	1.11f	33.61p	81.616	0.00	4.427	81.24	0.94(4)
1.365	1.09f	38.61p	81.614	0.00	3.636	101.64	0.43(4)
0.588	1.06f	42.56p	81.614	0.00	2.986	114.72	-0.00(4)
0.384	1.05f	43.61p	81.614	0.00	2.811	117.76	-0.12(4)
-0.558	0.97f	48.61p	81.618	0.00	1.962	129.71	-0.71(4)
-1.456	0.87f	53.61p	81.620	0.00	1.100	137.37	-1.33(4)
-2.301	0.75f	58.61p	81.624	0.00	0.233	140.71	-1.98(4)
-2.520	0.71f	59.96p	81.622	0.00	-0.001	140.86	-2.16(4)
-2.673	0.68f	60.92p	81.616	0.00	-0.167	140.78	-0.00(3)
-3.085	0.60f	63.61p	81.619	0.00	-0.627	139.72	-2.65(4)
-3.795	0.43f	68.61p	81.623	0.00	-1.468	134.48	-3.35(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points	LCP	TCP	VCP
(3) ER Access	TIGHT 26.13f	9.38	12.00
(4) Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION	Min/Max		Attained	
(1) Angle from Equilibrium to RAzero	>	10.00	deg	51.36 P
(2) Angle from Equilibrium to Flood	>	10.00	deg	33.95 P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	114.72 P
(4) Righting Arm at MaxRA	>	0.96	Ft	5.02 P
(6) Absolute Angle at Equilibrium	<	12.00	deg	8.61 P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	13.69 P

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GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
                Max VCG Load - Light Tanks, Full Passengers
                  Damage Case 4: Engine Room Port Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 5.090 @ Origin
                 Trim: Aft 1.86/88.00,  Heel: Port 3.14 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                81.61   38.97f   0.09s  11.44
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         95.00   36.56f   1.55p   2.83      -5.08
ER.P           Flooded  1.025        -13.39   23.01f   8.59p   3.21      -5.08
  Total Displacement--> 1.025         81.61   38.78f   0.39p   2.77
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                                FREEBOARD STATUS
                      Baseline draft: 5.090 @ Origin
                 Trim: Aft 1.86/88.00,  Heel: Port 3.14 deg.
                 Least freeboard is 5.77 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.52 Ft located at 7.03f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 1.86/88.00, Heel: Port 3.14 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.175        81.61   38.78f   2.77     2.58   43.18f   14.06   182.0   20.33
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 3 ****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 4: Engine Room Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.97f TCG = 0.09s VCG = 11.44
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 38.97f TCG = 0.09s VCG = 11.50

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
5.080	1.21a	3.14p	81.580	0.00	0.000	0.00	6.90(4)
5.340	1.56a	8.14p	81.577	0.00	1.683	4.21	5.50(4)
5.617	2.07a	13.14p	81.613	0.00	3.201	16.49	4.03(4)
5.893	2.80a	18.14p	81.602	0.00	4.335	35.49	2.52(4)
5.989	3.30a	21.21p	81.614	0.00	4.712	49.41	Marg Imm.
5.981	3.58a	23.14p	81.611	0.00	4.816	58.63	1.15(4)
5.959	3.70a	23.99p	81.614	0.00	4.826	62.71	0.95(4)
5.705	4.17a	28.14p	81.641	0.00	4.622	82.49	0.06(4)
5.676	4.20a	28.47p	81.640	0.00	4.594	83.98	-0.00(4)
5.065	4.46a	33.14p	81.613	0.00	4.049	104.31	-0.75(4)
4.092	4.43a	38.14p	81.613	0.00	3.275	122.70	-1.29(4)
3.053	4.34a	43.14p	81.608	0.00	2.459	137.06	-1.80(4)
2.036	4.27a	48.14p	81.609	0.00	1.638	147.30	-2.33(4)
1.056	4.21a	53.14p	81.612	0.00	0.816	153.44	-2.89(4)
0.123	4.18a	58.14p	81.613	0.00	0.001	155.48	-3.48(4)
-0.200	4.17a	59.95p	81.619	0.00	-0.292	155.21	-0.00(3)
-0.761	4.15a	63.14p	81.622	0.00	-0.806	153.46	-4.08(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT	26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD	9.00f	12.50	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	55.00	P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	25.32	P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	83.98	P
(4)	Righting Arm at MaxRA	>	0.96	Ft	4.83	P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	3.14	P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	18.07	P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
                Max VCG Load - Light Tanks, Full Passengers
                   Damage Case 5: Jet Room Port Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 4.950 @ Origin
                 Trim: Aft 1.90/88.00,  Heel: Port 1.79 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                 81.61   38.97f   0.09s  11.44
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         89.46   36.16f   0.92p   2.72      -4.95
JETRM.P        Flooded  1.025         -7.84    8.95f   8.55p   3.27      -4.95
  Total Displacement--> 1.025         81.61   38.78f   0.19p   2.67
--------------------------------------------------------------------------------
         DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                                FREEBOARD STATUS
                      Baseline draft: 4.950 @ Origin
                 Trim: Aft 1.90/88.00,  Heel: Port 1.79 deg.
                 Least freeboard is 6.23 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.98 Ft located at 7.03f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Aft 1.90/88.00, Heel: Port 1.79 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.021        81.61   38.78f   2.67     2.67   43.05f   12.72   164.6   21.34
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35 Elliott Bay Design Group
GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 3 ****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 5: Jet Room Port Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.97f TCG = 0.09s VCG = 11.44
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 38.97f TCG = 0.09s VCG = 11.50

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.945	1.24a	1.79p	81.578	0.00	0.000	0.00	7.32(3)
5.211	1.61a	6.79p	81.612	0.00	1.761	4.40	5.97(4)
5.520	2.19a	11.79p	81.614	0.00	3.317	17.18	4.50(4)
5.877	3.05a	16.79p	81.606	0.00	4.413	36.70	2.95(4)
6.082	3.89a	21.02p	81.614	0.00	4.818	56.40	Marg Imm.
6.093	4.03a	21.79p	81.613	0.00	4.841	60.11	1.49(4)
6.092	4.18a	22.68p	81.614	0.00	4.849	64.44	1.26(4)
5.897	4.73a	26.79p	81.622	0.00	4.692	84.17	0.35(4)
5.702	4.90a	28.74p	81.624	0.00	4.529	93.17	-0.00(4)
5.273	5.04a	31.79p	81.614	0.00	4.181	106.48	-0.46(4)
4.287	4.98a	36.79p	81.613	0.00	3.431	125.62	-0.99(4)
3.200	4.81a	41.79p	81.591	0.00	2.615	140.77	-1.46(4)
2.141	4.67a	46.79p	81.594	0.00	1.793	151.79	-1.96(4)
1.125	4.56a	51.79p	81.599	0.00	0.974	158.71	-2.49(4)
0.170	4.49a	56.79p	81.608	0.00	0.164	161.55	-3.06(4)
-0.015	4.48a	57.81p	81.614	0.00	0.000	161.63	-3.19(4)
-0.714	4.46a	61.79p	81.613	0.00	-0.632	160.37	-3.68(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(3)	ER Access	TIGHT	26.13f	9.38	12.00
(4)	Jet Room Vent	FLOOD	9.00f	12.50	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	56.02	P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	26.95	P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	93.17	P
(4)	Righting Arm at MaxRA	>	0.96	Ft	4.85	P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	1.79	P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	19.23	P

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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
               Max VCG Load - Light Tanks, Full Passengers
                    Damage Case 6: Void 1 P/S Flooded

                      WEIGHT and DISPLACEMENT STATUS
                      Baseline draft: 3.878 @ Origin
                 Trim: Fwd 0.07/88.00,  Heel: Stbd 0.21 deg.
Part-------------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                                 81.61   38.97f   0.09s  11.44
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->           --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         84.30   40.40f   0.12s   2.59      -3.88
VOID1.S        Flooded  1.025         -1.37   83.69f   8.50s   2.76      -3.88
VOID1.P        Flooded  1.025         -1.32   83.68f   8.50p   2.72      -3.88
  Total Displacement--> 1.025         81.61   38.98f   0.12s   2.58
--------------------------------------------------------------------------------
         DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                      +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                      +

                              FREEBOARD STATUS
                      Baseline draft: 3.878 @ Origin
                 Trim: Fwd 0.07/88.00,  Heel: Stbd 0.21 deg.
                Least freeboard is 7.51 Ft located at 82.90f
     Least extra freeboard (to margin line) is 6.79 Ft located at 49.52f

                    HYDROSTATIC PROPERTIES with FLOODING
            Trim: Fwd 0.07/88.00, Heel: Stbd 0.21 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  3.910        81.61   38.98f   2.58     2.81   40.15f   13.68   177.0   23.12
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                              Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
```

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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 3 ****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 6: Void 1 P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.97f TCG = 0.09s VCG = 11.44
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 38.97f TCG = 0.09s VCG = 11.50

Origin Depth	Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
3.877	0.05f	0.21s	81.593	0.00	0.000	0.00	8.07(3)
3.879	0.00a	5.21s	81.612	0.00	2.005	5.01	7.43(4)
3.884	0.16a	10.21s	81.614	0.00	3.917	19.85	6.23(4)
3.749	0.34a	15.21s	81.615	0.00	5.377	43.28	5.09(4)
3.420	0.43a	18.96s	81.614	0.00	5.818	64.44	4.41(4)
3.240	0.46a	20.21s	81.614	0.00	5.701	71.64	4.24(4)
2.337	0.46a	25.21s	81.643	0.00	4.936	98.70	3.72(4)
1.407	0.45a	30.21s	81.614	0.00	4.147	121.41	3.18(4)
0.470	0.46a	35.21s	81.616	0.00	3.350	140.16	2.61(4)
-0.469	0.47a	40.21s	81.614	0.00	2.561	154.93	2.02(4)
-1.187	0.49a	44.06s	81.614	0.00	1.971	163.65	Marg Imm.
-1.401	0.49a	45.21s	81.614	0.00	1.799	165.82	1.41(4)
-2.317	0.55a	50.21s	81.612	0.00	1.081	173.00	0.80(4)
-3.191	0.64a	55.21s	81.617	0.00	0.372	176.63	0.16(4)
-3.401	0.66a	56.44s	81.614	0.00	0.193	176.98	-0.00(4)
-3.624	0.68a	57.74s	81.586	0.00	0.000	177.11	-0.17(4)
-4.038	0.72a	60.21s	81.615	0.00	-0.371	176.65	-0.49(4)
-4.858	0.78a	65.21s	81.615	0.00	-1.136	172.89	-1.13(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points	LCP	TCP	VCP
(3) ER Access	TIGHT 26.13f	9.38	12.00
(4) Jet Room Vent	FLOOD 9.00f	12.50	12.50

LIM 46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1) Angle from Equilibrium to RAzero	>	10.00	deg	57.53	P
(2) Angle from Equilibrium to Flood	>	10.00	deg	56.23	P
(3) Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	176.98	P
(4) Righting Arm at MaxRA	>	0.96	Ft	5.82	P
(6) Absolute Angle at Equilibrium	<	12.00	deg	0.21	P
(7) Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	43.85	P

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GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
               Max VCG Load - Light Tanks, Full Passengers
                    Damage Case 7: Void 2 P/S Flooded

                     WEIGHT and DISPLACEMENT STATUS
                     Baseline draft: 3.620 @ Origin
                 Trim: Fwd 1.01/88.00,  Heel: Stbd 0.23 deg.
Part-----------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                              81.61   38.97f   0.09s  11.44
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->          --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025         91.22   42.70f   0.12s   2.71      -3.62
VOID2.S        Flooded  1.025         -4.87   73.59f   8.51s   2.98      -3.62
VOID2.P        Flooded  1.025         -4.73   73.59f   8.49p   2.94      -3.62
  Total Displacement--> 1.025         81.62   39.07f   0.12s   2.68
--------------------------------------------------------------------------------
        DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                              FREEBOARD STATUS
                     Baseline draft: 3.620 @ Origin
                 Trim: Fwd 1.01/88.00,  Heel: Stbd 0.23 deg.
                Least freeboard is 6.80 Ft located at 91.37f
     Least extra freeboard (to margin line) is 6.40 Ft located at 70.76f

                    HYDROSTATIC PROPERTIES with FLOODING
           Trim: Fwd 1.01/88.00, Heel: Stbd 0.23 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.064        81.62   39.07f   2.68     2.66   38.73f   12.90   166.9   21.45
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                             Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 3 ****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 7: Void 2 P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.97f TCG = 0.09s VCG = 11.44
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 38.97f TCG = 0.09s VCG = 11.50

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
3.619	0.66f	0.23s	81.612	0.00	0.000	0.00	8.04(5)
3.611	0.63f	5.23s	81.614	0.00	1.873	4.68	7.60(4)
3.586	0.54f	10.23s	81.610	0.00	3.703	18.64	6.41(4)
3.361	0.53f	15.23s	81.614	0.00	5.107	40.84	5.33(4)
2.777	0.69f	19.95s	81.613	0.00	5.666	66.56	4.60(4)
2.726	0.70f	20.23s	81.613	0.00	5.659	68.15	4.57(4)
1.817	0.72f	25.23s	81.614	0.00	4.969	95.23	4.05(4)
0.912	0.67f	30.23s	81.613	0.00	4.184	118.16	3.49(4)
-0.002	0.62f	35.23s	81.613	0.00	3.391	137.10	2.90(4)
-0.916	0.56f	40.23s	81.613	0.00	2.608	152.09	Marg Imm.
-1.825	0.48f	45.23s	81.611	0.00	1.854	163.24	1.68(4)
-2.721	0.39f	50.23s	81.616	0.00	1.142	170.71	1.05(4)
-3.606	0.32f	55.23s	81.615	0.00	0.411	174.60	0.42(4)
-4.072	0.28f	57.93s	81.614	0.00	0.000	175.16	0.07(4)
-4.171	0.27f	58.50s	81.614	0.00	-0.089	175.13	0.00(4)
-4.462	0.25f	60.23s	81.614	0.00	-0.357	174.75	-0.22(4)
-5.284	0.20f	65.23s	81.615	0.00	-1.145	171.01	-0.86(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50
(5)	Void 2 Vent	FLOOD 73.00f	2.00	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION		Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	57.70	P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	58.28	P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	175.16	P
(4)	Righting Arm at MaxRA	>	0.96	Ft	5.67	P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	0.23	P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	40.00	P

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GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
                Max VCG Load - Light Tanks, Full Passengers
                   Damage Case 8: Tank Room  P/S Flooded

                     WEIGHT and DISPLACEMENT STATUS
                     Baseline draft: 4.859 @ Origin
                 Trim: Fwd 1.98/88.00,  Heel: Stbd 0.41 deg.
Part-----------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                              81.61   38.97f   0.09s  11.44
               Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->          --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                    1.025       153.60   44.08f   0.13s   3.65      -4.86
FO.P           Flooded  1.025        -3.51   54.03f   8.50p   4.28      -4.86
FO.S           Flooded  1.025        -3.62   54.03f   8.50s   4.33      -4.86
FW.P           Flooded  1.025        -0.76   42.00f   8.50p   4.00      -4.86
SEWAGE.S       Flooded  1.025        -0.76   42.00f   8.50s   4.00      -4.86
TANKRM.P       Flooded  1.025       -31.25   49.36f   8.49p   3.52      -4.86
TANKRM.S       Flooded  1.025       -32.13   49.36f   8.51s   3.59      -4.86
  Total Displacement--> 1.025        81.59   39.14f   0.14s   3.66
--------------------------------------------------------------------------------
               WEIGHT EXCESS:          0.03
Distances in FEET.-------------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                              FREEBOARD STATUS
                         Baseline draft: 4.859 @ Origin
                    Trim: Fwd 1.98/88.00,  Heel: Stbd 0.41 deg.
                   Least freeboard is 4.52 Ft located at 91.37f
     Least extra freeboard (to margin line) is 4.25 Ft located at 85.93f

                      HYDROSTATIC PROPERTIES with FLOODING
              Trim: Fwd 1.98/88.00, Heel: Stbd 0.41 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  5.701        81.59   39.14f   3.66     1.73   37.43f   14.59   188.9   11.86
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                               Trim is per 88.00Ft
 Draft is from Baseline.                        Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

**** Condition 3 ****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 8: Tank Room P/S Flooded
46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
Total CG: LCG = 38.97f TCG = 0.09s VCG = 11.44
Free Surface Adjustment: 0.06
Adjusted CG: LCG = 38.97f TCG = 0.09s VCG = 11.50

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LT)	Residual Arms in Trim	in Heel	Area	Flood Pt Height
4.857	1.29f	0.41s	81.594	0.00	0.000	0.00	5.98(5)
4.842	1.26f	5.41s	81.614	0.00	1.042	2.61	5.81(5)
4.783	1.20f	10.41s	81.613	0.00	2.144	10.54	5.06(4)
4.690	1.10f	15.41s	81.608	0.00	3.311	24.16	3.87(4)
4.500	0.99f	20.07s	81.614	0.00	4.308	41.95	Marg Imm.
4.476	0.98f	20.41s	81.614	0.00	4.366	43.42	2.73(4)
3.949	0.98f	25.41s	81.598	0.00	4.945	66.89	1.82(4)
3.711	1.01f	26.97s	81.614	0.00	4.990	74.65	1.60(4)
3.041	1.11f	30.41s	81.614	0.00	4.761	91.52	1.24(4)
2.010	1.11f	35.41s	81.611	0.00	4.007	113.71	0.76(4)
1.008	1.08f	40.41s	81.615	0.00	3.212	131.77	0.24(4)
0.589	1.06f	42.55s	81.614	0.00	2.862	138.28	-0.00(4)
0.041	1.02f	45.41s	81.615	0.00	2.388	145.78	-0.33(4)
-0.887	0.94f	50.41s	81.618	0.00	1.544	155.62	-0.93(4)
-1.766	0.83f	55.41s	81.622	0.00	0.691	161.21	-1.56(4)
-2.440	0.73f	59.46s	81.614	0.00	0.000	162.61	-2.09(4)
-2.592	0.70f	60.41s	81.614	0.00	-0.162	162.53	-2.21(4)

Distances in FEET.------Specific Gravity = 1.025.----------Area in Ft-Deg.

Note: No tank loads are present.

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from these moments (in Ft-LT):
Stbd heeling moment = 0.00

Critical Points		LCP	TCP	VCP
(4)	Jet Room Vent	FLOOD 9.00f	12.50	12.50
(5)	Void 2 Vent	FLOOD 73.00f	2.00	12.50

LIM	46 CFR 171.080(F) DAMAGE CRITERION	Min/Max		Attained	
(1)	Angle from Equilibrium to RAzero	>	10.00	deg	59.05 P
(2)	Angle from Equilibrium to Flood	>	10.00	deg	42.14 P
(3)	Area from Equilibrium to Flood or RAzero	>	2.82	Ft-deg	138.28 P
(4)	Righting Arm at MaxRA	>	0.96	Ft	4.99 P
(6)	Absolute Angle at Equilibrium	<	12.00	deg	0.41 P
(7)	Angle from Equilibrium to Dk/margin Immersion	>	0.00	deg	19.66 P

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GHS 15.50 NORTH CAROLINA DOT PEDESTRIAN FERRY

***** Condition 3 *****
Max VCG Load - Light Tanks, Full Passengers
Damage Case 9: Engine Room P/S Flooded

WEIGHT and DISPLACEMENT STATUS
Baseline draft: 6.240 @ Origin
Trim: Aft 3.36/88.00, Heel: Stbd 0.28 deg.

Part			Weight(LT)	LCG	TCG	VCG	FSM
WEIGHT			81.61	38.97f	0.09s	11.44	
	Load	SpGr	Weight(LT)	LCG	TCG	VCG	
Total Tanks--------->			--- Included in Fixed Weight ---				5.0*
Total Weight-------->			81.61	38.97f	0.09s	11.44	
			Displ(LT)	LCB	TCB	VCB	RefHt
HULL		1.025	110.52	34.52f	0.12s	3.10	-6.24
ER.S	Flooded	1.025	-14.61	22.89f	8.51s	3.38	-6.24
ER.P	Flooded	1.025	-14.31	22.89f	8.49p	3.34	-6.24
Total Displacement-->		1.025	81.60	38.65f	0.13s	3.01	

WEIGHT EXCESS: 0.02
Distances in FEET.----------Moments in Ft-LT.
+
Note: FSM values marked with an asterisk (*) are formal values which are not the same as the true values in the present condition.
+

FREEBOARD STATUS
Baseline draft: 6.240 @ Origin
Trim: Aft 3.36/88.00, Heel: Stbd 0.28 deg.
Least freeboard is 5.35 Ft located at 4.00f
Least extra freeboard (to margin line) is 5.10 Ft located at 4.00f

HYDROSTATIC PROPERTIES with FLOODING
Trim: Aft 3.36/88.00, Heel: Stbd 0.28 deg., VCG = 11.44

LCF	Displacement	Buoyancy-Ctr.		Weight/	Moment/			
Draft	Weight(LT)	LCB	VCB	Inch	LCF	In trim	GML	GMT
4.500	81.60	38.65f	3.01	2.28	45.59f	12.28	158.9	17.37

Distances in FEET.-------Specific Gravity = 1.025.----------Moment in Ft-LT.
Trim is per 88.00Ft
Draft is from Baseline. Formal Free Surface included.

Note: GMT includes the formal free surface moment 5.0 Ft-LT

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GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                          **** Condition 3 ****
                  Max VCG Load - Light Tanks, Full Passengers
                    Damage Case 9: Engine Room P/S Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

             RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
         Total CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.44
                          Free Surface Adjustment:    0.06
      Adjusted CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.50

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    6.237   2.19a   0.28s      81.616      0.00    0.000      0.00    6.54(4)
    6.242   2.25a   5.28s      81.608      0.00    1.502      3.76    5.40(4)
    6.260   2.45a  10.28s      81.645      0.00    2.906     14.82    4.18(4)
    6.284   2.82a  15.28s      81.613      0.00    4.077     32.37    2.91(4)
    6.282   3.40a  20.19s      81.614      0.00    4.747     54.24 Marg Imm.
    6.281   3.41a  20.28s      81.614      0.00    4.754     54.66    1.63(4)
    6.203   3.73a  22.86s      81.602      0.00    4.857     67.07    1.03(4)
    6.043   3.98a  25.28s      81.621      0.00    4.765     78.73    0.53(4)
    5.749   4.23a  28.24s      81.614      0.00    4.506     92.46   -0.00(4)
    5.495   4.35a  30.28s      81.614      0.00    4.278    101.41   -0.33(4)
    4.672   4.47a  35.28s      81.605      0.00    3.595    121.17   -1.00(4)
    3.641   4.38a  40.28s      81.608      0.00    2.798    137.20   -1.50(4)
    2.610   4.30a  45.28s      81.608      0.00    1.989    149.17   -2.02(4)
    1.606   4.23a  50.28s      81.610      0.00    1.178    157.09   -2.56(4)
    0.646   4.19a  55.28s      81.624      0.00    0.371    160.96   -3.13(4)
    0.218   4.17a  57.60s      81.618      0.00   -0.001    161.39   -3.41(4)
   -0.212   4.16a  59.98s      81.618      0.00   -0.381    160.94    0.00(3)
   -0.266   4.16a  60.28s      81.621      0.00   -0.429    160.81   -3.73(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                         Stbd heeling moment = 0.00
                                    +
            Critical Points----------------------LCP-----TCP-----VCP
         (3) ER Access                  TIGHT   26.13f   9.38   12.00
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    57.32 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    27.96 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg  92.46 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     4.86 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     0.28 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    19.91 P
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03/03/17 13:57:35        Elliott Bay Design Group
GHS 15.50           NORTH CAROLINA DOT PEDESTRIAN FERRY

                        ***** Condition 3 *****
               Max VCG Load - Light Tanks, Full Passengers
                  Damage Case 10: JET Room P/S Flooded

                     WEIGHT and DISPLACEMENT STATUS
                     Baseline draft: 6.238 @ Origin
                Trim: Aft 3.96/88.00,  Heel: Stbd 0.26 deg.
Part-----------------------------Weight(LT)----LCG-----TCG-----VCG-------FSM
WEIGHT                              81.61   38.97f   0.09s  11.44
              Load-----SpGr-----Weight(LT)----LCG-----TCG-----VCG
  Total Tanks--------->          --- Included in Fixed Weight ---        5.0*
  Total Weight-------->              81.61   38.97f   0.09s  11.44
                                  Displ(LT)----LCB-----TCB-----VCB------RefHt
HULL                   1.025        101.02   32.88f   0.12s   3.01      -6.23
JETRM.S       Flooded  1.025         -9.79    8.91f   8.51s   3.70      -6.23
JETRM.P       Flooded  1.025         -9.61    8.91f   8.49p   3.67      -6.23
  Total Displacement--> 1.025         81.62   38.58f   0.12s   2.85
-------------------------------------------------------------------------------
        DISPLACEMENT EXCESS:          0.00
Distances in FEET.-----------------------------------------Moments in Ft-LT.
                                    +
    Note:  FSM values marked with an asterisk (*) are formal values which are
           not the same as the true values in the present condition.
                                    +

                            FREEBOARD STATUS
                     Baseline draft: 6.238 @ Origin
                Trim: Aft 3.96/88.00,  Heel: Stbd 0.26 deg.
                Least freeboard is 5.38 Ft located at 4.00f
     Least extra freeboard (to margin line) is 5.13 Ft located at 4.00f

                  HYDROSTATIC PROPERTIES with FLOODING
          Trim: Aft 3.96/88.00, Heel: Stbd 0.26 deg., VCG = 11.44

   LCF   Displacement   Buoyancy-Ctr.  Weight/          Moment/
  Draft----Weight(LT)----LCB-----VCB-----Inch-----LCF---In trim----GML-----GMT
  4.228        81.62   38.58f   2.85     2.42   44.64f    9.26   119.8   18.74
 Distances in FEET.-------Specific Gravity = 1.025.-----------Moment in Ft-LT.
                            Trim is per 88.00Ft
 Draft is from Baseline.                       Formal Free Surface included.

      Note:  GMT includes the formal free surface moment 5.0 Ft-LT
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03/03/17 13:57:35          Elliott Bay Design Group
GHS 15.50             NORTH CAROLINA DOT PEDESTRIAN FERRY

                          **** Condition 3 ****
                 Max VCG Load - Light Tanks, Full Passengers
                    Damage Case 10: JET Room P/S Flooded
  46 CFR 171.080(f) Damage Stability Criterion - Partially Protected Waters

            RESIDUAL RIGHTING ARMS vs HEEL ANGLE with FLOODING
        Total CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.44
                          Free Surface Adjustment:    0.06
     Adjusted CG:  LCG =  38.97f  TCG =  0.09s  VCG =  11.50

  Origin    Degrees of   Displacement    Residual Arms            Flood Pt
   Depth---Trim----Heel----Weight(LT)---in Trim--in Heel---> Area--Height
    6.230   2.58a   0.26s      81.580      0.00    0.000      0.00    6.61(4)
    6.265   2.69a   5.26s      81.595      0.00    1.616      4.04    5.45(4)
    6.369   3.01a  10.26s      81.613      0.00    3.098     15.88    4.16(4)
    6.553   3.63a  15.26s      81.614      0.00    4.253     34.39    2.77(4)
    6.671   4.23a  19.00s      81.614      0.00    4.774     51.36 Marg Imm.
    6.678   4.42a  20.26s      81.611      0.00    4.873     57.45    1.39(4)
    6.624   4.73a  22.54s      81.626      0.00    4.941     68.65    0.85(4)
    6.417   5.00a  25.26s      81.615      0.00    4.846     81.94    0.31(4)
    6.174   5.11a  27.24s      81.626      0.00    4.677     91.38   -0.00(4)
    5.666   5.15a  30.26s      81.614      0.00    4.307    104.99   -0.38(4)
    4.613   5.02a  35.26s      81.602      0.00    3.539    124.72   -0.85(4)
    3.523   4.85a  40.26s      81.591      0.00    2.735    140.42   -1.31(4)
    2.453   4.70a  45.26s      81.593      0.00    1.924    152.07   -1.79(4)
    1.422   4.58a  50.26s      81.599      0.00    1.115    159.67   -2.32(4)
    0.447   4.50a  55.26s      81.605      0.00    0.313    163.24   -2.88(4)
    0.083   4.48a  57.24s      81.621      0.00    0.000    163.55   -3.11(4)
   -0.459   4.46a  60.26s      81.613      0.00   -0.475    162.83   -3.48(4)
  Distances in FEET.------Specific Gravity = 1.025.-----------Area in Ft-Deg.
                                    +
  Note:  No tank loads are present.
                                    +
  Note:  The Residual Righting Arms shown above are in excess of the
         overturning arms derived from these moments (in Ft-LT):
                         Stbd heeling moment = 0.00
                                    +
            Critical Point----------------------LCP-----TCP-----VCP
         (4) Jet Room Vent              FLOOD    9.00f  12.50   12.50
LIM------------46 CFR 171.080(F) DAMAGE CRITERION-----Min/Max--------Attained
(1) Angle from Equilibrium to RAzero               >    10.00  deg    56.98 P
(2) Angle from Equilibrium to Flood                >    10.00  deg    26.98 P
(3) Area from Equilibrium to Flood or RAzero       >     2.82 Ft-deg  91.38 P
(4) Righting Arm at MaxRA                          >     0.96   Ft     4.94 P
(6) Absolute Angle at Equilibrium                  <    12.00  deg     0.26 P
(7) Angle from Equilibrium to Dk/margin Immersion  >     0.00  deg    18.74 P
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